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Multifocal osteomyelitis with invasive aspergillosis in a primary antiphospholipid syndrome – a rare case report

Authors: Shahanas PS,[A] Ramzeen Nilam Hameed,[A] Joe Thomas[A] and Nayanthara Shenoy[A]

[A]Aster Medcity, Kochi, India

Introduction

Osteomyelitis of the pubic bone is a rare clinical condition and accounts for 2% of all haematogenous osteomyelitis in bone.[1] Multifocal osteomyelitis has not yet been reported in patients with antiphospholipid antibody (APLA) syndrome to the best of our knowledge. Risk factors include immunosuppression, intravenous drug use and pelvic surgeries. We present the case of a young woman diagnosed with APLA who has been currently diagnosed with multifocal osteomyelitis.

Case report

A 33-year-old woman presented with Budd Chiari syndrome; she had undergone hepatic vein stenting 2 years previously. On evaluation was diagnosed to have APLA syndrome. She also had a history of deep vein thrombosis (DVT), for which thrombectomy was carried out, and she was on dabigatran and aspirin. She had a history of intrauterine death 5 years previously but had delivered a healthy term male baby in January 2023. 1 month later, she developed acute infarct in left corona radiata and was managed conservatively.

On presentation, she reported right lower limb claudication pain of 10 days' duration. On examination, dorsal pedis and anterior tibial artery pulsations were not palpable on right side and right calf tenderness was elicited. Blood investigations revealed anaemia, thrombocytopenia, hypercalcemia and acute kidney injury. Arterial doppler of bilateral lower limbs showed narrowing of anterior tibial and dorsalis pedis arteries with a biphasic flow pattern with no significant stenosis/occlusion. Venous doppler was suggestive of superficial thrombosis in right posterior tibial vein. In view of the underlying APLA syndrome, an ischaemic plexopathy or immune mediated condition was considered. MRI lumbar spine with lumbosacral plexus with intravenous contrast showed collections in pubic symphysis and suspicious tracking to lumbar area (Fig 1). The possibility of an infective osteomyelitis was considered. The collection drained was purulent and the pus culture grew multidrug-resistant Acinetobacter.

She was treated with intravenous teicoplanin, meropenem and minocycline. Serum galactomannan (Aspergillus antigen) was positive. She was started on voriconazole. An echocardiogram showed no features of infective endocarditis. To rule out other foci of infection, a PET CT was done which showed erosive changes with intraosseous air pockets in manubrium sternii and pelvic bones, which was suggestive of osteomyelitis with multiple retroperitoneal and pelvic lymph node enlargement. The patient had episodes of disorientation and crying spells during her hospital stay. Considering voriconazole toxicity/metabolic encephalopathy secondary to hypercalcemia, serum levels of voriconazole and calcium were assessed, which were high. Voriconazole was replaced by oral isavuconazole and antihypercalcemic measures were followed. Calcium levels came down and renal function improved. After 6 weeks of antifungals and antibiotic therapy, a repeat PET was carried out which showed metabolic resolution of FDG avid lesions. She is on close follow up and is currently asymptomatic.

Discussion

The early symptoms of osteomyelitis of the symphysis mimic those of osteitis pubis. It is preceded by urological or gynaecological surgery and does not respond to short-term antibiotic treatment.[2] This case reports a rare pathology of multifocal osteomyelitis with bacterial and fungal involvement. The difficulties of diagnosis emphasise the importance of performing early MRI.

Recovery is based on early antibiotic/antifungal therapy associated with surgical draining.

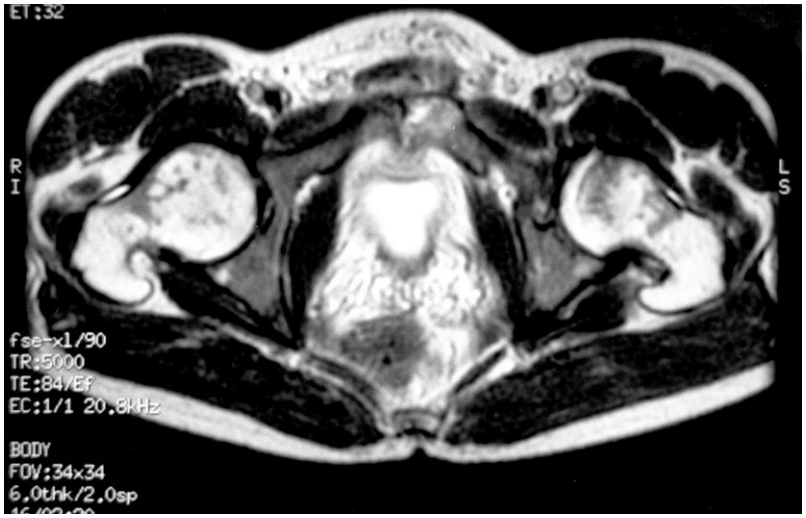

Fig 1. MRI lumbar spine with lumbosacral plexus with intravenous contrast.

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The new great mimicker: a multi-speciality condition

Authors: Beenish Zaki,[A] Salema Valmiki[A] and Anand Velusamy[A]

[A]Guy's and St Thomas' NHS Foundation Trust, London, UK

Case report

A 67-year-old man of Chinese descent was admitted to the hospital with painless jaundice, fever and a weight loss of 6 kg over 4 weeks. He denied using any new medications, herbal remedies or steroids. Apart from well-controlled hypertension, he had no significant medical history. There was no significant family history reported.

On examination, he was deeply jaundiced with no signs of chronic liver disease and no hyper/hypopigmentation. His blood pressure was 106/78 mmHg, and heart rate was 78/min. He had no goitre or visual field defects on confrontation.

Initial biochemistry showed an obstructive jaundice picture with a normal inflammatory. The results for hepatitis, HIV, syphilis and TB were all negative.

A staging CT-TAP revealed enlarged, hemorrhagic mediastinal and bilateral hilar lymph nodes, intrahepatic and CBD duct dilatation, pericardial and pleural thickening, as well as the presence of a 10 mm left supraclavicular lymph node. Widespread metastasis from an unknown primary was suspected. Thus, a PET CT scan was recommended. PET CT confirmed CT findings of multi-system involvement (Fig 1).

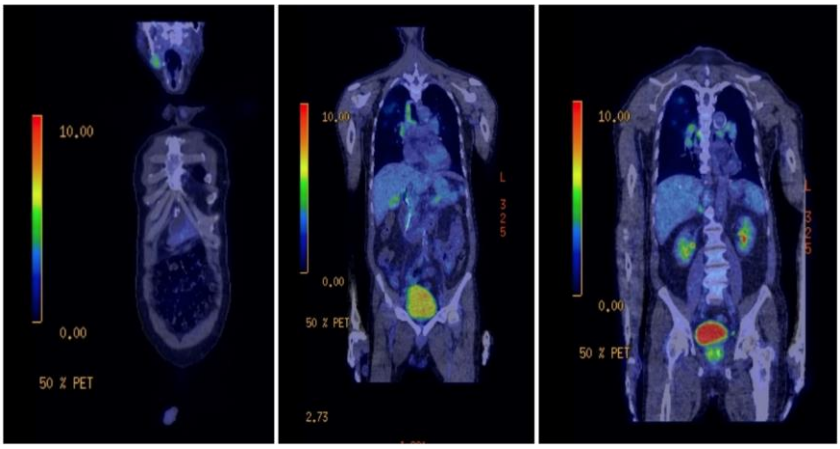

Fig 1. PET scan showing (a) enlarged right submandibular gland, (b) enlarged intrathoracic lymph node gallbladder and (c) right adrenal and prostate.

He went on to have an endobronchial ultrasound for the supraclavicular lymph node. The initial report showed non-necrotising granulomatous lymphadenitis.

Case progress

The adrenal incidentaloma led to adrenal function testing, which showed a 9 am cortisol of 30 nmol/L with raised potassium of 4.5mmol/L. He was immediately commenced on hydrocortisone replacement. A pituitary blood panel and an MRI were organised. His pituitary blood suggested panhypopituitarism (TSH 0.24 mIU/L, fT4 <5.5 pmol/L, fT3 1.9 pmol/L, LH <0.2 IU/L, FSH 0.3 IU/L, testosterone <0.5 nmol/L, prolactin 587 mIU/L, ACTH 18 ng/L, urine osm 378 mosm/mol, serum osm 305 mosm/mol). An MRI was suggestive of hypophysitis.

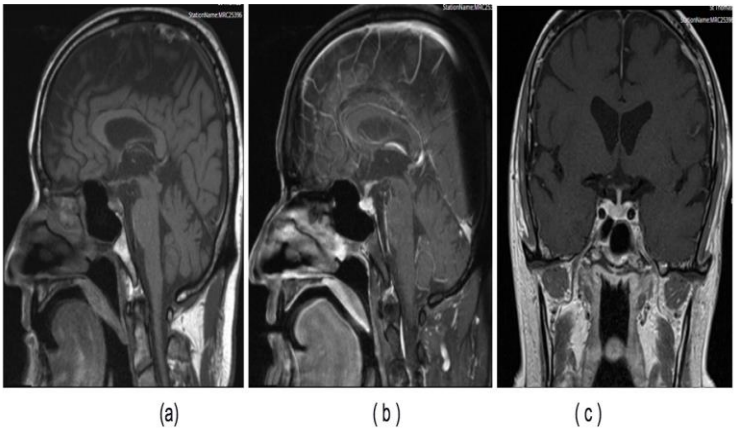

Fig 2. Pituitary MRI showing thickened infundibulum and a bulky pituitary. (a) Sagittal section - T1WI. (b) Sagittal section - T2WI. (c) Coronal section.

Meanwhile, his EBUS histopathology was reported as clumps of plasma cells, which showed more than 90% of IgG-positive plasma cells also positive for IgG4, with a maximum count of approximately 60 IgG4-positive plasma cells per high-power field. His immunoglobulin levels were checked and showed high IgG4 levels (16.15 g/l).

Management

He was commenced on high-dose steroids and levothyroxine.

Discussion

This case reflects the diagnostic challenges faced during the investigation of a not so well-known or understood multi-system condition like IgG4-related disease, which can mimic disseminated malignancy.

A diagnostic criterion has been proposed by Umehara *et al* for IgG4-related disease (IgG4-RD).[1]

A varying degree of anterior and posterior pituitary involvement is noted in IgG4-related hypophysitis. Early initiation of immunosuppression prior to setting in of fibrosis has been associated with the reversibility of hormonal insufficiencies. Focal adrenal lesions regarded as IgG4-related are uncommon. Systemic glucocorticoids are currently the first-line approach for IgG4-RD.

For relapsed IgG4-RD, adding immunomodulatory drugs such as azathioprine and B-cell depletion with rituximab is effective.

Summary

The first line of treatment is steroids. However, increasingly, steroid-sparing agents are being used, such as rituximab.

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Demystifying troponemia in a collapsed young fit patient

Authors: Zara Majeed,[A] Ali Hussain[B] and Mubashar Iqbal[C]

[A]Northern General Hospital, Sheffield, UK; [B]Leeds General Infirmary, Leeds, UK; [C]Rotherham General Hospital, Rotherham, UK

A 32-year-old man was admitted to the emergency department with an episode of vomiting followed by an unwitnessed collapse 2 minutes later. He contacted his brother upon regaining consciousness, who summoned an ambulance. The patient denied chest pain, palpitations, cough, or haemoptysis. He, however, intermittently experienced vague lower back discomfort over the preceding week. The patient's aunt had an unprovoked pulmonary embolism (PE). No other predisposing factors for thromboembolism were identified, and the patient had no significant past medical history. Upon arrival at the hospital, the patient's vital signs were as follows:

- Oxygen saturation: 97% on 2 litres oxygen
- Blood pressure: 110/66 mmHg
- Respiratory rate: 18 breaths per minute
- Heart rate: 98 beats per minute
- Body temperature: 36.3°C

Clinical examination revealed clear lung sounds on auscultation and a soft, non-tender abdomen devoid of masses or visceromegaly. There was no clinical evidence of DVT.

The chest X-ray revealed left costophrenic angle obliteration.

The electrocardiogram (Fig 1) exhibited P-pulmonale, right-axis deviation, partial right bundle branch block, S1Q3T3 (McGinn-White Sign) and S1S2S3.

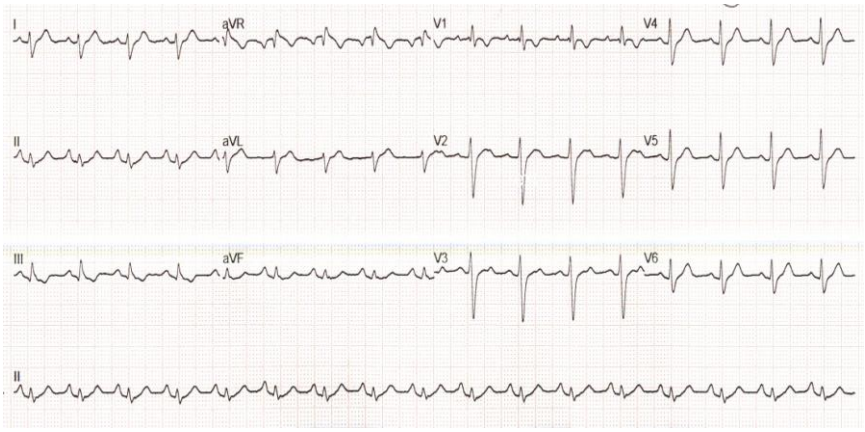

Fig 1. Electrocardiogram.

High sensitivity troponin was 2,038 ng/L and showed a further rise to 5,422 and 9,123 at 2 and 8 hours later, respectively.

A contrast-enhanced computed tomography pulmorary angiogram confirmed the presence of massive bilateral PE with right heart strain.

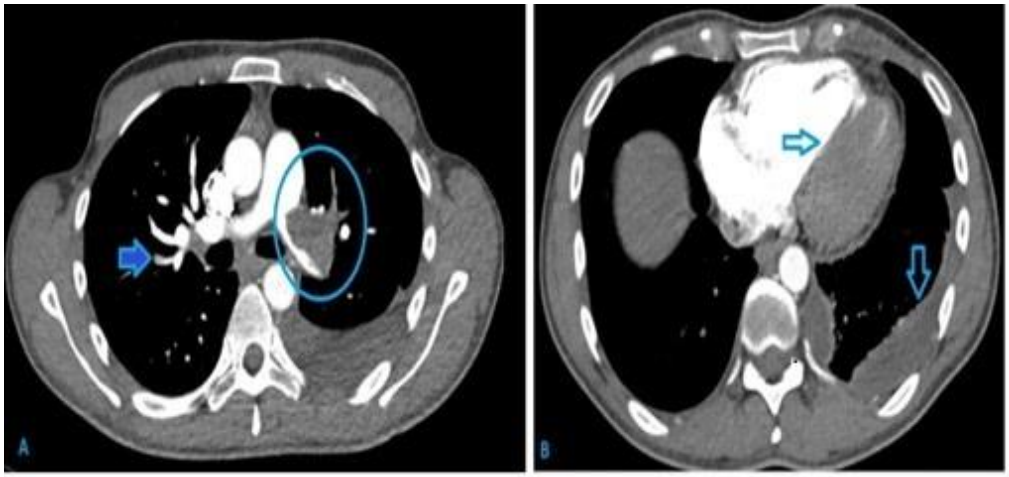

Fig 2. CTPA shows bilateral PE with right ventricular strain and pleural effusion.

CT abdomen and pelvis did not reveal any abnormality.

Parameters were as follows:

White blood cells: 15.8 x 10^9/L
Haemoglobin: 124 g/L
Neutrophils: 11.2 x 10^9/L
Urea: 3.7 mmol
Creatinine: 58 umol/L
C-reactive protein: 182 mg/L
Procalcitonin: 0.11 ng/ml
Total billirubin: 11 umol/L
ALT: 31 iu/L
ALT: 34 iu/L
ALP: 83 iu/L
Total protein g/L: 76
D-dimers ug/ml: 1.12
VBGs Ph: 7.42
VBGs PCO_2: 5.7 Kpa
VBGs HCO_3s: 26.4 mmol/L
VBGs lactate: 1.1 mmol/L
Covid swab PCR: negative

Given the patient's intermediate-high risk of acute PE, according to European Society of Cardiology guidelines, he was admitted to the coronary care unit and was treated with the therapeutic dose of tinzaparin for 48 hours. The patient's condition remained stable, and subsequently, tinzaparin was switched to apixaban.

Discussion

The significant rise in troponin levels prompted diagnosis of acute coronary syndrome. However, the simultaneous presence of ECG changes consistent with PE and an atypical clinical presentation prompted a CTPA to be carried out, ultimately leading to the diagnosis.

This case underscores the necessity to consider acute PE as a differential for a serial rise in troponins, especially if the presentation is not typical of ACS.

Several factors can raise troponins levels, including the following:[1]

- acute coronary syndrome

- pericarditis/myocarditis
- heart failure
- chronic kidney disease
- acute kidney injury
- sepsis
- rhabdomyolysis
- cardiotoxic chemotherapy
- cardiac contusions.

The increase in troponin levels during an acute PE is a prognostic indicator, predicting a higher risk of complications, including in-hospital mortality, hypotension, cardiogenic shock, the necessity for inotropic support, and mechanical ventilation.[2]

In the case of PE, troponin levels gradually rise, peaking around 10 hours after the onset of the event. However, the peak troponin T levels in acute PE lower, ranging from 0.24–0.66 ug/L,[3] as compared to acute coronary syndrome, where they can range from 3–220 ug/L.[4]

In our case, the elevation in troponin I exceeded what one would typically anticipate in acute PE. This led the attending emergency department clinician to consider acute coronary syndrome as a diagnosis. However, upon further evaluation through CTPA, the definitive diagnosis was acute PE.

This underscores the importance of a comprehensive approach encompassing the possibility of acute PE when confronted with a significant and abrupt rise in cardiac troponin levels.

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Head-scratching and headlines: a rare case of bilateral anterior uveitis with multi-systemic implications

Author: Daniel Porter[A]
[A]University Hospital of Wales, Cardiff, UK

Introduction

I first saw the patient, a 42-year-old White male, in eye casualty in December 2022 with symptoms of bilateral eye pain, redness, pain and photophobia. Ophthalmic examination confirmed bilateral anterior uveitis (anterior chamber cells and keratitic precipiates) and XY was treated with topical glucocorticoids and cylcoplegics.

The past ophthalmic, medical, drug, family and social histories were unremarkable. However, a careful systems review was revealing. In the fortnight prior to the ophthalmic symptoms, the patient had suffered generalised malaise, fever, pharyngitis, tender cervical lymphadenopathy, cough, polyarthralgia and a truncal rash. As well as coming to ophthalmology, the patient had consulted his GP, and presented to the medical take where he had been diagnosed with 'likely viral URTI with ?conjunctivitis'.

Comprehensive skin, joint and fingernail examination in eye clinic was normal. However, multiple toenails demonstrated onychodystrophy (Fig 1).

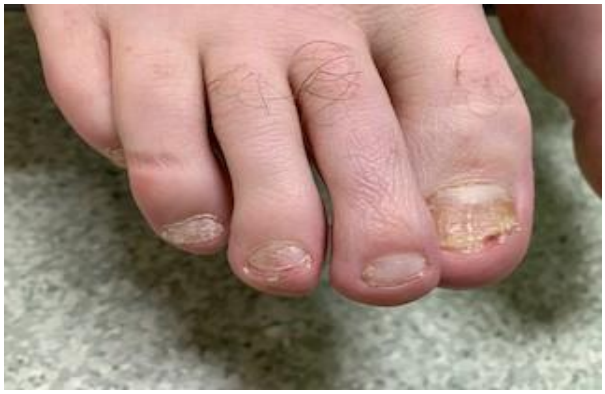

Fig 1. Multiple toenails demonstrated onychodystrophy.

Materials and methods

I considered a wide differential diagnosis including tuberculosis, sarcoidosis, Behcet's, ankylosing spondylitis, reactive arthritis, enteropathic arthritis and psoriatic arthritis. The latter was initially my top differential due to the polyarthritis, rash and nail changes.

Results and discussion

Blood test	2 Dec (GP)	4 Dec (GP)	8 Dec (GP)	12 Dec (GP)	5 Jan (me)
Hb	150	142	131	135	142
WCC	**13.2**	11	11.7	9.8	8.5
Plt	243	330	400	**501**	299
Neut	**7.7**	6.0	7.7	6.5	5.9
CRP	**203**	**177**	**127**	**77**	3
Cr	114	100	**144**	116	86
Alb			**27**	29	
IgG				**21.2** (6–16)	
IgA				**6.0** (0.8–2.8)	

Negative chest X-ray, autoantibodies and ACE helped to shift certain differentials to the bottom of the list. The remaining bloods confirmed inflammation (CRP 203), but I was surprised by the acute kidney injury. I struggled to conceive of a pre- or post-renal acute kidney injury in this patient's case, so began to consider glomerulonephritides and tubulointerstitial nephritides.

After much head-scratching, I remembered that psoriasis affecting the trunk (guttate) is classically a post-streptococcal phenomenon. Remembering also that glomerulonephritis can be a sequela of streptococcal infection, and the media discussion in December 2022 about virulent 'Strep A', I requested an anti-streptolysin antibody titre which confirmed recent rtreptococcal infection (800 [reference range <200]).

A literature search revealed that post-streptococcal uveitis is rare but recognised phenomenon.[1-5] This led to a satisfying diagnosis of acute streptococcal pharyngitis with joint, kidney, skin and eye sequelae.

Conclusions

Beware of positive bias and red herrings!

After seeing the patient's toenails, I was desperate to make psoriatic arthritis fit. I asked leading questions ('was the rash *scaly?')* and placed too much weight on uncertainties ('Well, I suppose so'). In the end I am not sure how to interpret those nails. Perhaps they were indeed psoriatic and the rash a post-streptococcal guttate psoriasis. Or perhaps the rash was erythema marginatum of rheumatic fever and the nails were just a fungal infection red herring!

Medicine is not a game, don't forget the patient!

This case did vex and thrill me. However, we must never forget the patients who lie at the centre of our diagnostic musings; their anxieties, their understanding, their world. This was apparent when trying to navigate the initial diagnostic uncertainty with the worried wife. It also became relevant when I began uncovering possible rheumatic fever, rheumatic heart disease, and the need for streptococcal eradication. I learned how important it is to recognise one's limits and seek input from other colleagues and specialties to prioritise patient care and safety.

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Ramadan and first presentations of diabetes

Authors: Ananthi Anandhakrishnan,[A] Shazia Hussain,[A] Meera Ladwa,[A] Gadintshware Gaoatswe[A] and Kirun Gunganah[A]

[A]Newham University Hospital, London, UK

Background

Hyperglycaemic emergencies in patients with established diabetes fasting during Ramadan have been described.[1–4] However, an association between religious fasting and first presentation of diabetes has not been reported. We describe three such cases in previously well adults admitted with hyperglycaemia and ketosis during Ramadan 2023.

Cases

A 19-year-old Pakistani man presented with dyspnoea and 6 months of polyuria and weight loss. He fasted for 2 weeks but had stopped 1 week before presentation. Investigations were consistent with pneumonia and diabetic ketoacidosis (DKA). His BMI was 29.6 kg/m^2. There was a family history of type 2 diabetes (T2DM). HbA1c was 125 mmol/mol with positive triple antibodies, consistent with new type 1 diabetes (T1DM).

A 20-year-old Somalian man presented with abdominal pain and 3 months of osmotic symptoms. He fasted for 10 days and stopped 2 weeks before admission. His BMI was 30.09 kg/m^2. There was a family history of T2DM. Investigations confirmed DKA, HbA1c 113 mmol/mol and negative triple antibodies. He was diagnosed with ketosis-prone T2DM.

A 29-year-old Pakistani woman reported worsening polyuria and polydipsia while observing Ramadan. Her BMI was 20.82kg/m2. There was no family history of diabetes. HbA1c was 122 mmol/mol with positive triple antibodies. She was diagnosed with hyperglycaemic ketosis and T1DM.

No patients recognised their symptoms as related to diabetes.

Discussion

The stress of Ramadan fasting, particularly during long summer days, may provoke metabolic decompensation and hyperglycaemic emergencies in those with undiagnosed diabetes. We emphasise the need for education around symptom awareness in at-risk groups, including those intending to fast, especially with the rising young-onset diabetes incidence.

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Cryptococcal meningitis in immunocompetent patients

Authors: Nikita Thomas,[A] Krishnaprabha Thomas[A] and Arun Wilson[A]

[A]Aster Medcity, Kochi, India

Introduction

Cryptococcal meningitis (CM) usually presents as a subacute meningoencephalitis. The patient commonly presents with neurological symptoms. CM is one of the major causes of mortality and morbidity in immunocompromised patients. The clinical presentation in immunocompetent hosts is subtle and often results in complications including persistent neurological deficits and death.

We present a case of CM in a patient with diabetes but with no other identified risk factors.

Objective

To determine the clinical characteristics and outcomes of cryptococcal infections in persons living with diabetes.

Case report

A 52-year-old man known to have type 2 diabetes presented with complaints of intermittent fever, vomiting, loss of appetite of 1 month duration and swaying to the left while walking. On examination, he was disoriented, but obeying commands; his vital signs were within normal limits, Glasgow Coma Scale (GCS) was 14/15, motor strength was 4/5 in upper and lower extremities bilaterally, deep tendon reflexes were 3+, and neck rigidity was noted. His laboratory results were notable for sodium of 116 mmol/L and leukocytosis of 15,000/uL; serology was negative.

MRI stroke showed acute lacunar infarcts involving right medial thalamus, paramedian frontal and frontal/ parietal operculum. EEG showed generalised delta slow waves, VGKC-negative. Considering the possibility of meningitis, a lumbar puncture was carried out. Opening pressure was measured more than 25 mmHg. CSF analysis showed 77 cells with lymphocytic predominance, high protein and low sugar. A provisional diagnosis of subacute to chronic lymphocytic meningitis was made and the patient was started empirically on ceftriaxone.

CSF samples were sent for tuberculosis PCR, Aspergillus PCR, cryptococcal antigen CSF and serum galactomannan. CSF cryptococcal antigen was positive and the patient was started on liposomal amphotercin 4 mg/kg and flucytosine induction therapy. He was also started on intravenous dexamethasone 4 mg every 6 hours. IV fluconazole 800 mg was added. Flucytosine was stopped. CSF culture turned negative and was treated with liposomal amphotercin for 4 weeks, switching to oral fluconazole 400 mg OD for 8 weeks (consolidation phase). The dexamethasone was tapered and was stopped on day 10.

Conclusion

Cryptococcosis is an opportunistic, multi-systemic fungal infection acquired through inhalation of airborne yeast cells and infection of *Cryptococcus neoformans* and *Cryptococcus gattii.* Immune dysfunction in diabetes mellitus significantly increases the risk of acquiring and reactivation of infection. The combination of amphotericin B and flucytosine has proved the most effective measure to clear the infection.

A rare case of slowly progressive fatal pneumonia following oral dexamethasone therapy

Author: Berin Gorgun[A]

[A]Oxford University Hospitals NHS Foundation Trust, Oxford, UK

Background

Corticosteroids are routinely used in the management of cerebral oedema in patients with intracranial lesions. We report a case of slowly progressive pneumonia following 3 weeks of oral dexamethasone treatment.

Case report

An 86-year-old White man presented to emergency following collapsed at home. He had history of multiple cancers including prostate, urinary bladder and most recently lung cancer, which was managed by lobectomy. CT scan showed a lytic lesion on the skull involving brain. He improved quickly with conservative management and was sent home with oral dexamethasone to treat any possibility of cerebral oedema while awaiting MRI.

He re-presented to the emergency department 6 weeks later with a 3-week history of insomnia, loss of appetite, oral thrush and cough with productive of sputum. After reviewing his previous MRI from a different hospital record, his skull lesion was diagnosed as a congenital defect and a decision to wean off dexamethasone was taken. He was treated with co-amoxiclav intravenously for community acquired pneumonia for a week without significant clinical response. Antibiotics were changed to piperacillin-tazobactam and fluconazole for further 5 days till the blood culture grew a branching grampositive filamentous bacillus, identified subsequently as *Nocardia farcinica*. Unfortunately, the patient died within 6 hours of positive blood culture before the appropriate treatment for nocardiosis could be initiated.

Conclusion

Pulmonary nocardiosis is a life-threatening opportunistic infection in immunocompromised individuals. Nocardiosis should be considered in cases with slowly progressive pneumonia which remain clinically unresponsive to standard antibiotics. Microbiology team should be involved early for diagnostic and therapeutic intervention of unresolving pneumonia in immunocompromised patients.

An interesting case of cannabinoid hyperemesis syndrome precipitating Wernicke's encephalopathy.

Authors: Sondos Eladawi[A] and Mark Willmot[A]

[A]Walsall Manor Hospital

Wernicke's encephalopathy (WE) is a severe and potentially life-threatening condition caused by a deficiency of thiamine (vitamin B1). It is considered a rare condition, with an estimated prevalence ranging between 0.8% and 2.8%. The incidence of WE is higher in individuals with a history of alcohol dependence, AIDS, bariatric bypass surgery or malnutrition. Diagnosing WE relies on maintaining a high level of clinical suspicion in patients at risk of vitamin B1 deficiency, conducting a focused clinical examination, and performing appropriate targeted laboratory investigations. Imaging studies and cerebrospinal fluid analysis are crucial in excluding other potential differentials, such as encephalitis, Miller–Fisher syndrome, Bickerstaff brain stem encephalitis and toxic/metabolic encephalopathies.

The case presented is a unique study involving a 24-year-old female patient who presented to the emergency department with symptoms of abdominal pain and vomiting. The patient had a medical history that included anxiety, depression, polycystic ovary syndrome and cannabis abuse. She was a current smoker but denied excessive alcohol consumption. During her hospital admission, the patient complained of pins and needles sensation in her lower limbs, which subsequently progressed over 2 weeks to a complete loss of motor and sensory function in both upper and lower limbs. Additionally, she developed bilateral ophthalmoparesis, nystagmus and increased confusion.

Differential diagnoses considered in this case included WE, Miller–Fisher syndrome, neuromyelitis optica spectrum disorder and central pontine myelinolysis. Laboratory tests revealed mildly deranged liver function tests, while MRI of the brain and whole spine appeared normal. However, nerve conduction studies showed evidence of axonal neuropathy, suggesting the possibility of acute motor and sensory axonal neuropathy, a rare variant of Guillain–Barre syndrome. Cerebrospinal fluid (CSF) analysis demonstrated elevated CSF protein levels of 1.51 g/L (reference range 0.1–0.5 g/L). Based on the findings, a diagnosis of a late presentation of WE with potential overlapping axonal neuropathy was established. The patient was started on pabrinex and intravenous immunoglobulins (IVIG). Following completion of the treatment course, she showed gradual improvement and was subsequently discharged to a rehabilitation unit for further recovery.

This case highlights the fact that WE may not always manifest with typical symptoms and that the absence or minimal history of alcohol intake should not eliminate the suspicion of WE as a potential diagnosis. Furthermore, it emphasises the importance of early recognition and management in order to enhance neurological outcomes.

Panton–Valentine leukocidin-associated *Staphylococcus aureus* pneumonia in a previously healthy young adult – a case report.

Authors: Sang Hyun Park[A] and Dinesh Kumar[A]

[A]Milton Keynes University Hospital NHS Foundation Trust, Milton Keynes, UK

Introduction

Staphylococcus aureus septicaemia can lead to a fatal outcome.[1] Suspicion of Panton–Valentine leukocidin (PVL)-associated *S aureus* infection should arise for cases of invasive infections in immunocompetent individuals, especially instances of community-acquired necrotising pneumonia in young people who were previously in good health.[2]

Materials and methods

We report a case of fatal *S aureus* pneumonia and septicaemia in a UK district general hospital, where PVL producing *S aureus* infection was concluded to be the cause of death on postmortem.

Results and discussion

A previously fit and well 21-year-old woman presented to the emergency department due to worsening lower back pain over 1 week. The patient also had preceding flu-like symptoms with chills and rigors that did not improve despite antipyretics and anti-inflammatory medication. On initial examination, the patient was tachypnoeic at over 30 breaths per minute with a heart rate of 130 beats per minute. The venous blood gas revealed metabolic acidosis with raised lactate at 7.7 mmol/L. Computerised tomography (CT) thorax, abdomen and pelvis with contrast showed numerous cavitating lung lesions throughout both lung fields, as well as a filling defect in the left renal vein. Blood culture subsequently isolated *S aureus* in both aerobic and anaerobic bottles. *S aureus* toxin was detected in the initial sample and further analysis indicated the toxin was PVL. Due to signs of decompensated respiratory and circulatory failure, the patient was transferred to the intensive care unit (ICU). Decisions were made to intubate and insert a central line to provide aggressive fluid resuscitation and respiratory support. The patient continued to deteriorate with multiorgan failure (hypoxaemia, circulatory and metabolic instability) despite multiple high dose antibiotics along with IVIG infusion. Extracorporeal membrane oxygenation (ECMO) was organised. Sadly, the patient died on the second day of hospital admission, before ECMO intervention was fully established.

Conclusion

Early identification of PVL-*S aureus* infection is crucial for prompt high-dose antimicrobial therapy, intensive care support as well as administration of adjunctive intravenous immunoglobin (IVIG), given its high mortality rate of nearly 75%.[3] There are also public health implications when a case is identified, enabling the screening and decolonisation of patient's close contacts in the context of controlling onwards transmission.

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A case of bilateral hypoglossal nerve palsy secondary to base of skull metastasis in a patient with adenocarcinoma of lung

Authors: Muhammad Khursheed Ullah Khan Marwat[A] and Laila Lail[A]

[A]Hull University Teaching Hospital NHS Trust, Hull, UK

Hypoglossal nerve paralysis is a rare neurological phenomenon and can be challenging to diagnose and manage. The causes can include base of skull malignancy, trauma to base of skull, neurological conditions or intracranial infections.[1] We report the first known case of bilateral hypoglossal nerve paralysis in a 53-year-old woman with poorly differentiated metastatic adenocarcinoma of Lung due to base of skull metastasis involving both hypoglossal canals. There should be high suspicion of a metastatic cause in patients with a bilateral hypoglossal nerve paralysis and a known malignancy.

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Quadruple heart failure therapy as treatment of doxorubicin-induced cardiac dysfunction: a case report

Authors: Carl Simela[A] and Clare Bannister[B]

[A]University College London Hospitals, London, UK; [B]King's College Hospital, London, UK

Introduction

Systolic dysfunction, with or without accompanying heart failure, is amongst the potential long-term sequelae associated with anthracycline chemotherapy.[1] Previous work shows the prognostic benefit of promptly initiating beta-blocker and angiotensin converting enzyme-inhibitor (ACE-i) therapy in both asymptomatic and symptomatic patients with systolic dysfunction secondary to anthracycline chemotherapy.[2] There is a lack of research assessing the prognostic benefit of initiating all four pharmacological pillars of heart failure therapy (beta-blocker, ACE-i/angiotensin receptor–neprilysin inhibitor (ARNI)/angiotensin receptor blocker (ARB), mineralocorticoid antagonist [MRA] and sodium-glucose cotransporter 2 inhibitor [SGLT2i]) in this context. Here, we present a case of anthracycline-induced heart failure that was improved from a functional and symptomatic perspective within 38 days of initial presentation after commencing a beta-blocker, MRA, ACE-i and SGLT2i therapy all within 20 days of each other.

Case presentation

An 83-year-old man with no cardiac history presented with tachycardia (150 bpm), NYHA class III exertional dyspnoea and bilateral lower limb pitting oedema 27 months after completing R-mini-CHOP chemotherapy (150 mg/m2 of doxorubicin) for diffuse large B Cell lymphoma. NT-proBNP was significantly elevated at 3,599 and electrocardiograms showed atrial fibrillation with rapid ventricular response. Echocardiography revealed severely impaired systolic function (left ventricular ejection fraction [LVEF]: 28%; average global longitudinal strain [aGLS]: 7.01%), which had been normal prior to chemotherapy (modified biplane EF: 61%; aGLS: -19.4%). The patient was diagnosed with heart failure secondary to both anthracycline exposure and atrial fibrillation with rapid ventricular response. He was started on a 5 mg daily dose of bisoprolol for rate control, which was increased to 7.5 mg on day 3 of the admission. A 49/51 mg twice daily prescription of sacubitril/valsartan and a 10 mg daily dose of dapagliflozin was added on day 3 too. 20 days after presentation, the patient was reviewed in the heart failure clinic and found to be adequately rate controlled with significantly less dyspnoea (NYHA Class II) and oedema compared to presentation. Blood pressure and renal function were stable so a 12.5 mg once daily prescription of eplerenone was also added at this point. Echocardiography on day 38 after the initial presentation showed a 6% improvement in LVEF compared to presentation (LVEF: 34%). However, due to interobserver variability in LVEF measurement, it is possible that this improvement has been over or under-estimated.

Conclusion

This demonstrates that heart failure is a potential consequence of anthracycline-based chemotherapy. We show that initiating quadruple heart failure therapy has beneficial effects on symptoms and heart function in anthracycline-induced heart failure. Further work is needed to confirm whether this confers improved cardiovascular prognosis and whether the benefits of quadruple heart failure therapy apply to asymptomatic anthracycline-induced cardiac dysfunction. This case also highlights the importance of cardiac surveillance in cancer survivors who received anthracycline chemotherapy. For example, in this current case, more frequent echocardiograms, as per the ESC cardio-oncology guidelines, may have picked up asymptomatic deteriorations in aGLS, which precede LVEF decline and overt heart failure.[3] This could have allowed earlier commencement of cardioprotective therapy.

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A complex presentation of melioidosis: uncovering acute osteomyelitis

Authors: Joshlin Shaji,[A] Anil Xavier,[A] Gladson CJ[A] and Anup Warrier[A]

[A]Aster Medcity, Kochi, Kerala, India

Introduction

Burkholderia pseudomallei is a Gram-negative bacterium that causes melioidosis, a serious disease with a wide range of clinical manifestations ranging from localised subacute infections to septicaemia with abscesses in multiple organs.[1] The disease is endemic to tropical regions such as northern Australia and Southeast Asia.[2] According to growing evidence, melioidosis may also be endemic in the Indian subcontinent and the Caribbean.[3,4] The clinical spectrum of disease ranges from local abscess to severe form, which may cause disseminated abscesses, pneumonia, sepsis or death. Delayed diagnosis contributes to increased mortality and morbidity.

Case report

A 51-year-old non-diabetic Indian man presented to our hospital with a 2-week history of fever, chills and rigor. Upon presentation, he exhibited signs of toxicity, was febrile and showed signs of dehydration. His body temperature was recorded at 101°F, blood pressure at 90/70 mmHg, respiratory rate at 48/min, and heart rate at 126/minute. Bilateral crackles were detected upon auscultation, and a chest X-ray revealed bilateral pleural effusion with basal consolidation, necessitating intubation. Subsequent blood culture identified *B pseudomallei*, leading to the initiation of intravenous antibiotic therapy on day 3. During the treatment course, the patient developed right hip joint pain and experienced restricted hip joint movements. MRI scan confirmed the diagnosis of acute osteomyelitis with an intramedullary abscess in the right acetabulum. A hip arthrotomy and joint washout were performed, and the intensive phase of treatment commenced with intravenous ceftazidime 2 g every 6 hours for a duration of 6 weeks, in combination with oral co-trimoxazole. Due to drug-induced haemolytic anemia, intravenous antibiotics were discontinued.The patient is currently in the eradication phase of treatment, receiving oral co-trimoxazole. He is undergoing regular follow-up and is showing good progress.

Conclusion

Musculoskeletal melioidosis is a well-recognised manifestation of the disease, which can manifest as soft tissue abscesses, osteomyelitis, septic arthritis, spondylitis and sacroiliitis. Management of melioidosis consists of two phases: the intensive phase and the eradication phase. These are aimed at the importance of rapidly treating the septicemia, the need of eradication of the persistent disease and the prevention of recurrent infections or relapses. This case underscores the importance of raising awareness about this infection and its potential complications, particularly among clinicians who may not be familiar with the condition.

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Closed eye hallucinations and acute occipital infarct

Authors: Inzali Moe Moe Kyaw[A] and Immo Weichert[A]

[A]East Suffolk and North Essex NHS Foundation Trust, Colchester, UK

A 75-year-old woman presented with a 2-day history of closed eye hallucinations of sudden onset in nature. She had past medical history of hypertension and anxiety disorders. She was initially reviewed by the ophthalmologist who ruled out localised causes like retinal detachment. On examination, there was neither focal neurological deficit nor impaired visual acuity nor visual field defect. The patient was apparently distressed due to concern about the stigma of hallucinations being associated with psychosis. She reported having severe sleepless nights due to the fear of hallucinations on closing her eyes. Given the nature of sudden onset visual hallucinations in the absence of localised cause, an MRI head scan was done. It disclosed a tiny focus of restricted diffusion in the right occipital lobe in keeping with acute ischaemia. Secondary prevention of ischaemic stroke was commenced, and she was discharged with explanation of her condition and reassurance.

'Release visual hallucinations' have been known to be associated with cerebrovascular events affecting visual cortex causes disinhibition of earlier visual areas, which then fire spontaneously.[1,2] These visual phenomena could be phosphene (simple) or complex hallucinations. These phenomena are sometimes not recognised by the clinicians and may be misdiagnosed as psychosis or early dementia.[1,3]

Release hallucinations in the settings of acute cerebral injury are usually associated with concomitant visual loss or visual field defects.[1] Interestingly, our case did not have other significant visual impairments apart from visual hallucinations, making the diagnosis challenging. This highlighted the importance of clinicians recognising that visual hallucinations could, however rarely, represent systemic conditions like stroke. This case also echoed finding that such subtle symptoms can be distressing for the patient and can exert negative impact on their quality of life.[1,4] It is essential for clincians to appreciate this and address their mental health wellbeing on such occasions.

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A case of ANCA-associated vasculitis with probable IgG4-related disease

Authors: Hala Eltahir[A] and Mark Lloyd[A]
[A]Frimley Health NHS Foundation Trust, Frimley, UK

Introduction

IgG4-related disease (IgG4-RD) and granulomatous polyangiitis (GPA) have apparent different pathology. There are infrequent reports of the two conditions occurring simultaneously.[1-3] We add to the literature by describing a patient who appears to have both conditions.

Case report

A 65-year-old man presented with low back pain radiating to the perineum. His past medical history included type 2 diabetes, coronary artery bypass graft and ablation for atrial fibrillation. Initial investigations showed a CRP of 102 mg/ml and an eGFR of >90ml/hr. A CT urogram revealed possible aortitis. A dedicated aortogram of the area showed a cuff of added tissue around the infrarenal aorta and iliac arteries. A whole aortogram showed an increase in the abnormal tissue and detected a left upper lobe cavitating lesion. A PET CT scan showed activity in the infrarenal aortic tissue, with focal uptake in the aortic arch and right superficial femoral artery.

Several pleural-based and parenchymal lesions showing moderate increased FDG activity were seen. A CT scan of the sinuses showed multifocal sinonasal mucosal thickening without bony erosions. C-ANCA was positive at 1/40, with PR3 of 32 U/ml (N 0–1.9 U/ml) and IgG4 of 2.2 g/L (N 0–1.3g/L). Other immunoglobulin levels were normal and IGRA was negative. A biopsy of the lung lesion showed necrotising granulomatous inflammation and surrounding palisading histocytes, with no vasculitic element.

Treatment with prednisolone 40 mg daily and methotrexate 15 mg weekly was started. A quick symptomatic improvement was noted. CRP fell to 14 within 2 months. His case was discussed at the national IgG4 MDT, and the consensus was that he had features of both GPA and IgG4-RD.

A follow-up CT scan showed reduction in the volume of para-aortic tissue, with regression of some lesions in the chest, while others increased. However, he remains well with a normal CRP, stable renal function and normal urinalysis.

Discussion

This case illustrates the difficulties in assessing a complex and evolving diagnosis. The ANCA positivity and lung biopsy findings are strongly supportive of GPA and satisfy classification criteria.[4] While aortic involvement is not commonly seen in GPA, this picture of infra-renal involvement of the aorta is typical of IgG4-RD; however, its diagnostic criteria require a confirmatory biopsy.[5,6] This can be challenging due to the risk of sampling around the aorta and ureters. Our case would fulfil criteria for ‘probable’ IgG4-RD.[5] In retrospect, an earlier PET CT scan may have spared the patient several CT scans.

Conclusion

The co-existence of IgG4-RD and ANCA-associated vasculitis may be more common than might be expected by chance. Our case highlights the usefulness of early PET CT scanning in rheumatic conditions. It also suggests that checking ANCA is important in suspected IgG4-RD. It is possible that future AI programmes may help clinicians better judge the timing of investigations that may be more expensive, invasive or have increased radiation exposure in such complex cases. Finally, the usefulness of a national MDT for IgG4-RD is highlighted. Fortunately, treatment modalities are similar for both conditions, with rituximab being used as a second line agent.[6]

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Neuropsychiatric lupus: Report of an interesting case with challenges in diagnosis and management

Authors: Divij Sharma[A] and Varsha Patil[A]

[A]Bombay Hospital and Medical Research Centre, Mumbai, India

Introduction

Neuropsychiatric systemic lupus erythematosus (NPSLE) is a severe complication of systemic lupus erythematosus (SLE) characterised by neurological and psychiatric manifestations.[1] Its early identification, even for skilled physicians, can be challenging because it can present with negative serology, absence of systemic signs and symptoms, and is usually a diagnosis of exclusion.[2,3] This case was fascinating because attribution of a broad range of systemic signs and symptoms and altered behavior to SLE was not made, leading to delayed initiation of treatment and poor outcomes until she presented to our hospital.

A 43-year-old woman presented to the emergency separtment of our hospital in an acute confusional state, with mild cognitive impairment and psychosis, preceded by breathlessness, body aches and extreme fatigue for a week. Her history was significant for persistent musculoskeletal pain and anxiety attacks for 1 year prior.

Benzodiazepines and anxiolytics prescribed previously for her behaviour change were of no avail.

Materials and methods

Initial assessment revealed normal vital signs, with a heart rate of 110. Blood work showed anemia, thrombocytopenia, high erythrocyte sedimentation rate and C-reactive protein, and a slightly elevated creatinine, while urine tests revealed nephrotic range proteinuria (3.5 g/day). Antinuclear antibody, SS-B autoantibody, anti-Smith antibody, and anti-double stranded DNA antibody tested positive. c-ANCA and p-ANCA were negative. Complement C3 levels were low. Radiological scans indicated mild pleural effusion on both lung fields (Fig 1).

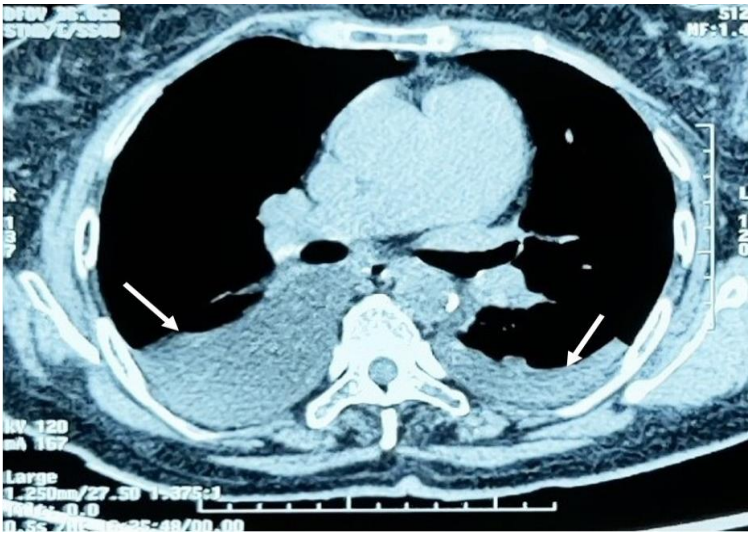

Fig 1. Mild pleural effusion was seen on both lung fields.

On day 2 of her admission, she underwent a generalized tonic-clonic seizure.

CT and MRI of the head were unremarkable.

Results and discussion

Given the multisystem involvement and altered sensorium, in the context of negative tests for infections and, metabolic causes, an electroencephalogram (EEG) was performed, which did not reveal any epileptiform discharges. Ultrasound of abdomen revealed a bright echotexture of both kidneys without any hepatosplenomegaly.

The presentation of psychosis can be due to various aetiologies that need to be evaluated; these include drug use, infections, structural brain abnormalities, and metabolic abnormalities. The main mimics we excluded were CNS vasculitis, systemic diseases like granulomatosis with polyangiitis, Sjogren syndrome, neuro-Behcet's disease, viral infections, Hashimoto encephalopathy, autoimmune encephalitis and disseminated TB.

NPSLE was diagnosed given the fatigue and tiredness, acute confusional state, seizures and positive serological markers.

She was given intravenous methylprednisolone (1,000 mg daily for 5 days) and oral mycophenolate mofetil (1 g per day). Anticoagulation and antiplatelet therapy were also started to prevent thrombosis. After consequent doses of methylprednisolone, serum creatinine improved, and a decline in urine proteins was noted, but her psychosis persisted. Following marked biochemical improvement, she was started on oral prednisolone, and a renal biopsy was planned but had to be deferred as the patient sadly succumbed to COVID-19 pneumonitis during hospital illness (Fig 2).

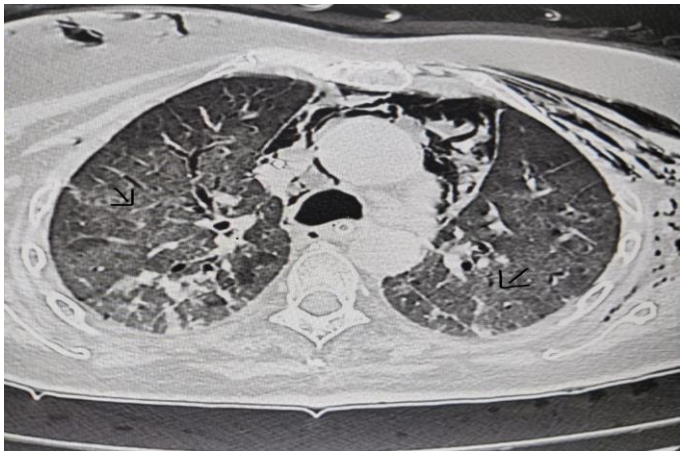

Fig 2. COVID-19 pneumonitis.

Conclusion

The varied diagnostic criteria, none proved to be accurate or reliable, make diagnosing NPSLE difficult. Thus, in a patient presenting with altered mental status and psychosis of unexplained etiology, high clinical suspicion for lupus, along with a detailed and competent history and explicit workup, can aid clinicians in solving this mystery.

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A deceitful case of acute coronary syndrome

Authors: Jayden Patel,[A] Tha Nyi,[A] May Ohn[B] and Rupert Williams[C]
[A]Kingston Hospital, Kingston, UK; [B]St Georges Hospital, London, UK; [C]St Georges Hospital, London, UK and Kingston Hospital, Kingston, UK

Introduction

Coronary artery embolism is an acknowledged nonatherosclerotic cause of acute coronary syndrome (ACS). Although the definite diagnosis can be challenging in the acute setting, it is important to consider this in the context of relevant risk factors and clinical presentation.[1]

Clinical presentation

A 63-year-old man with a complex medical history, including recent tissue aortic valve replacement and coronary artery bypass grafting, presented to a district hospital with a 6-week history of night sweats, rigor, breathlessness and acute confusion. He was started on broad-spectrum antibiotics for sepsis of unclear source, with infective endocarditis an important differential given his recent aortic valve surgery. However, he developed septic shock and ACS due to chest pain with new ST elevation in the inferior leads and first-degree heart block on electrocardiogram (ECG). He was therefore urgently transferred to a tertiary centre for further management of possible inferior ST elevation myocardial infarction (STEMI) and possible aortic root abscess.

Blood cultures subsequently identified *Staphylococcus epidermidis* and his cardiac rhythm progressed rapidly to complete heart block, requiring externalised temporary pacemaker.

Transesophageal echocardiography confirmed the presence of a large aortic valve vegetation, firmly attached to the ventricular valvular surface and aortic root abscess (Fig 1). Diagnostic coronary angiogram demonstrated occluded proximal diagonal branch of left anterior descending artery (LAD), severe proximal obtuse marginal (OM) disease and occluded left posterior decending artery (LPDA) (Fig 2). Despite the high surgical risk, the multidisciplinary decision was to undergo emergency salvage redo aortic valve replacement and repair of the aortic root abscess. However, following unsuccessful attempts to salvage his complex cardiac condition with cardiopulmonary bypass and intra-aortic balloon pump, his cardiac function continued to deteriorate, and he passed away in theatre.

Discussion

Coronary artery embolism is a rare cause of type 2 MI with a prevalence of approximately 3%. The etiology can be grossly classified into direct (frequently secondary to infective endocarditis and prosthetic valves), paradoxical and iatrogenic causes.

In a large case series,[3] 2.2% of 1,210 patients with definite IE developed ACS and 88% of ACS were caused by coronary embolism. Those complicated by ACS had higher risk of developing heart failure (2.5 times) and the mortality rate was twice higher compared to their counterparts.

Prosthetic valve endocarditis (PVE), as described in the case above, accounts for approximately 20% of all endocarditis cases with only <1% of these developing septic emboli.[4] Mechanism of MI can also be due to external compression of the coronary artery ostia by an aortic root abscess.[5]

Development of an aortic root abscess is both rare and a poor prognostic marker and the mainstay of treatment is via expediated emergency surgery, with aortic valve replacement and aortic root replacement the most used techniques.[6]

Conclusion

This case highlights the importance of having a high suspicion of PVE in patients with previous, and especially recent cardiac valve surgery. PVE complicated by ACS is most frequently due to direct coronary embolism of a vegetation.

Fig 1. Transesophageal echocardiography demonstrating the presence of a large aortic valve vegetation, firmly attached to the ventricular valvular surface and aortic root absess.

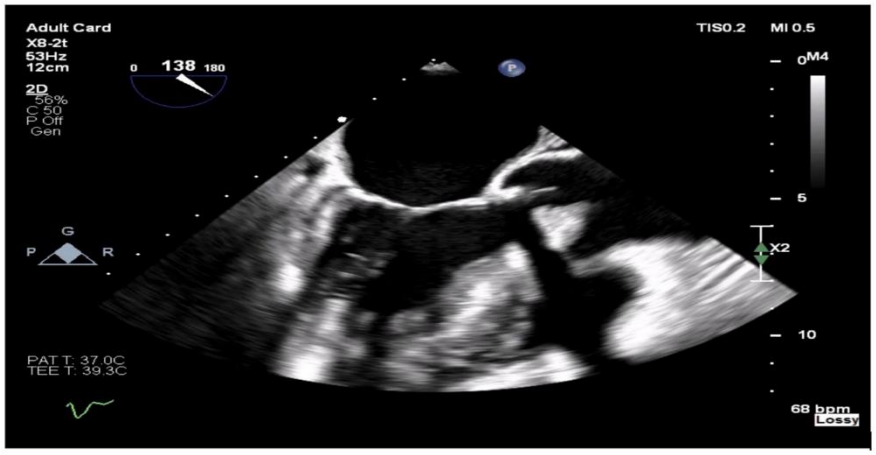
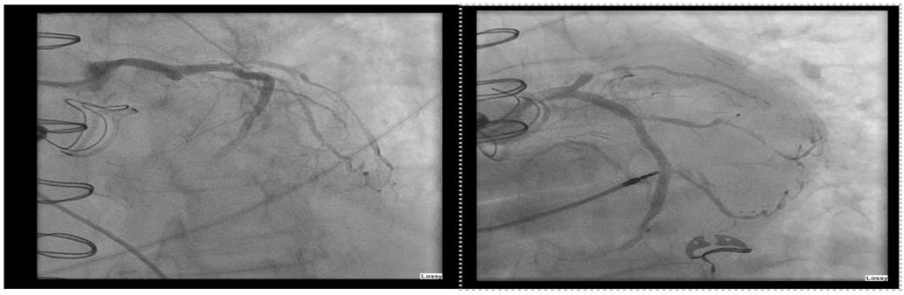


Fig 2. Coronary angiogram demonstrating occluded proximal D1 of LAD, severe proximal OM disease and occluded LPDA.



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The conundrum of low to high sodium – a case of pituitary metastases in small cell lung cancer patient.

Hira Yousuf,[A] Nick Brown,[A] Ersan Alzamel,[A] Jenny Jones[A] and Asishkumar Ihare[A]

[A]Huddersfield Royal Infirmary, Huddersfield, UK

A 59-year-old Slovakian male was admitted with a week history of facial swelling. Chest X-ray showed mediastinal lymphadenopathy with enlargement of the right suprahilar region; CT TAP (computerised tomography: thorax-abdomen and pelvis) then revealed enlarged lymph nodes in mediastinum and right hilar region causing compression of the superior vena cava, enlarged adrenals, inguinal nodes and head of the pancreas lesion. Left groin biopsy confirmed small cell carcinoma of lung origin. Pre-treatment MRI Head (Fig 1a) showed a suprasellar tumour with embolic lacunar infarcts.

On admission, he was found to have low sodium of 108 mmol/L; further work-up for hyponatremia (as shown in Table 1) confirmed he had a syndrome of inappropriate antidiuretic hormone secretion (SIADH) and he was started on fluid restriction and demeclocycline as advised by the endocrinology team. Skull base multidisciplinary team (MDT) ruled out surgery to the pituitary lesion. He was offered the first cycle of carboplatin and etoposide while an inpatient, and his sodium improved to 117 mmol/L (Fig 2) on discharge.

Table 1. Workup of hyponahremia.

Test	Patient results	Normal values
Sodium	108	133–146 mmol/L
Urea	3.8	2.5–7.8 mmol/L
Creatinine	53	48–128 µmol/L
TSH	3.4	0.2–4.0 mU/L
Cortisol	411	184–623 nmol/L
Urinary sodium	135	No measured values
Urinary osmolality	652	50–1200 mosmol/kg
Plasma osmolality	233	275–295 mosmol/kg
Transthoraic echocardiogram	Normal left ventricular function	

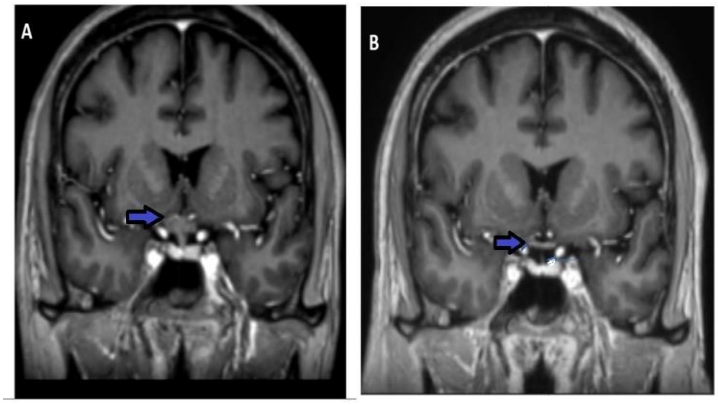

Fig 1. MRI Head. (a) Pre-treatment T-1 coronal postcontrast images Suprasellar solid tumour engulfing pituitary stalk and causing mass effect on optic chiasma. (b) Post-treatment T-1 coronal post-contrast images shows complete resolution of tumour with normal optic chiasma.

He was seen in the clinic after discharge and immunotherapy with atezolziumab was added as his performance status improved. 4 weeks later, there were new symptoms of excessive thirst, dry mouth, polyuria and polydipsia, and his sodium level was 144 mmol/L. Work-up (Table 2) by the endocrinology team confirmed diabetes insipidus in the context of pituitary metastases, and the patient was commenced on desmopressin. After treatment with desmopressin, there was an improvement in osmotic symptoms and normalisation of sodium (Fig 2); he had an excellent clinical and radiological response after completion of chemotherapy and immunotherapy (Fig 1b) and remains well with normal sodium levels.

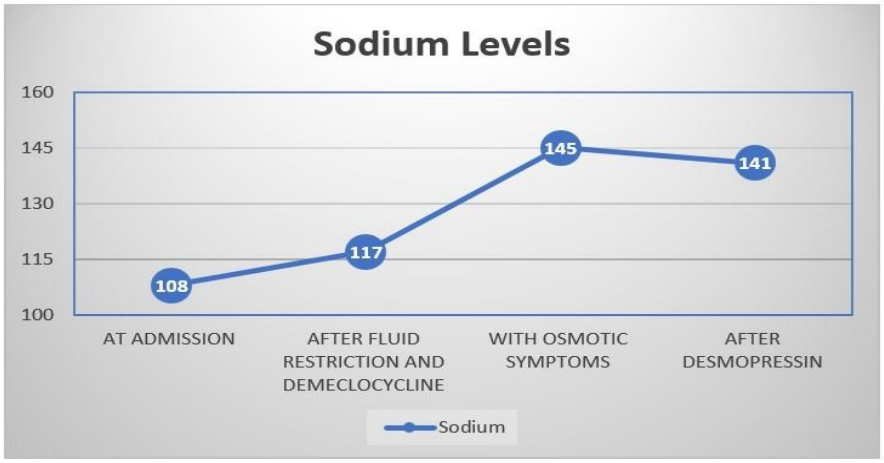

Fig 2. Sodium levels during the course of treatment.

Table 2. Workup for diabetes insipidus

Test	Patient Results	Normal Values
Sodium	144	133-146 mmol/L
Urine Osmolality	101	No measured values
Plasma Osmolality	297	275-295 mosmol/Kg

It is not uncommon that small cell lung carcinoma is associated with SIADH;[1] however, pituitary metastases causing diabetes insipidus concomitantly is extremely rare.[2] Our case presentation adds value to the literature that this possibility, though rare, should be considered, especially when diabetes insipidus could be masked by the presence of SIADH and it can manifest as hypernatremia once the primary tumour responds to the treatment.

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A rare cause of septic shock: *Capnocytophaga canimorsus* bacteremia

Authors: Htoo Myo[A] and Michael Avoseh[B]

[A]King's Mill Hospital, Sutton-in-Ashfield, UK; [B]Nottingham City Hospital, Nottingham, UK

Background

Capnocytophaga is a gram-negative, nonspore-forming bacillus found mainly in the oral cavities of dogs and to a lesser extent cats. The bacterium cultures may not be visible for up to 48 hours due to slow growth. Because of this, the first 5 days' incubation normally show no bacterial growth.

Capnocytophaga canimorsus does not elicit a strong inflammatory response, which results in excessive replication before detection by the host immune system. As a result, most patients have bacteremia before significant symptoms develop. Infections in humans is often associated with immunosuppression, often results in sepsis and can be fatal. The mortality is around 30% and doubles with septic shock presentation.[1]

The classical presentation includes fever, rashes, vomiting, diarrhoea, stomach pain, headache and seizure, associated with dog saliva contact (eg bites, licks and scratches).

Case presentation

A middle-aged man presented with a 5-day-history of high fever, vomiting and diarrhea. His past medical history included ischemic heart disease and hypertension as well as a history of intravenous drug use. Examination was unremarkable except widespread papular rashes over the body including chest and abdomen.

Investigations

Blood tests showed metabolic acidosis, raised inflammatory markers, deranged coagulation profile and acute kidney injury. He was admitted to the intensive care unit (ICU) with a diagnosis of septicaemia and multiorgan failure. Leptospira spira 16S DNA test, vasculitis and screening for TTP and typical infections including fungal infections were all negative. CT Chest Abdomen Pelvis showed consolidation in both lungs without any other specific source of infection.

Treatment

His condition deteriorated rapidly, with increased oxygen requirement and respiratory failure necessitating intubation and mechanical ventilation. Although repeat blood culture showed no growth within 48 hours, Capnocytophaga species was later detected in the first blood culture sample taken at admission. Further testing on subsequent blood culture identified *C canimorsus* using 16sRNA test 12 days after admission, for which broad spectrum antibiotics were prescribed. A detailed social history was then revisited and this elicited dog ownership but no history of bites.

Outcome and follow up

After 1 month in intensive care and a difficult tracheostomy wean, he was stepped down to a medical ward. Gangrenous toes were noticed while on ICU, but this was attributed to complications from septicaemia. This was later suspected as possible entry site for *C canimorsus* bacteria. The patient did not recollect any incident of dog bite but stated that the dog might have licked an existing toe wound. Vascular and orthopaedic team review of the gangrenous toes suggested a likely ischaemic cause from possible vasoconstriction from use of inotropes.

Learning points

The fulminant sepsis caused by *C canimorsus* has high mortality rate[2] and timely diagnosis is critical to prevent death. In order to reach the correct diagnosis, physicians should have high suspicion and make a comprehensive assessment including social history as well as full body thorough examination especially for the patients presenting with sepsis of unclear source. In addition, the NHS trust should have an assessment proforma for sepsis patient. In this way, zoonotic sepsis would be diagnosed and treated efficiently.

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Pacemaker lead migration presenting as shoulder pain and pulsating abdomen: a case report

Authors: Sophia Khatta,[A] Basit Kakroo[A] and Saib Khogali[A]

[A]The Royal Wolverhampton NHS Trust, Wolverhampton, UK

Introduction

Lead displacement and migration remains a rare but potentially serious complication of pacemaker implantation.[1,2] Such complications can present with varying clinical symptoms. One of these is right ventricular (RV) perforation, which is a rare but life-threatening complication of pacemaker implantation.[3,4] Presentation with RV perforation is usually acute or subacute as pericardial effusion, tamponade or rhythm disturbance from a malfunctioning pacemaker. We present an unusual late presentation of RV lead perforation and migration, presenting as a pulsating abdominal mass which was due to diaphragmatic contraction caused by phrenic nerve stimulation.

Case

A 65-year-old woman was admitted to cardiology ward with a presenting complaint of a pulsating abdomen that felt like a 'jumping sensation in the chest.' Upon further questioning, the patient also had been complaining of intermittent left shoulder pains for around 12 months duration. She denied any other symptoms. Her past medical history included hypertension and permanent pacemaker inserted 6 years ago for complete heart block.

She was haemodynamically stable with a BP of 150/70 mmhg, HR of 70 bpm, RR 16, saturations of 96% and was apyrexial. Her cardiorespiratory examination was unremarkable with first and second heart sounds heard and no added murmurs. Examination of the abdomen showed a clearly pulsatile mass on the left flank which was visible from the end of the bed. An urgent CT scan was arranged which ruled out abdominal aortic aneurysm[5] but incidentally showed migration of the pacemaker lead into the pericardium (Fig 1). A 12-lead ECG showed a right bundle branch block paced rhythm.

Echocardiograph confirmed that the right ventricular pacemaker lead had migrated outside the ventricle but had not crossed the pericardium. A satisfactory pacing check was completed.

After MDT discussion, the patient was transferred to another major cardiac centre for new right ventricular lead positioning. This was performed with placement of a new active RV lead to high septal position via axillary puncture and was connected to the existing device. The migrated RV lead was capped and left due to risk of causing further perforation and haemodynamic instability. Post procedure chest X-ray and pacing checks were satisfactory and the patient was discharged home with a follow up in the pacing clinic.

Learning points

- RV lead perforation is a rare life threatening complication of pacemaker that may present with pulsation due to diaphragmatic stimulation unusually years after pacemaker implantation.
- Normal pacing check or echocardiogram does not rule out RV lead perforation and further tests such as CT scan should be performed if there is clinically high suspicion.
- There is no clear consensus on the management of lead perforation in stable patients. The decision is always case specific and should be under MDT guidance.[6]

In conclusion the diaphragmatic contraction in itself is not life threatening but a cause of irritation and distress to the patient and more importantly can be an indication for emergency pacing from significant

migration of pacing lead with risk of loss of capture. Fortunately, the patient remained stable and was discharged without any complications.

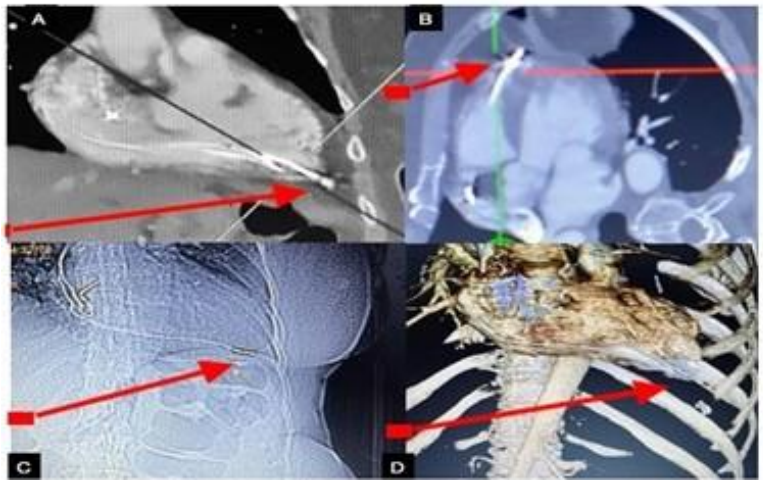

Fig 1. CT images showing RV lead perforating the RV apex into the pericardium. (a) Coronal plane showing RV lead perforating and crossing the RV apex. (b) Axial plane showing the hear in four-chamber view with RV lead perforating the apex. (c) Another coronal plane showing RV lead perforation. (d) 3D coronal plane also showing the RV lead extending past the RV wall.

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Acute adrenal insufficiency secondary to bilateral adrenal infarction in a post-partum woman with antiphospholipid syndrome

James Manning[A] and Deepa Arachchillage[A]

[A]Imperial College Healthcare NHS Trust, London, UK

Introduction

Antiphospholipid syndrome (APS) is an acquired, autoimmune, prothrombotic disorder characterised by thrombosis and/or obstetric complications, in association with persistently positive antiphospholipid antibodies (aPLs).[1]

Although APS is relatively rare, the general physician is likely to encounter it, as it occurs in up to 10% of patients with venous thromboembolism and in 6% of women with pregnancy morbidity.[2]

Here, we present the case of a woman with triple positive (presence of all three aPLs tested in clinical practice) APS, who developed both obstetric and thrombotic complications. We identify several learning points relevant to the general physician. The patient provided informed consent for this work.

Case report

A 40-year-old woman presented with back pain and confusion day 7 post-emergency caesarean section at 36+6 weeks gestation for pre-eclampsia complicated by HELLP (haemolysis, elevated liver enzymes, low platelets) syndrome. She had been receiving treatment dose low molecular weight heparin (LMWH) during pregnancy given her history of APS, which was switched to prophylactic dose following delivery. She was hyponatraemic (Na 123 mmol/L).

A CT abdomen and pelvis with contrast revealed hypoenhancement of the adrenal glands with surrounding inflammatory change consistent with infarction. She was commenced on IV steroids and hypertonic saline and transferred to a tertiary haematology and obstetric medicine centre.

Her LMWH was increased to treatment-dose and immunomodulation with hydroxychloroquine was commenced. Her hyponatraemia resolved with IV steroids, and she was discharged on oral steroids.

She was bridged from LMWH to warfarin in the community and remains well.

Discussion

A diagnosis of APS requires at least one clinical manifestation (thrombosis or obstetric complication) alongside ≥1 positive aPL detected an at least two occasions ≥12 weeks apart (Table 1).[1] Other 'noncriterion' features of APS including cardiac valve insufficiency and livedo reticularis may raise the suspicion for the diagnosis but are not specific to APS.[3]

Despite being an autoimmune disease, anticoagulation mainly with warfarin (or LWMH during pregnancy) remains the mainstay of treatment for patients with thrombotic APS, although there is increasing interest in the use of immunomodulatory agents, including hydroxychloroquine.[4] Direct oral anticoagulants (DOACs) such as apixaban are infrequently used in APS as they have been shown to be inferior to warfarin in many situations.[5]

Pregnancy and post-partum are high-risk periods for development of thrombosis, and failure to anticoagulate with treatment dose LMWH in this woman contributed to the development of bilateral adrenal infarcts. Patient and healthcare professional education is therefore critical in ensuring that the

complications of APS are anticipated, including the risk of recurrent thrombosis in those on subtherapeutic anticoagulation.

Women with APS should be regarded as high risk for both pregnancy and thrombotic complications and should be managed in a joint haematology/obstetric clinic with close monitoring. Treatment-dose LMWH alongside low dose aspirin (for prophylaxis of pre-eclampsia) is generally required.[6]

Conclusion

Patients with APS present to the general medical take and an understanding of the disease and its complications is important for the general physician. Expert haematological input is recommended when the diagnosis is considered, or prior to alterations of treatment.

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Atrial myxoma: a cause for concern in multiple cerebral infarctions in absence of cardiac symptoms

Authors: Pramol Ale,[A] Abinas Gurung,[A] Olubunmi Omojowolo,[A] David Hatton[A] and David Hargroves[A]

[A]East Kent Hospitals University NHS Foundation Trust, Kent, UK

Introduction

Cardioembolic strokes accounts for approximately 20% of all ischemic stroke.[1] Cardiac myxoma acts as an embolic source to the central nervous system, and other vascular regions.[2] Ischemic cerebral infarct is the most common neurological manifestation of cardiac myxoma.[3]

Case presentation

A 75-year-old man with background history of hypertension, hypercholesterolemia, localised prostate cancer and well-controlled asthma presented to the stroke unit with right hemiparesis and dysarthria. He was left-handed, non-smoker, and independent with all activities of daily living (ADL). His initital NIHSS score was 3, scoring 1 each for right upper limb drift, ataxia, and dysarthria. Cardiovascular examination revealed a diastolic murmur. Acute multi-territorial infarctions were noted in the diffusion weighted MRI scan of the brain. ECG showed new paroxysmal atrial flutter. There was no significant stenosis or atherosclerosis in the CT angiography of head and neck. A contrast enhanced CT Thorax/Abdomen/Pelvis was also undertaken given the embolic nature of the stroke, and his history of cancer to rule out the possibility of metastatic disease and progression of cancer but was unremarkable. Transthoracic echocardiography revealed atrial the presence of atrial myxoma. He was treated with aspirin for stroke and underwent successful surgical excision of atrial myxoma. Histopathological examination of the excised tumour revealed macroscopic appearance of 9 x 5 x 3 cm brown friable lobulated spongy mucoid mass. Microscopic appearance of nests of lepidic cells in abundant myxoid stroma admixed with clusters pigmented macrophages, thrombosis, and haemorrhages were noted. (See Figs 1–3).

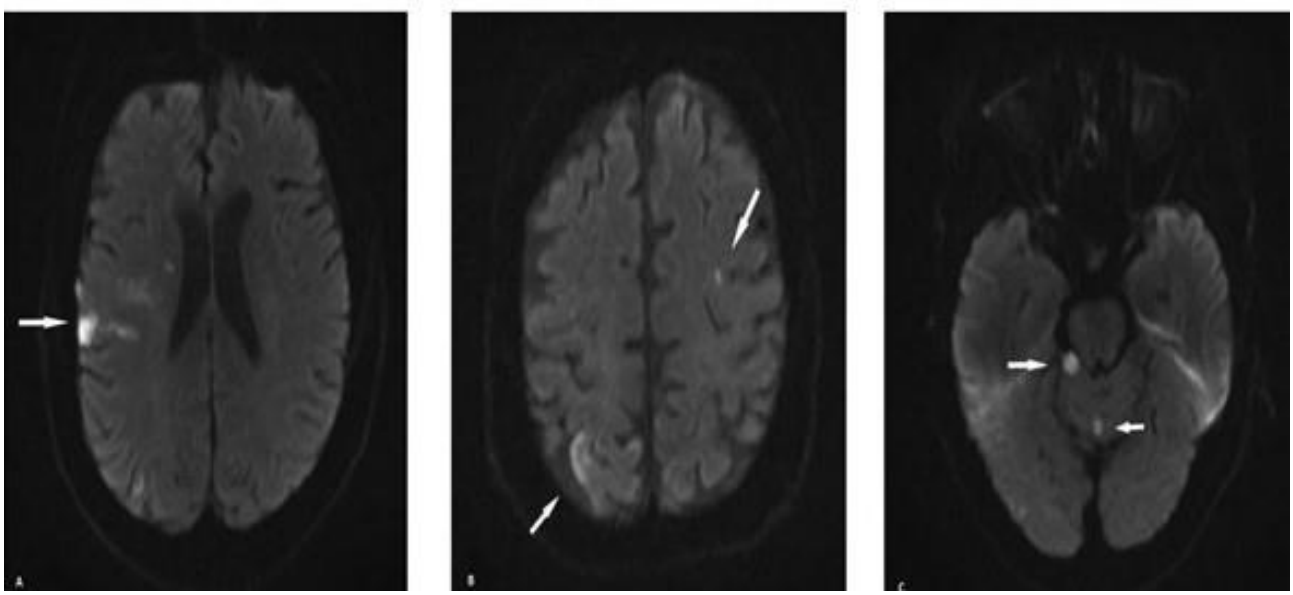

Fig 1. Diffusion weighted MRI brain showing acute infarctions in (a) right MCA territory, (b) right PCA territory and (c) vermis and right cerebellar peduncles.

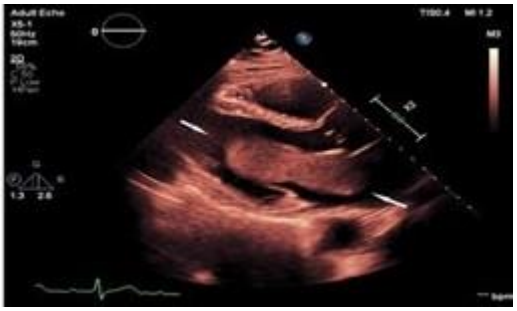

Fig 2. Parasternal view of the transthoracic echocardiogram demonstrating atrial myxoma.

Fig 3. Gross appearance of atrial myxoma during surgical excision.

Results and discussion

He recovered well after the stroke, regaining independence with activities of daily living (ADL), with an improved NIHSS score of 0. Cases of ischemic stroke caused by myxomas have been well documented with 0.5% of all ischaemic strokes are being attributed to myxomatous embolisation.[4] If large, myxomas can cause obstructive symptoms, heart failure and pulmonary hypertension, and arrhythmias when they penetrate the myocardium. Fragments or complete tumour detachment can occur giving embolic complications like stroke which accounts for 80% of neurological symptoms caused by a myxoma or pulmonary embolism.[5] Clinicians may suspect atrial myxoma with auscultatory finding of a crescendo mid diastolic murmur.[6] Auscultatory abnormalities are found in 64% of patients, with some also exhibiting 'tumour plop'.[7]

In case of uncertainty and high degree of clinic suspicion, a transoesophageal echocardiography is preferred as it has been reported to show 100% sensitivity for cardiac myxoma.[8] Surgical excision remains the definitive treatment, and once diagnosed should be performed urgently to prevent future tumour growth, risk of embolisation or acute cardiogenic shock and sudden cardiac death.[9] Patients may require annual follow-up with echocardiography for 3-4 years after surgery when the risk of recurrence is the highest.[10]

Conclusion

Cardiac myxoma presenting as ischemic stroke is rare; however, this case highlights the importance of thorough physical examination, clinical suspicion and use of imaging modalities as the myxoma could have been easily missed due to the presence of a number of risk factors to explain his stroke.

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Case report: rare case of recurrent splenic adenocarcinoma

Authors: Dhinagaren Narayanan,[A] Ruben Canelo,[A] Asghar Junaid Syed[A] and Ahmed Hammouda[A]

[A]North Cumbria Integrated Care, Cumbria, UK

The incidence of splenic tumour is relatively low compared to other organs. They are sometimes discovered incidentally on imaging. The majority of primary splenic tumours are diagnosed as benign. Primary malignant tumour of the spleen most commonly involves lymphoma and angiosarcoma.[1,2] The diagnostic algorithm to determine the nature of the splenic tumour should include series of laboratory tests, imaging studies, positron emission tomography (PET) scans as well as sometimes warranting the need for splenectomy followed by immunohistochemistry profiling. While the occurrence of primary splenic adenocarcinoma is rare, this case study reports recurrent primary splenic tumour with poorly differentiated adenocarcinoma in a patient who initially presented and investigated for anaemia of unknown cause. As to the best of our knowledge, this case has not been reported before and hence the present study provides insight into the response for standard treatment for splenic adenocarcinoma.

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The ELuSivity of SLE

Author: Peta Masters[A]

[A]Broomfield Hospital, Essex, UK

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that is characterised by multi-organ inflammation. SLE affects predominantly women (female to male ratio 10:1).[1] Cardiac and renal involvement are common in lupus patients, affecting ~50% respectively, and contribute significantly to morbidity and mortality from the disease.[1,2]

We present the case of a 42-year-old woman with a background of anti-phospholipid syndrome (APLS) who attended the acute medical unit in the setting of postural symptoms and chest tightness. She had repeated prior presentations in the setting of abdominal pain and fevers. Investigations revealed significantly raised inflammatory markers, raised serial high sensitivity troponin and ischaemic electrocardiogram changes. She was managed initially for acute coronary syndrome with dual anti-platelet therapy and a heparin infusion. She was commenced on antibiotics for possible underlying infection. Nonetheless, her condition deteriorated with subsequent upper gastrointestinal bleeding, acute renal failure, arrhythmia and acute heart failure with myopericarditis demonstrated on imaging. She was admitted to the intensive care unit for multiple organ support. Further investigations revealed an underlying diagnosis of SLE with both cardiac and renal involvement. She was treated with pulse methylprednisolone and rituximab with a significant improvement in her condition.

Learning points:

- Identification of SLE can be elusive and is often significantly delayed.
- 30–40% of SLE patients also have anti-phospholipid syndrome.[3]
- The most frequently recorded symptoms and signs prior to diagnosis of SLE are musculoskeletal, mucocutaneous and neurological symptoms; however renal and cardiac involvement is seen in ~50% of patients with the diagnosis.[1,2,4]
- Not all chest pain on the acute medical unit is ACS; however, SLE patients are at significantly increased risk of premature atherosclerosis and/or thrombosis.[1-4]
- Do not treat SLE or APLS patients with heparin infusions; one cannot interpret APTT /APTT ratios in patients with SLE or APLS due to presence of lupus anticoagulant which causes *in vitro* prolonged APTT.[5]

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A unique case of co-trimoxazole-induced hypoglycaemia

Wajiha Amjad,[A] Saad Naveed,[A] Damodar Makkuni[A] and Joanne Randall[A]

[A]James Paget University Hospital, Norfolk, UK

Background

Co-trimoxazole is a commonly used antibiotic conventionally indicated in the management of pneumocystis pneumonia (PCP) and atypical pneumonia in immunocompromised patients. Hypoglycaemia is a rare but a life-threatening side effect of high dose co-trimoxazole in patients who are otherwise non-diabetic.[1,2] It is believed that high dose co-trimoxazole stimulates pancreatic beta cells leading to hyperinsulinaemia and subsequently hypoglycaemia. Other factors which may predispose patients to this rare side effects include advanced age, impaired kidney function and malnutrition.[3]

Clinical case

A 60-year-old man presented with progressively worsening 3-week history of shortness of breath on exertion and a dry cough with a background of granulomatosis with polyangiitis and renal vasculitis, for which he was on methotrexate and rituximab. His observations were initially stable, and examination was unremarkable. Chest X-ray showed bilateral interstitial changes. CT pulmonary angiogram showed glass ground opacifications representing likely atypical infection. He was treated with co-trimoxazole to cover for pneumocystis pneumonia, along with high dose oral prednisolone. Sputum cultures confirmed PCP and microbiology recommended an increased dose of 4,320 mg oral co-trimoxazole TDS for 2 weeks. He seemed to recover well and was deemed medically fit for discharge. Over the next few days, the patient gradually become more lethargic, hypotensive, constipated and nauseous with occasional bouts of post-prandial vomiting. His bloods showed hyponatremia (113 mmol/L) and hyperkalaemia (5.7 mmol/L). He was treated with IV fluids with potassium. It was initially suspected this was due to vomiting while syndrome of inappropriate antidiuretic hormone ADH release was queried. Ultrasound of the abdomen was normal. Following an unwitnessed inpatient fall, his blood glucose was noted to be 2.1 mmol/L. He was immediately treated with IV dextrose and glucagon. CT head ruled out any acute intracranial pathology. His blood glucose kept fluctuating, with frequent symptomatic hypoglycaemic episodes (tachypnoea, disorientation). An endocrinologist reviewed the patient and suggested possible co-trimoxazole induced hypoadrenalism and hypoglycaemia. Cortisol levels and TFTs were normal. His worsening hyponatraemia due to led to an ITU admission. He was commenced on hypertonic saline, 50% IV glucose and desmopressin with an aim to gradually restore the sodium levels. The case was discussed with the infectious diseases team at the nearest tertiary center and the patient was subsequently started on clindamycin and primaquine. He improved gradually over a week's time with the abovementioned antibiotics and a reducing regime of prednisolone. He was discharged and followed up in rheumatology clinic.

Conclusion

Blood glucose levels should be regularly monitored if a patient has been commenced on high dose co-trimoxazole in addition to monitoring kidney function, electrolytes and fluid balance.

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Subclavian steal syndrome – an underappreciated cause of neurological symptoms

Fahad-Bin Zahid,[A] Manbir Duggal,[A] Faisal Hassan,[A] Don Sims,[A] Jattinder Khaira,[A] Ket Sang TaiA and Alok Tiwari[A]

[A]University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

Introduction

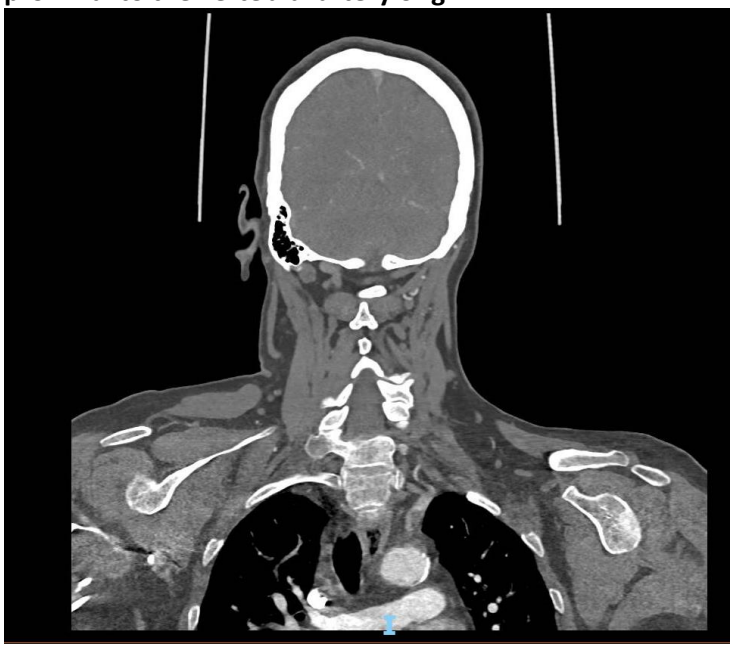
Subclavian steal syndrome (SSS) is a vascular disorder characterised by a significant stenosis or occlusion of the subclavian artery proximal to the vertebral origin, resulting in retrograde flow in the ipsilateral vertebral artery. The symptoms arise due to two types of mechanisms by which the arm 'steals' blood flow from the vertebrobasilar territory: first, a lack of blood supply because of subclavian artery stenosis, and second, rarely, malformation disease. One study showed a 2.5% incidence.[1] We report a case presenting as ischaemic stroke secondary to subclavian steal syndrome phenomenon.

Materials

A 61-year-old woman was admitted initially with sudden onset of dizziness and light-headedness with nausea and vomiting. She had a past medical history of chronic kidney disease and hypercholesterolemia and asymptomatic stenosis of subclavian artery. The patient reported a few months of progressive symptoms of left arm numbness and intermittent episodes of syncope. On examination, her BP was 177/76 mmHg (right arm), left radial pulse was palpable but feeble, BP on the left arm was 123/83 mmHg.

The patient was alerted as stroke with NIHSS 16. CT head and CT angiogram (CTA) of carotid vessels showed an acute complete occlusion of V3 and V4 of right vertebral artery, and partial occlusion of V4 of left vertebral artery and mid basilar artery. Poor flow of P3 segment and beyond of right PCA. There was near-complete occlusion of the left subclavian artery origin, proximal to the vertebral artery origin which was likely chronic. MRI co-related right PICA territory in the right lateral medulla and inferior cerebellum in keeping with hypo perfusion (Fig 1).

Fig 1. CT Angiogram - Coronal views of near-complete occlusion of the left subclavian artery origin, proximal to the vertebral artery origin.



She had increasing frequency of syncopal episodes as an inpatient after being treated for her stroke. She was discussed in neuroradiology and vascular multidisciplinary meetings, and diagnosis of subclavian steal syndrome was made. Stenting of subclavian artery with angioplasty was undertaken.

Discussion

SSS is a relatively rare condition. Atherosclerosis is the most common cause (95%).[2]

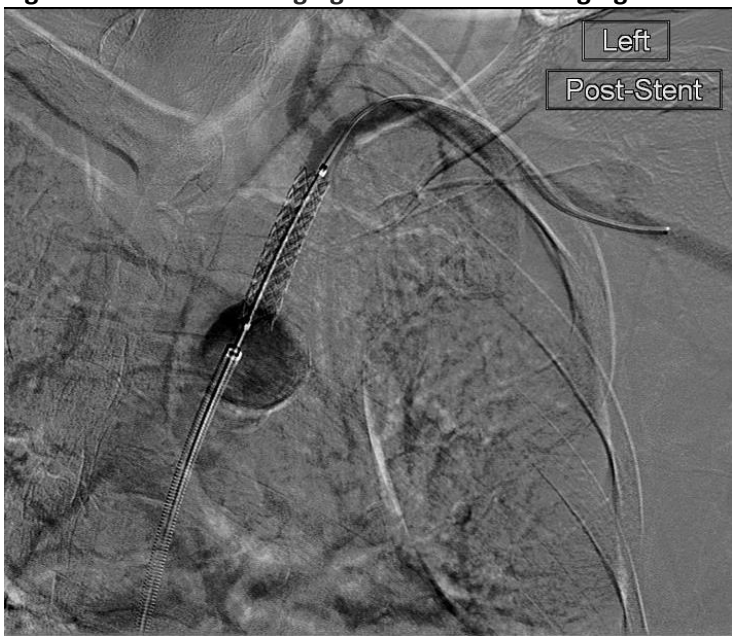
We used a combination of duplex scan, CTA and angiography to assess the proximal subclavian stenosis. Duplex scan allows the classification on the degree of hemodynamic disturbances of the vertebral artery: stage I (cccult steal, decreased blood flow), stage II (partial steal, transient or partial reversal of flow), and stage III (complete steal, permanent reversal of flow).

Invasive treatment is indicated in symptomatic patients. Options include axillo-axillary bypass, carotid-subclavian bypass, and percutaneous transluminal angioplasty (PTA) of the stenotic proximal subclavian artery with stent placement. Bates *et al* have reported a 76% 5-year survival in a large case series of patients who underwent subclavian artery stenting.[3]

We propose that percutaneous transluminal angioplasty with stenting placement is a good therapeutic option for SSS.

Repeat CTA (Fig 2) showed further recanalisation of the right vertebral segments compared with the previous scan. There was a significant improvement in symptoms and substantial decrease in the frequency and length of syncopal events.

Fig 2. Left subclavian angiogram - Post-stent angiogram of subclavian territory and left vertebral origin.



Conclusion

Our case highlights subclavian artery stenosis as a rare cause for syncope/stroke. The combination of imaging modalities and clinical symptoms can confirm the presence of subclavian steal syndrome.

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The use of chemotherapy for colorectal cancer during pregnancy

Author: Amjed Alhilfi[A]

[A]University Hospitals of Bristol and Weston

Introduction

Colon cancer in pregnancy is uncommon. Only a small number of case reports have been published in the literature on the use of chemotherapeutic drugs during pregnancy.

Reports of such cases assist clinicians in further investigating the use of chemotherapy in pregnancy.

Background

A 37-year-old woman presented with long history of abdominal pain, constipation and loose stool with occasional blood or mucus.

Investigation

Blood-confirmed iron deficiency and stool calprotectin was more than 600. CEA was normal and has remained normal throughout. A subsequent colonoscopy with biopsy showed some fragments of large bowel contained neoplastic glands, therefore these biopsies were regarded to be suspicious rather than diagnostic of adenocarcinoma. Staging CT thorax, abdomen and pelvis which revealed a 6.7 cm tumour in the transverse colon with enlarged upper abdominal lymph nodes, the largest lymph node 11 mm in short axis, no distant metastases were found. At that time, patient had been trying for a pregnancy for a year and she was unexpectedly found to be pregnant shortly after diagnosis.

Management

1 Surgery:

Laparoscopic right hemicolectomy was followed by histology examination, which revealed moderately differentiated adenocarcinoma with pT3 pN0 pM1c (omental tumour deposits) VI R0.

2 Adjuvant chemotherapy:

FOLFOX chemotherapy for 3 months was started when the patient was 14 weeks pregnant. Although the standard is 6 months, we were aiming to start after week 12 of her pregnancy and finish before week 35, to avoid fetal malformations and risk of neonatal myelosuppression, respectively. The FOLFOX regime consists of oxaliplatin, leucovorin and 5-FU. In three case studies, authors have reported the use of FOLFOX regimes to treat colorectal cancer (CRC) during pregnancy.[5,6] No congenital abnormalities, except for hypothyroidism, were found in 8 pregnant women with CRC who received 5-FU alone or in combination (with oxaliplatin or irinotecan) after the first trimester.[7,8].

Follow-up

Regular obstetric surveillance scans demonstrated normal fetal growth and development. The patient was admitted at 38 weeks of gestation for induction of labour. She had a vaginal delivery of a healthy infant girl with a birth weight of 3,000 g and Apgar scores of 9 and 10 at 1 and 5 minutes, respectively. The patient and her infant had no immediate complications postpartum. Serial CT CAP, the first of which was a month after delivery and 7 months after surgery, alongside surveillance colonoscopy with biopsy has revealed persistent remission.

Conclusion

The coexistence of cancer and pregnancy is a state of simultaneous occurrence of two completely contradictory phenomena – the development of a new life and a life-threatening terminal illness. In fact, CRC is an aggressive cancer that is rarely found during pregnancy, but when it appears poor outcomes are expected, as it is usually diagnosed at a late stage.[1,2,3] Treatment during pregnancy varies widely and poses significant legal, ethical, religious, emotional and scientific challenges; therapy should be individualised and defined by a multidisciplinary team that also considers through patient counselling the best management for both the patient and her fetus.

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The role of PET-CT imaging in the assessment of treatment response and its predictive value for survival outcomes in adult patients with newly diagnosed Hodgkin lymphoma: a comparison with conventional imaging techniques

Author: Smaran Kasireddy[A]

[A]University Hospitals Leicester

Introduction

There has been a rapid rise in the number of Hodgkin lymphoma cases worldwide with an increase of over 39% from 1990 to the year 2017. It shows a very particular bimodal distribution with the peak incidences being between 20–39 and inpatients aged 60 and above. The age-standardised death rates have also increased by 2.36%. Along with this, Hodgkin lymphoma incidence and mortality were 0.98 and 0.26 per 100,000 in 2020. A higher incidence was observed in high-income countries, while higher mortality was found in low-income countries.[1] The imaging modality of choice in Hodgkin lymphoma has changed between the generations but recently PET-CT has proven to be the imaging modality of choice along with the development of the Lugano classification which has been used effectively in both the treatment of non-Hodgkin lymphoma and Hodgkin lymphoma.[2]

While determining the diagnosis and severity of Hodgkin lymphoma are important in terms of staging and ultimately determining the treatment modality, PET-CT was shown to cause upstaging and downstaging in various cases of Hodgkin lymphoma. Upstaging was mainly caused by the detection of extranodal involvement in previously diagnosed Hodgkin lymphoma and this could lead to a further change in the management.[3] Along with the diagnosis of the disease interim, PET-CT has also been shown to determine relapse rates in patients with HL. An FDG positive mass can lead to relapse in 62.5% of cases, and in resource constraint setting where FDG PET can prove to be a costly investigation, it could mean potentially missing out on a relapse diagnosis.[4]

Methodology

This study was conducted following the preferred guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA), used extensively to conduct effective research. The literature-based search for this article was conducted on scientific databases such as the National Library of Medicine (Pubmed), Cochrane Central Register of Controlled Trials (CENTRAL) of Cochrane Library along with Pubmed Central (PMC) and Google Scholar with the utilisation of the following medical subject heading (MeSH).

Inclusion criteria:

- Patients of all genders and ages.
- Patients with newly diagnosed Hodgkin lymphoma.
- Patients who have undergone PET-CT imaging for the assessment of treatment response.
- Studies that report treatment response outcomes (eg complete response, partial response, stable disease) based on PET-CT findings.
- Studies that report survival outcomes (eg overall survival, progression-free survival) based on PET-CT findings.
- Studies that include both adult and pediatric patients or provide separate data for each population. Studies done post 2019.

Exclusion criteria:

- Patients with recurrent or relapsed Hodgkin lymphoma.

- Patients who have not undergone PET-CT imaging for treatment response assessment.
- Studies that focus on non-Hodgkin lymphoma or other haematological malignancies.
- Studies that solely focus on conventional imaging techniques (eg CT or MRI) without including PET-CT.
- Studies with insufficient data or incomplete information regarding treatment response or survival outcomes.
- Animal studies, review articles, case reports, and conference abstracts.

Results and conclusion

A review of a range of studies from different countries and covering different age groups showed that the utilisation of PET-CT radiological methods to obtain a better and more precise image of the patient's condition might act as a pivotal marker for the identification and prognosis of Hodgkin lymphoma that follows a distinct yet predictive pattern of metastasis in patients. Both patients and medical professionals stand to gain significantly from the use of PET-CT in combination to assess the clinical features of the disease and serve as an independent predictor of progression-free survival and overall survival in patients. Further studies need to be conducted to mark PET-CT as the most reliable source of survival prediction among patients who have Hodgkin lymphoma.

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A systematic review of NSAID and tanezumab efficacy in chronic lower back pain

Authors: Smaran Kasireddy,[A] Sanjana MK,[B] Saransh Narang[C] Krish Hitesh Patel,[D] Rohan Singhal[E]

[A]University Hospitals Leicester; [B]Srinivas Institute of Medical Sciences, Mangalore; [C]Medical College Baroda; [D]Government Medical College, Surat; [E]ABVIMS, New Delhi

Abstract

Chronic back pain is a condition that impacts people of all ages and lasts longer than 12 weeks. 7.41% of all years lost to disability (YLD) are attributed to low back pain, which makes it the pathology responsible for the most YLD, surpassing other chronic conditions such as diabetes and depression[1]. Despite the prevalence of drugs such as opioids, nonsteroidal anti-inflammatory drugs (NSAIDs) and biologics, the types of drugs administered to individuals differ greatly. We collected data from the PubMed database of the National Library of Medicine, PubMed Central, and Google Scholar. Randomised controlled trials (RCTs) that explicitly evaluate the efficacy of various NSAIDs in adult patients with chronic back pain were selected for this study. After an exhaustive search and examination of numerous publications, only eight articles met the inclusion criteria. In recent studies that included NSAIDs, they were among the most frequently prescribed medications for the treatment of chronic low back pain. In comparison with placebo, selective COX-II inhibitors such as celecoxib and etoricoxib were found to be efficacious, while valdecoxib was associated with serious side effects. In addition to reducing back pain, COX-II inhibitors with a preference for COX-II, such as aceclofenac and diclofenac, were associated with gastrointestinal side effects. Despite the risk of joint degeneration and accelerated osteoarthritis, intravenous tanezumab may be superior to naproxen and placebo in treating chronic low back pain.

Methods

We used the National Library of Medicine (PubMed), PubMed Central (PMC) and Google Scholar for collecting data through the use of the following medical subject headings (MeSH) terms with keywords such as ‘chronic back pain’ and ‘low back pain’ and ‘clinical trials’ as well as various NSAIDs such as ‘diclofenac’, ‘aceclofenac’, ‘ibuprofen’, ‘paracetamol’, ‘etoricoxib’, ‘valdecoxib’. The total number of articles found on electronic databases was 7,717.

Database	Search keyword
Pubmed	“chronic back pain” OR “low back pain” AND (ibuprofen OR diclofenac OR paracetamol OR tanezumab OR paracetamol OR etoricoxib OR aceclofenac)
Pubmed Central	(“chronic back pain” AND (aceclofenac OR ibuprofen OR diclofenac OR tanezumab OR paracetamol OR etoricoxib OR valdecoxib))
Google scholar	“chronic back pain” AND "clinical trial" AND (aceclofenac OR diclofenac OR etoricoxib OR valdecoxib OR paracetamol OR tanezumab)

Main outcome variables

Pain relief and/or functional improvement were measured by validated pain scales such as the Visual Analogue Scale (VAS), Oswestry Disability Index (ODI) or Roland Morris Disability Questionnaire (RMDQ).

Results

Experimental and control groups were utilised by all the studies included in our documentation. The detailed display of results is shown in Tables 1 and 2.

Table 1. Studies comparing the types of drugs used to treat lower back pain

Reference	Year of publication	Focus of study	Findings
Bedaiwi MK *et al*	2016	Comparison of celecoxib 200 mg twice daily compared to acetaminophen 500 mg twice daily.	ODI 34.8% versus nocturnal back pain 41.7% versus 9.1%, total back pain 33.3% versus 9.1%.
Birbara CA *et al*	2003	Comparison of etoricoxib 60 mg once daily with placebo for control of back pain measured using VAS.	Etoricoxib provided significant improvement from baseline versus placebo in pain intensity.
Coats TL *et al*	2004	Valdecoxib 40 mg/day versus placebo tablets once daily for four weeks.	Questionnaire score with valdecoxib were significantly greater than with placebo at each assessment (p< or =0.03).
Kivitz AJ *et al*	2013	Naproxen (500 mg twice daily), or placebo vs IV tanezumab 20 mg. RMDQ, NRS and LBPI were used to measure efficacy.	Tanezumab 10 and 20 mg had similar efficacy profiles and significantly improved LBPI.
Pallay RM *et al*	2009	Etoricoxib 60 mg (n=109), 90 mg (n=106) compared with placebo. Efficacy was measured using RMDQ.	Both etoricoxib groups experienced significant reductions in LBP intensity at 4 weeks versus placebo.
Taguchi T *et al*	2004	Eligible patients were randomised to receive diclofenac sodium patch 75 mg or 150 mg and compared with placebo. Efficacy was measured using VAS.	Primary analysis of the primary endpoint showed that both doses of the diclofenac sodium patch (150 mg and 75 mg) were superior.
Yang JH *et al*	2017	Comparison between aceclofenac CR (200 mg oncedaily) versus conventional twice daily dose aceclofenac of 100 mg.	There were significant VAS reductions for aceclofenac CR and aceclofenac (p=0.028).
Zerbini C *et al*	2005	Comparison of etoricoxib 60 mg once daily over 4 weeks with high-dose diclofenac 150 mg daily.	The least-squares mean time-weighted change from baseline LBP-IS score over 4 weeks was -32.94 mm (95% CI -36.25, -29.63).

Table 2. Cochrane risk of bias assessment

Study	Randomisation process	Deviation from intervention	Missing outcome data	Measurement of outcome	Selection of reported result	Overall bias risk
	D1	**D2**	**D3**	**D4**	**D5**	**Results**
Bedaiwi MK *et al*, 2016	Low	Low	Low	Low	Low	Low
Birbara CA *et al*, 2003	Low	Low	Low	Low	Low	Low
Coats TL *et al*, 2004	Low	Low	Low	Low	Some concerns	Some concerns
Kivitz AJ *et al*, 2013	Low	Low	Low	Low	Low	Low
Pallay RM *et al*, 2009	Low	Low	Low	Low	Low	Low
Taguchi T *et al*, 2004	Low	Low	Low	Low	Low	Low
Yang JH *et al*, 2017	Low	Low	Low	Some Concerns	Some concerns	Some concerns
Zerbini C *et al*, 2005	Low	Low	Low	Low	Some concerns	Some concerns

Reference

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Incidence, management and prognosis of new-onset sarcoidosis post COVID-19 infection

Authors: Oliver Vij,[A] Dey Mrinalini,[B] Kirsty Morrison,[C] Koushan Kouranloo[D]

[A]Guy's Hospital; [B]Queen Elizabeth Hospital, Woolwich; [C]British Medical Association; [D]Liverpool University Hospitals NHS Foundation Trust

Background

The COVID-19 pandemic resulted in significant morbidity and mortality, including reports of new-onset of autoimmune conditions.[1–3] Although primarily a respiratory disease, SARS-CoV-2 infection has been linked to hyperinflammation in multiple organs, a potential mechanistic link with resulting autoimmunity.[4–6] A systematic literature review on new-onset sarcoidosis following COVID-19 is lacking. We evaluated potential associations between COVID-19 and development of new-onset sarcoidosis.

Methods

Articles discussing biopsy-proven sarcoidosis after confirmed COVID-19 infection, published between 1946 and May 2023, were included. Medline, Embase and Cochrane databases were searched.

The research question was: What is the incidence and management of new-onset sarcoidosis after COVID-19 infection? The search was restricted to English-language articles and those discussing clinical presentation of disease. All article types were deemed eligible except opinion articles and reviews.

Titles and abstracts were screened for eligibility. Articles meeting the inclusion criteria were examined by one author, with 20% screened at abstract and full paper stage by a second author. In addition to basic demographics, information was extracted on clinical, investigation findings and treatment administered.

Results

Initially, 296 articles were retrieved with 10 ultimately included (eight case reports, one case series, one cohort study) (Fig 1). A pooled total of 15 patients with new-onset diagnosis of sarcoidosis after COVID-19 infection were included, 45.5% were women, with a mean age of 46.1 years (SD 14.7) at onset of sarcoidosis. Patients were from: Europe (n=11); North America (n=2); South America (n=1); Asia (n=1).

The time between COVID-19 infection and diagnosis of sarcoidosis ranged from 10 to 140 days. Organ systems predominantly affected by sarcoidosis were: pulmonary (n=11); cutaneous (n=3); cardiac (n=2); ocular (n=1); systemic (n=1) (with overlapping features in certain patients). The most commonly reported comorbidities were hypertension, chronic obstructive respiratory disease and ischaemic heart disease.

All patients underwent tissue biopsy demonstrating features consistent with sarcoidosis: lung (n=11); skin (n=2); cardiac (n=2). Computed tomography of the chest (n=13), positron emission tomography (n=2) and cardiac magnetic resonance imaging (n=1) were undertaken.

Sarcoidosis was treated as follows: glucocorticoids (n=8); azathioprine (n=1); cardiac re-synchronisation therapy (n=1); heart transplant (n=1). All patients were reported to have survived, with one requiring intensive care admission.

Conclusion

This is the first systematic literature review on new-onset biopsy proven sarcoidosis after COVID-19. Our result suggests that COVID-19 and other viral infections may lead to immune dysregulation and subsequent onset of autoimmune disease. Obtaining a tissue sample remains key in confirming the diagnosis of

sarcoidosis and this may be delayed during active COVID-19 infection. Larger studies are required to understand this association better in order to better risk stratify patients at risk of infections.

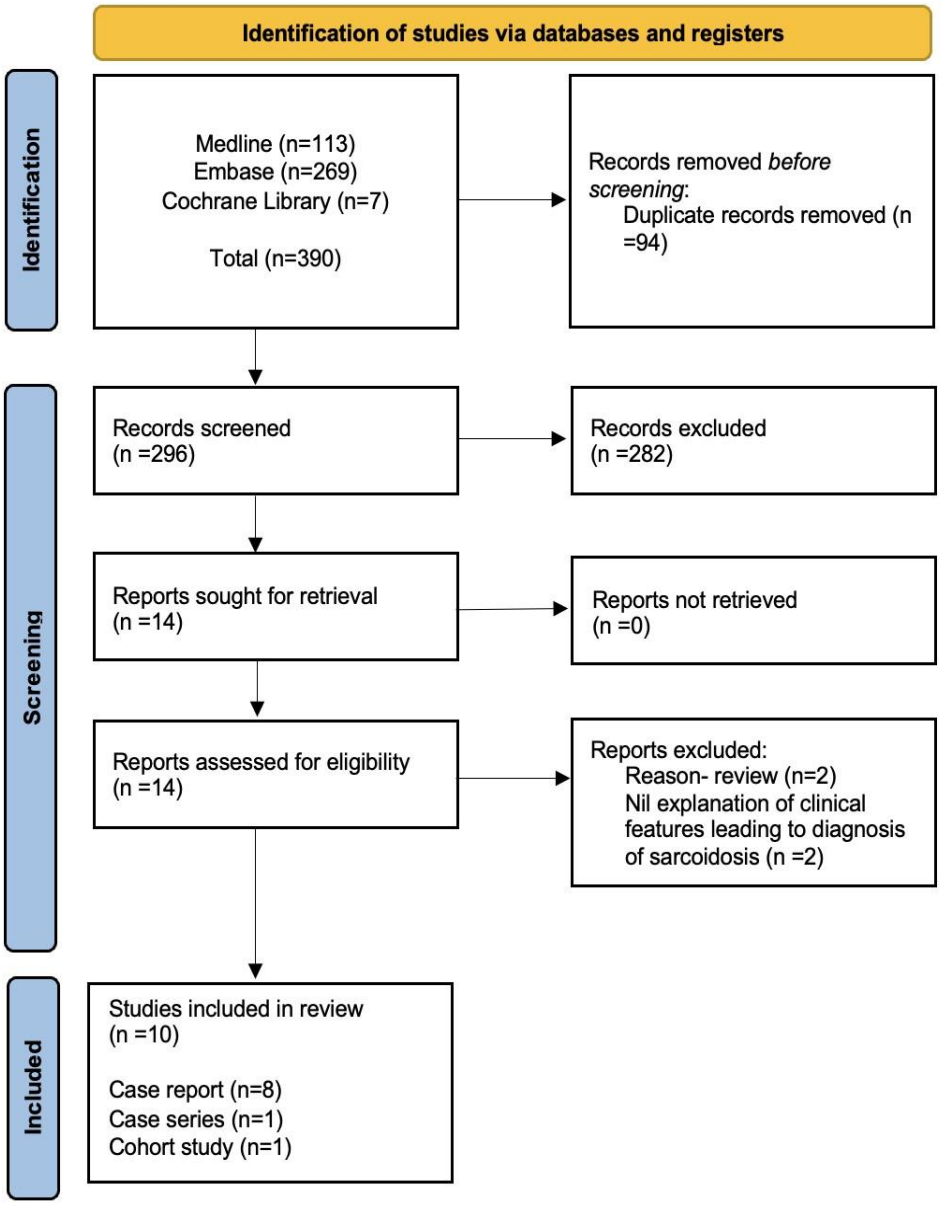

Fig 1. Flow diagram of stages of systematic literature review.

The Cochrane Library encompasses systematic reviews; systematic review protocols; controlled clinical trials.

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The management of type 2a supracondylar humerus fractures: an extended literature review

Authors: Chinmay Tijare,[A] Hussein Noureddine[A]

[A]University Hospitals Leicester

Background

Controversy surrounding the management of Gartland type 2a supracondylar humerus fractures persists as to whether they should be managed operatively or non-operatively. Much of the literature does not differentiate between type 2a and type 2b fractures. The aim of this study was to review the literature on management of type 2a as a separate entity.

Methods

A systematic search was applied to PubMed central and Scopus to retrieve all studies published from inception until January 2023. Studies that specifically differentiated patients being managed for type 2a fractures were included. Studies that did not differentiate between type 2a and 2b fractures were then excluded.

Results

A total of five suitable studies were found, including a total of 233 patients. Two studies compared operatively and non-operatively managed cohorts, while three studies measured outcomes for a single treatment modality. The outcomes assessed varied with radiological, clinical, and functional outcomes all being looked at.

Carrying angle showed no significant difference between operative and non-operative groups. Range of motion was generally adequate, and no studies noted a significant difference.

Radiological outcomes at final follow-up again did not reveal a significant difference, and functional outcomes were comparable between both groups.

However, in one of the studies 8% of the cases treated non-operatively required conversion to operative treatment for failure of management.

Finally, complication rates were fairly low in all patients, with one study demonstrating a similar rate of avascular necrosis and refracture in both groups.

Conclusion

Both operative and non-operative management have shown comparable outcomes in Gartland 2A fractures. The combined cohort of our study is limited and further studies specifically looking at this subtype in isolation are needed to confirm that there isn’t a superior treatment modality.

Declaration

The authors have not received any benefits in support of this work.

A vivid reminder that extremely elevated D dimer in a patient with respiratory failure is not necessarily secondary to pulmonary embolism

Author: Ilori Adewale[A]

[A]Russells Hall Hospital

D-dimer, a fibrin degradation product, is produced when blood clots begin to break down, and can be analysed and quantified.[1]

The measurement of D dimer in clinical practice is particularly useful for its negative predictive value, with values below reference range indicating venous thromboembolism is less likely,[2] while in patients with a Wells score ≥4, a positive D-dimer usually suggests the need for anticoagulation until imaging evidence is obtained.[3]

However, the interpretation of D-dimer has to be in clinical context, considering it has a high false positive value[3] and could be elevated in other conditions like malignancy, sepsis, trauma, massive bleeding and even pregnancy.[4]

This report looks at the case of an 82-year-old woman, known hypertensive, admitted with confusion, treated initially as a urinary tract infection (UTI), who later developed type 1 respiratory failure (oxygen requirement up to 100%) with D-dimer of one hundred and twenty-five thousand (125,000 ng/ml; negative cut-off value for PE is 500 ng/ml). She was anticoagulated for days while waiting for a CT pulmonary angiogram (CTPA) (which was delayed due to AKI) and developed gastrointestinal bleed, only for CTPA to confirm no pulmonary embolism (PE) days after. Fig 1 shows that C-reactive protein (CRP) done at the same time was 390 mg/L. The patient also had other features that could be explained by sepsis.

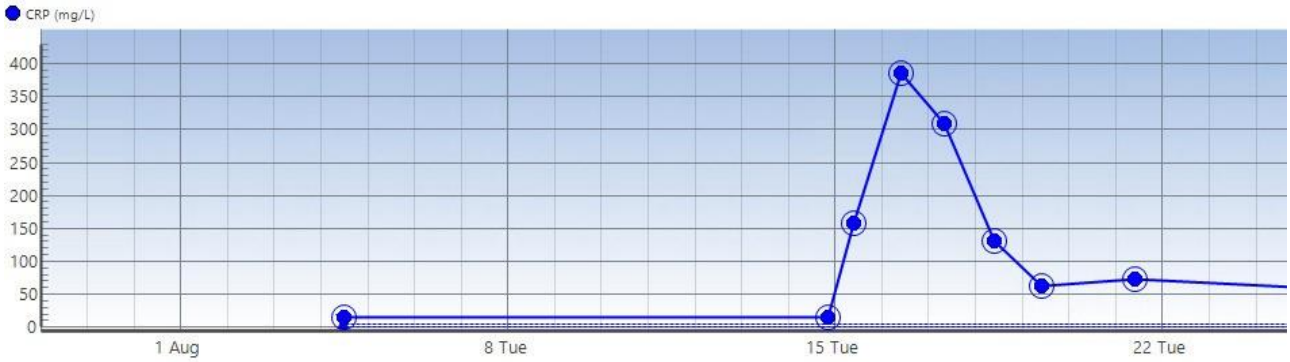

Fig 1. CRP in our 82-year-old patient case study

This case underscores the importance of considering other possible causes of respiratory failure, apart from PE, in patients with significantly elevated D-dimer, even in those with a measurement of >100,000.

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Use of 18F-FDG PET in assessing response to treatment in adults with pulmonary sarcoidosis: a systematic literature review

Authors: Oliver Vij,[A] Krishnakumar Mathangi,[B] Helen Elwell,[C] Dey Mrinalini,[D] Koushan Kouranloo[E]

[A]Guy's Hospital; [B]Wrexham Maelor Hospital; [C]British Medical Association; [D]Queen Elizabeth Hospital, Woolwich; [E]Liverpool University Hospitals NHS Foundation Trust

Background

Sarcoidosis is a chronic, multisystem, granulomatous disease commonly affecting the lungs.[1] Immunosuppressants, particularly corticosteroids, are the mainstay of treatment.[2]

Symptoms, severity and response to treatment can follow a heterogenous pattern, presenting a clinical challenge. Positron Emission Tomography (PET) imaging with the use of Fludeoxyglucose F18 (18F-FDG) has been recommended by the American Thoracic Society guidelines in choosing an appropriate biopsy site.[3] Use of 18F-FDG PET in disease monitoring remains uncertain. We undertook a systematic literature review (SLR) on the use of 18F-FDG PET in assessing response to treatment in adults with pulmonary sarcoidosis.

Methods

The protocol was registered on Prospero (CRD42023416412). All published articles discussing PET CT use in response to treatment in pulmonary sarcoidosis were included, until March 2023, in Medline, Embase, and Cochrane Databases.

The search was restricted to English-language articles. All article types were eligible except opinion pieces, case reports, case series of ≤10 patients and reviews.

Articles meeting inclusion criteria were examined by one author, with 20% validity screening. In addition to basic demographics, information was extracted on: Siltzbach classification of subjects; treatment; additional tests performed; time between baseline and follow-up PET CT. Data are presented using descriptive statistics, with meta-analysis conducted to pool sensitivities.

Results

Initially, 1759 articles were retrieved with 8 ultimately included (four prospective; three retrospective; one case-control). A pooled total of 260 patients with pulmonary sarcoidosis were included, 40.7% men, mean age 47.0 years (SD 3.4). Study populations were from France (n=1), China (n=1), The Netherlands (n=1), Turkey (n=1), India (n=2) and Serbia (n=2).

Treatment for pulmonary sarcoidosis varied markedly amongst the included studies, including: infliximab (n=1) and systemic corticosteroids (n=3); treatment was unknown in four studies. All studies used 18F-FDG PET, except one in which gallium-67 scintigraphy was also used. Time between baseline PET CT and follow-up scan ranged from 2.8 weeks to 12 months. Compared to clinical response, sensitivity of PET CT in determining response to treatment ranged from 56% to 100%, with a pooled sensitivity of 74.6% (SE 5.4).

Additional tests performed across all studies included spirometry, chest radiograph, serum angiotensin-converting-enzyme levels, soluble interleukin-2 receptor levels.

All studies concluded that PET CT correlates with clinical response to treatment and is useful for prognostication, aside from one study which concluded that metabolic response on PET CT can predict future risk of relapses but does not correlate with clinical response.

Conclusions

To our knowledge, this is the first SLR summarising the use of 18F-FDG PET in assessing response to treatment in adults with pulmonary sarcoidosis. 18F-FDG PET is useful in determining response to treatment and prognosis in pulmonary sarcoidosis, and may have a role in predicting future response. Further work in greater patient numbers is required to confirm the utility of PET CT in the management of pulmonary sarcoidosis.

Clinical implications

18F-FDG PET could be considered in monitoring response to immunosuppression in patients with pulmonary sarcoidosis.

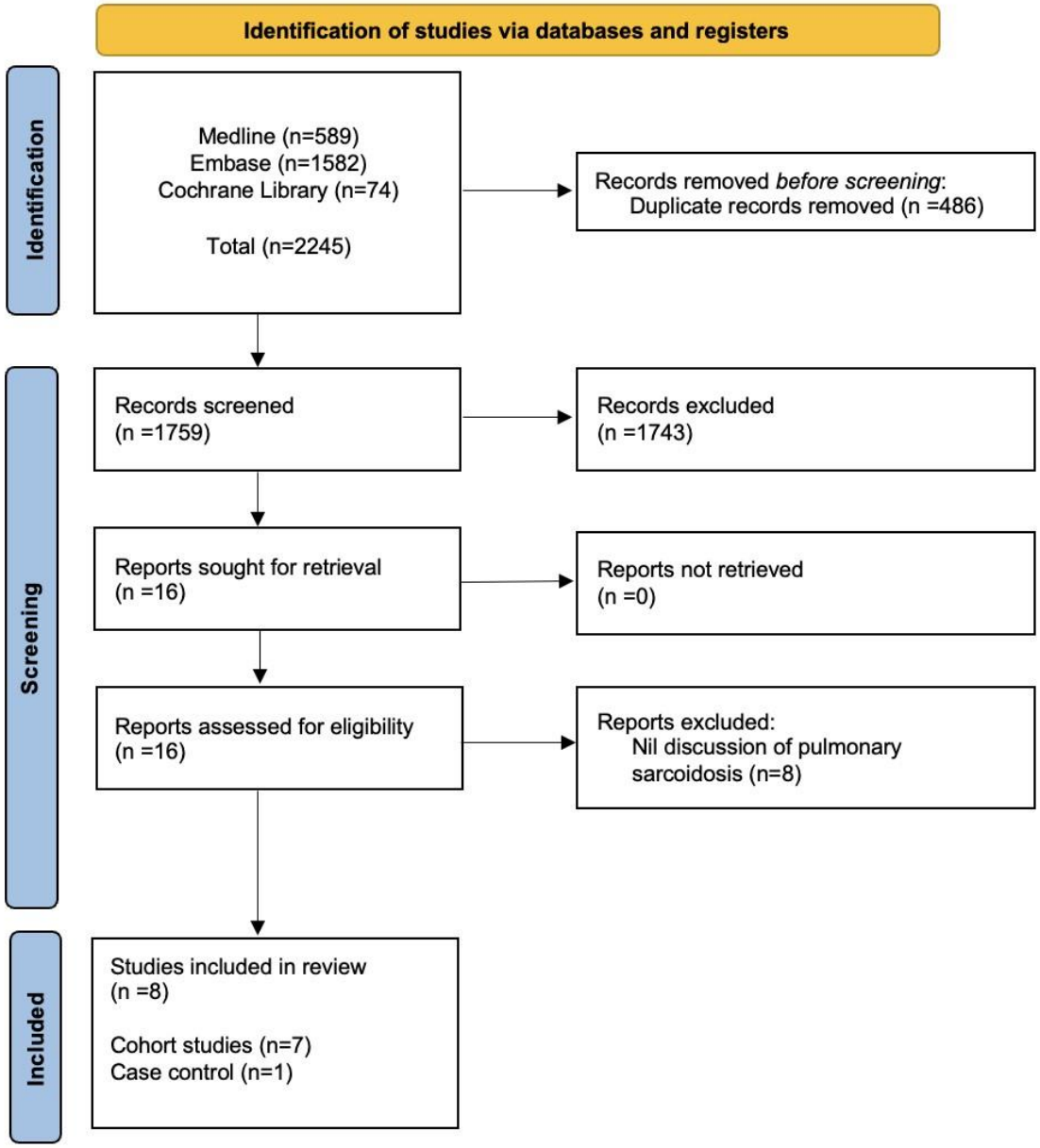

Fig 1. Flow diagram of the stages of systematic literature review.

The Cochrane Library encompasses systematic reviews; systematic review protocols; controlled clinical trials.

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Incidence, clinical features, management and outcomes of ANCA-associated vasculitis in pregnancy – a systematic literature review

Authors: Apurva Ashok,[A] Mrinalini Dey,[B] Koushan Kouranloo,[C] Laura Russell[D]

[A]University of Birmingham; [B]University of Liverpool; [C]University of Liverpool; Liverpool University NHS Foundation Trust; [D]British Medical Association Library

Introduction

Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitides (AAV) are rare multi-system conditions, usually presenting in older age groups.[1,2] However, younger individuals are also affected. The average increase of childbearing age and lack of studies in pregnancy necessitates this comprehensive review of data to guide the management of AAV in pregnancy.[3,4] This systematic review (SR) aimed to summarise the incidence, clinical features, management and maternal and fetal outcomes in female patients with AAV.

Materials and methods

The protocol was registered on PROSPERO (CRD42023437482).[5] Articles published in Medline, Embase and Cochrane databases from 1946 until June 2023 were included. Single case reports, reviews and conference abstracts were excluded. Articles meeting inclusion criteria were examined by two authors. Data on demographics, treatment, clinical features, flares during pregnancy and maternal and fetal outcomes were extracted (Fig 1).

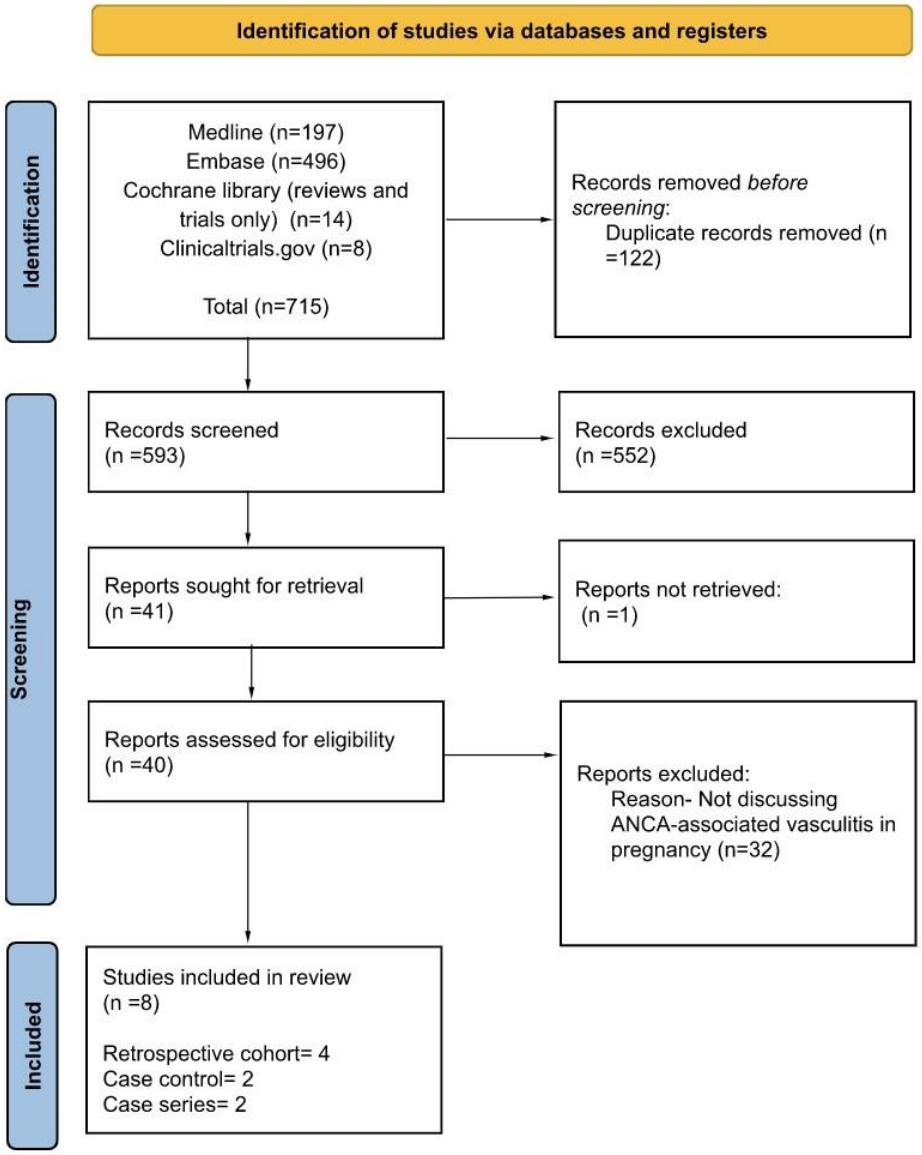

Fig 1. Flow diagram of stages of systematic literature review

Results and discussion

Eight studies were included, detailing 82 pregnancies in 64 women. The most common drugs used for remission induction pre-conception were cyclophosphamide, rituximab, prednisolone and azathioprine. Serious maternal complications in pregnancy included progressive tracheal/subglottic stenosis (n=5), renal disease (n=2), preeclampsia (n=10) and miscarriages (n=5). Fetal anomalies were rare (n=5). The mean birth weight was 3.37 kg and mean gestation age was 38.26 weeks. No maternal deaths or vasculitis in newborns were reported.

Authors	Type of study	No of patients; no of pregnancies	Mean age	Maternal comorbidities	Type of vasculitis	Matched group criteria	Induction regime	Maternal outcome	Fetal outcome
Ganhao, S *et al* 2021 (Italy)	Case-control	3;3	35.35	Not available	3/3 EGPA	Matched for age and rheumatic disease	Not available for study population	Not available for study population	Twins – median gestation 35 weeks; mean birth weight 2.24 kg. Singletons – median gestation 38.9 weeks; mean birthweight – 2.92 kg

Authors	Type of study	No of patients; no of pregnancies	Mean age	Maternal comorbidities	Type of vasculitis	Matched group criteria	Induction regime	Maternal outcome	Fetal outcome
Nguyen V *et al*, 2019 (Canada)	Retrospective cohort	16;20	33.4	6/20 vasculitis related hypertension	Not available	Not applicable	13/20 – PRED and AZA	2/20- preeclampsia; 1/20 postpartum flare; 3/20 emergency C-section	2/20 – terminated pregnancy. Mean gestation – 37.8 weeks. Median birth weight – 2.9 kg. 5/18 preterm.
Sangle SR *et al*, 2015 (UK)	Case-control	10;10	36	1/10 cases duplex kidney	8/10- GPA, 1/10- EGPA, 1 /10 – AAV with renal involvement	Matched for BMI, parity, smoking, age, no of foetuses, ethnicity	6/10 -CYC, 4/10 CYC, MTX and AZA	1/10 - preeclampsia; 1/10 intrauterine death.	Median gestation 36.3 weeks; mean birth weight 4 kg.
Pendergraft W *et al*, 2013 (US)	Retrospective cohort	5;7	27.8	Not available	6/7 – GPA, 1/7 – MPA	Not applicable	5/7 CYC and PRED, 1/7 CYC, PRED, RTX, 1/7 CYC, PRED, RTX, MMF	1/8 progressive airway disease	1/7 miscarriage; 1/7 preterm; median gestation – 40 weeks; median birth weight – 3.38 kg.
Tuin J *et al*, 2012 (Netherlands)	Retrospective cohort	14;22	31	2/22 caseshypertension; 3/22 cases proteinuria at conception.	Unspecified no of GPA and MPA	Not applicable	9/14 CYC. 1/14 PRED, ciclosporin, MMF, 1/14 MTX and PRED, 4/14 cotrimoxazole	2/22 – preeclampsia; 1/22 – emergency tracheotomy; 1/22 episcleritis & renal disease; 2/22 postpartum thyroiditis; 1/22-em CS	Median gestation 39.6 weeks; median birth weight 3.4 kg; 2/22 preterm; 1/22 neonatal hypothyroidism; 1/22 congenital anomaly
Croft *et al*, 2015 (UK)	Retrospective cohort	12;13	34	1/12 hypertension	10/12GPA, 2/12 – MPA	Not applicable	11/12 - PRED and CYC; 1/12 - PRED, CYC and plasma exchange; 1/12 RTX	2/12 emergency C-section; 1/12 with twin pregnancy had preeclampsia; 1/12 progressive tracheal stenosis; 1/12 renal disease	11/12 had gestation >37 weeks; 1/12 with twins delivered at 31 weeks for preeclampsia; median birth weight 3.12 kg
Auzary C *et al*, 2000 (France)	Case series	2;5	28.7	3/5 - Type 1 diabetes	GPA	Not applicable	1/5- CYC and PRED. 2/5 – PRED. 1/5 PRED, CYC, cotrimoxazole.	1/5 termination of pregnancy. 1/5 – preeclampsia and HELLP syndrome. 1/5 – preeclampsia	1/5 - congenital anomaly; Mean gestation 35.6 weeks; mean birth weight 3.93 kg
Lima F *et al*, 1995 (UK)	Case series	2;3	24	1/2 – asthma and nasal polyp removal	GPA and eGPA	Not applicable	1/3 – PRED and CYC; 1/3 – PRED, CYC, AZA.	1/3 flare; 1/3 postpartum flare	1/3 – stillbirth at 25 weeks. Mean gestation 39.5 weeks; mean birth weight 3.34 kg

Conclusions

Patients can have positive maternal and fetal outcomes following strong induction therapy, vigorous monitoring and prompt treatment of flares during pregnancy. Serious complications and flares are not associated with worse outcomes for newborns.

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Long COVID-19 syndrome: who is at more risk? Insights from a major tertiary centre in the UK

Authors: Saad Tariq Khan,[A] Khalid Rashid,[B] Farrukh Ansar[C]

[A]NHS County Durham and Darlington; [B]NHS South Tees; [C]Quaid-e Azam International University Hospital

Background

COVID-19 has been the most devastating pandemic in recent history. Amid the recovery phase, a novel phenomenon has emerged – long COVID syndrome.[1] This condition is characterised by persistent symptoms in individuals who have apparently recovered from the acute phase of the COVID-19 infection.[2] Long COVID is defined as the continuation or development of new symptoms
3 months after the initial SARS-CoV-2 infection, with these symptoms lasting for at least 2 months with no other explanation.[3] The objective of this study was to investigate associations between long COVID symptoms and patient demographics, such as age, sex and smoking habits, as well as clinical factors like vaccination status, disease severity and comorbidities.

Methods

A retrospective analysis of electronic health records from 2020 to 2022 was conducted. Participants aged 18 and above with confirmed COVID-19 diagnoses were included in the study. A structured questionnaire was used to collect demographic data, medical conditions, vaccination history, disease severity, hospitalisation, treatments, and post-COVID symptoms. Data was subjected to descriptive statistics, correlation tests, and multivariate logistic regression analysis.

Results

Among 289 participants, the average age was 51.51 years. 62.6% were women. 93% had received a COVID-19 vaccination. Reinfections occurred in 11.76% of cases. Disease severity varied, with 75% having mild, 15% moderate, and 10% severe infections. Hospitalisation rates were significant (25.6%), including 10.7% requiring intensive care. Thirteen distinct post-COVID symptoms were reported. Fatigue, shortness of breath upon exertion, and brain fog emerged as the most prevalent symptoms. Notably, women exhibited higher symptom prevalence. Significant correlations were established between higher BMI and smoking with augmented symptomatology. Conversely, a link between booster doses and symptom reduction was discerned. Using multinomial regression analysis, gender and smoking were identified as predictors of post-COVID-19 symptoms (Tables 1 and 2).

Conclusion

Long COVID symptoms are strongly predicted by factors like obesity, smoking history, and female sex. Booster doses may help reduce the number of symptoms. Long COVID symptoms were more prevalent in patients with persistent radiological abnormalities and abnormal spirometry values, suggesting that respiratory pathology may play a role. Findings contribute to risk stratification, intervention strategies, and further research.

Table 1 Baseline characteristics of study population

Variable	N=289
Gender N (%)	
Men	108 (37.37)
Women	181 (62.63)
Ethnicity N (%)	
British	264 (91.35)
Non-British	25 (8.65)
Smoking habits N (%)	
Smoker	28 (9.68)
Ex-smoker	54 (18.68)
Non-smoker	207 (71.62)
Alcohol habit N (%)	
Consumer	285 (98.61)
Non-consumer	4 (1.39)
Vaccination status N (%)	
Vaccinated for COVID-19	269 (93.07)
Non-vaccinated for COVID-19	20 (6.92)
Booster dose availed	240 (83.04)
No booster dose availed	49 (16.95)
Comorbidities N (%)	
Hypertension	65 (22.49)
Type 2 diabetes mellitus	40 (13.84)
Ischaemic heart disease	20 (6.92)
Chronic kidney disease	18 (6.22)
Asthma	64 (22.14)
Immunosuppressive medicine	10 (3.4%)
Severity of COVID-19 infection N (%)	
Mild	217 (75.1%)
Moderate	43 (14.9%)
Severe	29 (10%)

Table 2 Distribution of post-COVID-19 symptoms in study population

Symptoms	Frequency (N=289)	Men (N%)	Women (N%)	Smoker (N%)	Non-smoker (N%)	Booster (N%)	No booster (N%)	Up to 40 (N%)	41– 65 (N%)	66–80 (N%)	Over 80 (N%)
Fatigue	261 (90)	94 (87)	168 (92)	25 (89)	187 (90)	216 (90)	46 (94)	52 (58)	176 (92)	30 (88)	4 (66)
Myalgia	100 (34)	33 (30)	68 (38)	14 (50)	70 (33)	86 (36)	15 (30)	23 (40)	63 (32)	14 (41)	1 (16)
Brain fog	135 (46)	39 (36)	97 (54)	12 (43)	100 (48)	112 (46)	24 (49)	29 (50)	93 (49)	14 (41)	0 (0)
Shortness of breath	225 (77)	80 (74)	146 (81)	22 (79)	155 (75)	190 (79)	36 (73)	41 (70)	152 (80)	28 (82)	5 (83)
Anxiety	159 (55)	50 (46)	110 (60)	12 (43)	113 (55)	125 (52)	35 (71)	35 (60)	106 (55)	17 (50)	2 (33)
Anosmia	57 (19)	18 (16)	40 (22)	8 (29)	39 (19)	43 (18)	15 (30)	11 (19)	39 (20)	7 (20)	1 (16)
Hair loss	13 (4)	4 (3)	10 (6)	1 (3)	12 (5)	13 (5)	1 (2)	2 (3)	10 (5)	2 (5)	0 (0)
GI disturb-ance	21 (7)	8 (7%)	14 (8)	1 (3)	18 (9)	14 (6)	8 (16)	5 (8)	15 (8)	1 (3)	1 (16)
Migraine	34 (11)	6 (5%)	28 (15)	4 (14)	24 (12)	24 (10)	10 (20)	8 (13)	25 (13)	1 (3)	0 (0)
Loss of appetite	29 (10)	10 (9)	19 (10)	7 (25)	17 (8)	21 (9)	8 (16)	6 (10)	19 (10)	3 (8)	1 (16)

Symptoms	Frequency (N=289)	Men (N%)	Women (N%)	Smoker (N%)	Non-smoker (N%)	Booster (N%)	No booster (N%)	Up to 40 (N%)	41– 65 (N%)	66–80 (N%)	Over 80 (N%)
Loss of libido	3 (1)	2 (2)	1 (0.5)	1 (3)	2 (1)	2 (0.8)	1 (2)	0 (0)	3 (1.5)	0 (0)	0 (0)
Persistent body aches	78 (27)	25 (23)	53 (29)	9 (32)	56 (27)	60 (25)	18 (37)	13 (22)	55 (29)	10 (30)	0 (0)
Recurrent respiratory tract infections	25 (9)	10 (9)	15 (8)	5 (17)	16 (8)	20 (8)	5 (10)	3 (5)	17 (9)	4 (11)	1 (16)

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Safety and efficacy of therapeutic percutaneous pericardial window procedures in patients with cancer at a single tertiary centre in the UK

Authors: Suzannah Fleming,[A] Gareth Squire,[A] Elved Roberts,[A] Robert Grant[A]

[A]University Hospitals of Leicester

Introduction

Pericardial effusion is a recognised consequence of malignancy, particularly in metastatic disease.[1] Effusions typically build over a long period, giving time for cardiac pressures to compensate and allowing for larger volume effusions to accumulate. Eventually tamponade physiology may become evident, or patients may come to develop symptoms.[2] Subsequent management focuses on effusion drainage, with options including pericardiocentesis, percutaneous pericardial window and surgical window.[3] Malignant effusions are felt to be high risk for recurrence. There is clinical uncertainty and a lack of published data as to whether patients should proceed to window procedure, which is felt to offer a better long-term outcome, or have each recurrence of effusion drained with multiple attempts at pericardiocentesis as required.

Materials and methods

A total of 450 pericardial procedures over a 10-year period (2013–23) at a tertiary surgical hospital were reviewed to identify patients with cancer and a pericardial effusion that had a percutaneous pericardial window procedure or more than one pericardiocentesis. Across the two treatment groups we retrospectively collected information from electronic medical records from time of first procedure until 05/05/2023 or death. Relevant demographics, medical history, indication, complications, effusion recurrence, number of hospital admissions and date of death were captured.

Results and discussion

We identified 17 patients that had pericardial window (mean age= 65 years; 65% women), and 4 that had multiple pericardiocentesis (mean age=62 years; 100% women). Within the pericardial window group, there was a variety of primary cancer types: lung (n=5), breast (n=4), mesothelioma (n=4), ovarian (n=1), angiosarcoma (n=1), bowel (n=1) and thyroid (n=1), with 65% having evidence of metastasis prior to the diagnosis of effusion. All patients with multiple pericardiocentesis had breast cancer with metastasis. Of the 17 patients within the window group, over an average follow up of 27 months, one had a failed procedure, there were no complications, 13 died of their malignancy, there were nine re-hospitalisations unrelated to effusion, two had recurrence of pericardial effusion and the average time to recurrence was 618 days. In the four patients that had repeated pericardiocentesis, over an average follow up on 6 months, all had two pericardiocentesis procedures, none had complications, all four died of disease; the total number of re-hospitalisations was six and the average time to recurrence from the initial procedure of 132 days.

Conclusion

These data suggest that clinicians at our centre prefer pericardial window procedures to repeated pericardiocentesis for patients with advanced cancer and effusion. These data suggest that percutaneous pericardial window is safe and provides a longer period of effusion remission that traditional drainage. Overall procedural volumes are low, and there is an argument for regional referral pathways so that patients who would benefit are able to access this treatment.

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The effects of lifestyle interventions in type 2 diabetes on ectopic fat, fibro-inflammatory biomarkers and cardiovascular structure and function in obese adults with type 2 diabetes

Authors: Lilian Zevlaris,[A] Mustafa Al-jarshawi,[B] Emer M Brady,[C] Anvesha Singh,[C] Gerry McCann[C]

[A]University Hospitals of Leicester NHS Trust; [B]University Hospitals Plymouth NHS Trust; [C]University of Leicester

Introduction

Type 2 diabetes (T2D) affects approximately 10% of individuals aged 20 to 79 worldwide.[1] Obese adults with T2D exhibit a higher prevalence of ectopic fat deposition, fibroinflammatory disorders such as non-alcoholic fatty liver diseases, and cardiac dysfunction, namely diabetic cardiomyopathy, compared to individuals with T2D and lower body mass index (BMI).[2] This study aims to explore the effects of lifestyle interventions on ectopic fat distribution, fibro-inflammatory markers, and cardiac structure and function in obese adults with T2D.

Methods

In this study, we conducted a secondary analysis of data from the Diabetes Interventional Assessment Of Slimming Or Training To Lessen Inconspicuous Cardiovascular Dysfunction (DIASTOLIC) clinical trial (ClinicalTrials.gov Identifier: NCT02590822).[3] This trial comprised three arms with a follow-up period of 12 weeks: a) standard care, b) a low-energy meal replacement plan (MRP) providing ≈810 kcal/day with 30% protein, 50% carbohydrate, 20% fat, and c) an exercise programme of 150 minutes/week. The study included obese adults (BMI >30 or >27 kg/m^2 based on ethnicity) with established T2D diagnosis (≥3 months) but without cardiovascular disease.

Participants were randomised in a 1:1:1 ratio. We utilised in this study date of MRI scans of the liver, pancreas, and heart carried out for participants in this trial, as well as the following fibro-inflammatory biomarkers (NGAL, VEGFa, CHI3L1, FABP4, IL-8, adiponectin, and galectin-3), baseline demographic and medical history data, and anthropometric measurements. Statistical analyses were performed using STATA V.16 software, with statistical significance defined as $p < 0.05$.

Results

Among the 87 participants recruited, 51 had high-quality MRI scans and were included in analysis. Only participants in the exercise and meal replacement plan arms were considered. Baseline characteristics are presented in Table 1.

Baseline	T2D (n=51)
Age (years)	50.90 ± 7.10
Sex (male (%))	32 (62.80)
Ethnicity (White European (%))	30(58.82)
Smoking History (yes(%))	23(45.10)
High Cholesterol (yes(%))	35(68.3)
Hypertension (yes)	26 (51)
HbA1c (%)	7.20 ± 1.00
Fasting Glucose (mmol/L)	8.20 ± 2.30
Weight (Kg)	104.10 ±17.10
Height (cm)	169 ± 9.40
BMI (kg/m²)	36.60 ± 6.10
Resting SBP (mmHg)	137.31 ± 14.29
Resting DBP (mmHg)	87.59 ± 7.65
eGFR (ml/min/1.73m²)	90(8)
T2D duration (months)	58(61)
Resting HR (beats per minute)	77(10)

Variable	EXERCISE GROUP (n=15)			p-value*		
Follow-up	Week 0	Week 4	Week 12	Δ Weeks 0-4	Δ Weeks 4-12	Δ Weeks 0-12
CMR Variables						
CMR LV CO	7.350 ±1.060	6.303 ±1.366	7.321 ±1.716	0.027	0.097	0.865
CMR LV EF (%)	66.501 ±8.961	62.224 ±2.576	64.979 ±5.420	0.116	0.038	0.369
CMR LV mass (g)	132.143 (27.744)	136.434 (17.027)	123.911 (20.271)	0.043	0.309	0.335
CMR LV mass indexed to BSA (g)	57.815 ±7.657	58.046 ±7.255	56.665 ±8.528	0.016	0.256	0.455
CMR LV mass indexed to height (g)	0.741 ±0.110	0.750 ±0.129	0.720 ±0.102	0.043	0.312	0.326
CMR LV mass/volume (g/ml)	0.864 (0.104)	0.845 (0.085)	0.846 (0.135)	0.207	0.058	0.017
Rest Myocardial Blood Flow (ml/g/min)	0.990 (0.500)	0.950 (0.310)	1.080 (0.410)	0.037	0.718	0.573
LV mass indexed for height (mL/m2)	0.741 ±0.110	0.750 ±0.128	0.720 ±0.102	0.043	0.312	0.326
LV SV indexed (mL/m2)	41.827 (11.381)	42.338 (7.082)	43.644 (9.123)	0.075	0.046	0.496
LV Cardiac Output indexed (L/min)	3.440517 (0.604)	2.751 (0.643)	3.393 (0.997)	0.028	0.046	0.570

Variable	MRP GROUP (n=16)			p-value		
Follow-up	Week 0	Week 4	Week 12	Δ Weeks 0-4	Δ Weeks 4-12	Δ Weeks 0-12
Biomarkers						
Chitinase -3-like protein 1	4.648 ±0.351	4.467 (0.254)	4.558 ±0.289	**0.015**	0.066	0.096
Adipocyte Fatty Acid Binding Protein 4	4.854 ±0.178	4.934 ±0.204	4.979 ±0.265	**0.015**	0.139	**0.019**
Neutrophil gelatinase-associated lipocalin	5.495 ±0.171	5.513 (0.295)	5.619 ±0.159	0.314	0.678	**0.005**
Fat						
Liver fat (%)	11.425 ±7.091	2.500 (3.100)	3.100 (2.300)	**0.008**	**0.028**	**P<0.001**
Pancreatic fat (%)	6.929 ±4.160	7.443 ±5.148	5.543 ±2.773	0.411	0.307	**0.046**
CMR Variables						
CMR LV EDV indexed (ml/m2)	70.536 (16.951)	77.849 (18.740)	78.159 (20.936)	0.113	0.186	**0.003**
CMR LV ESV (ml)	47.600 (30.873)	64.288 (23.740)	58.821 (36.125)	0.257	0.678	**0.002**
CMR LV CO (L/min)	7.540 (1.712)	6.765 (1.493)	6.875 (2.653)	**0.011**	0.224	0.069
CMR LV EF (%)	69.708 ±7.524	64.792 ±6.655	65.360 ±6.889	0.153	0.894	**0.006**
Global Myocardial perfusion reserve	2.812 ±1.142	3.801 ±0.883	2.786 ±0.810	0.401	**0.009**	0.997
LV Cardiac Output Indexed (L/min)	3.317 (0.891)	3.102 (0.814)	3.181 (1.444)	**0.030**	0.147	0.212
LA max vol indexed (mL/m2)	32.467 (12.007)	31.772 (38.788)	38.286 (13.161)	0.134	**0.007**	0.118

Table 1: Baseline demographics of the study's participants. Continuous variables were reported as either mean ± standard deviation or as median (interquartile range). Paired t-test /Wilcoxon signed-rank test used, assessing for changes in variables within each group (MRP / Exercise) over weeks 0, 4 and 12 . Only the fibro inflammatory biomarkers, ectopic fat and CMR variables, with a significant change were reported in these tables. Significant changes in p values at 95% CI are in bold (p values<0.05). Variables at each week reported as Mean ± S.D. or Median(IQR), based on normality.

Baseline pancreatic fat correlated with NGAL and VEGFa fibro-inflammatory biomarkers are shown in Fig 1.

Both MRP and exercise groups experienced significant reductions in liver fat percentage (at all timepoints for MRP, and from week 0 to 4 for exercise). The MRP group showed a significant reduction in pancreatic fat percentage (Table 1). In the MRP group, three fibro-inflammatory plasma biomarkers exhibited significant overall changes, while only one biomarker changed significantly in the exercise group (Table 1).

Improvements in left ventricular ejection fraction (EF) and cardiac output (CO) were observed in both groups, with the exercise group displaying the most substantial improvements in these variables measured on cardiac MRI (Table 1).

Discussion

The anticipated decrease in liver fat percentage was observed in both lifestyle intervention groups, but the reduction in pancreatic fat percentage was exclusive to the MRP group. Both MRP and exercise interventions elicited temporal responses in four fibro-inflammatory biomarkers (IL-8, CHI3L1, FABP4, and NGAL) associated with fibro-inflammatory pathways. Additionally, moderate enhancements in cardiovascular structure indices were noted for both groups. Limitations of this study include the small sample size, lack of intervention blinding, and the short follow-up duration.

Future directions

Subsequent research should investigate whether changes in fibro-inflammatory biomarkers and cardiovascular magnetic resonance variables independently correlate with alterations in ectopic fat distribution within different organs, such as liver and pancreas.

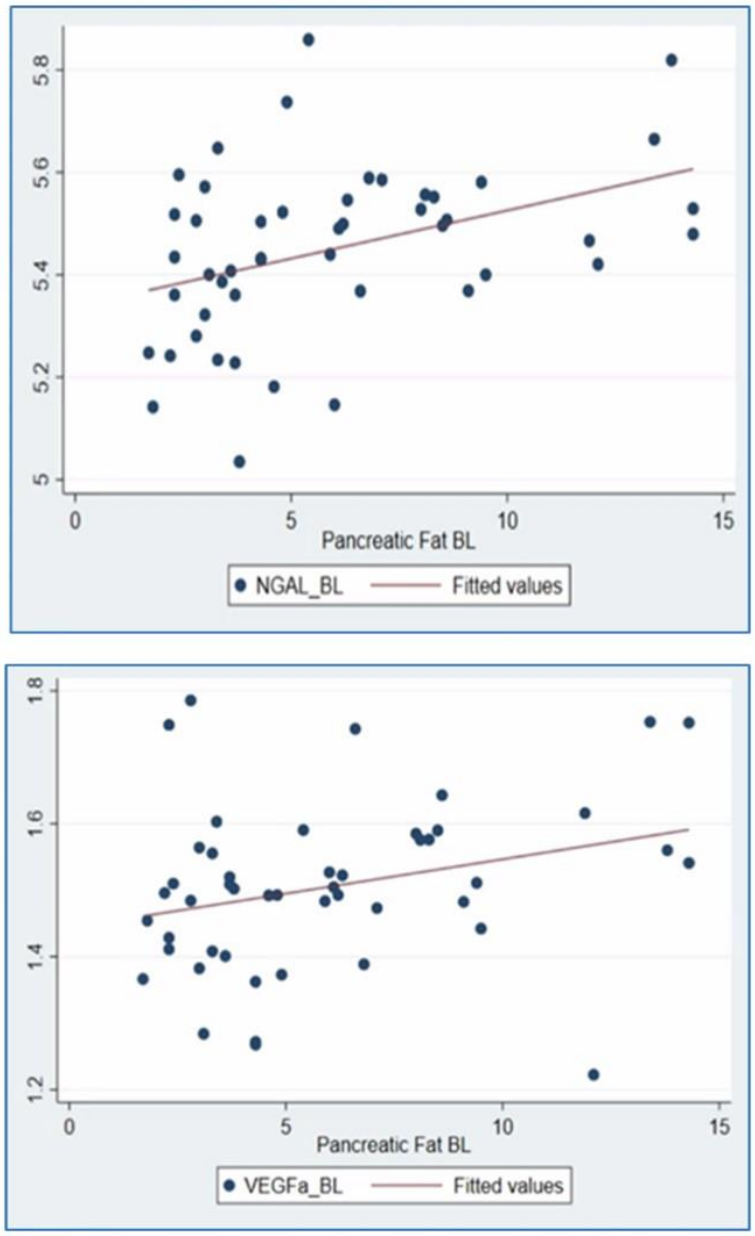

Fig 1. Both scatter plots are demonstrating a statistically significant, positive correlation, between the baseline % of pancreatic fat, with the NGAL and VEGFa biomarkers, respectively.

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Miliary TB in East London (2014–22): A retrospective review of microbiology, imaging and outcomes

Authors: Joseph Gafton,[A] Daniel Pope,[B] Bilal Fakim,[B] Santino Capocci,[C] Janan Jeyatheesan,[B] Rory McDermott[B]

[A]Queen Mary University of London; [B]Newham University Hospital; [C]Homerton University Hospital NHS Trust

Introduction

Although cases of tuberculosis (TB) have continued to decline over the last 10 years, London still has the highest incidence in England and the East London Borough of Newham has the highest rate of TB in the country (42.8 per 100,000 on average from 2018-2020). Miliary TB makes up a minority of cases (3.9% in 2020) but has significant mortality.[1] We present a large series of patients from East London, an ethnically diverse area with some of the highest incidence of TB in the UK.[2]

Materials and methods

In this retrospective observational study we used the London TB register to identify all notified cases of miliary TB (≥12 years old) in inner East London (under Barts Health NHS Trust) from 2014–22. We performed electronic health record lookup to supplement registry data. For patients with CT chest imaging available within 1 month of the treatment start date, this was reviewed and classified by radiologists.

Results and discussion

Of the 84 cases included: the median age was 42.5 (IQR 19.5), 36% were women, 69% of South Asian ethnicity (29% Indian, 23% Bangladeshi, 15% Pakistani, 2% Sri Lankan) and 81% were born outside of the UK. Immunosuppression was the most common risk factor, followed by HIV and diabetes. However, 62% of patients had no risk factors at all. Central nervous system (CNS) disease was the most common site of non-pulmonary disease: 39.2% of patients had either tuberculoma, TB meningitis, or both. Intrathoracic lymphadenopathy was also common (20.2%).

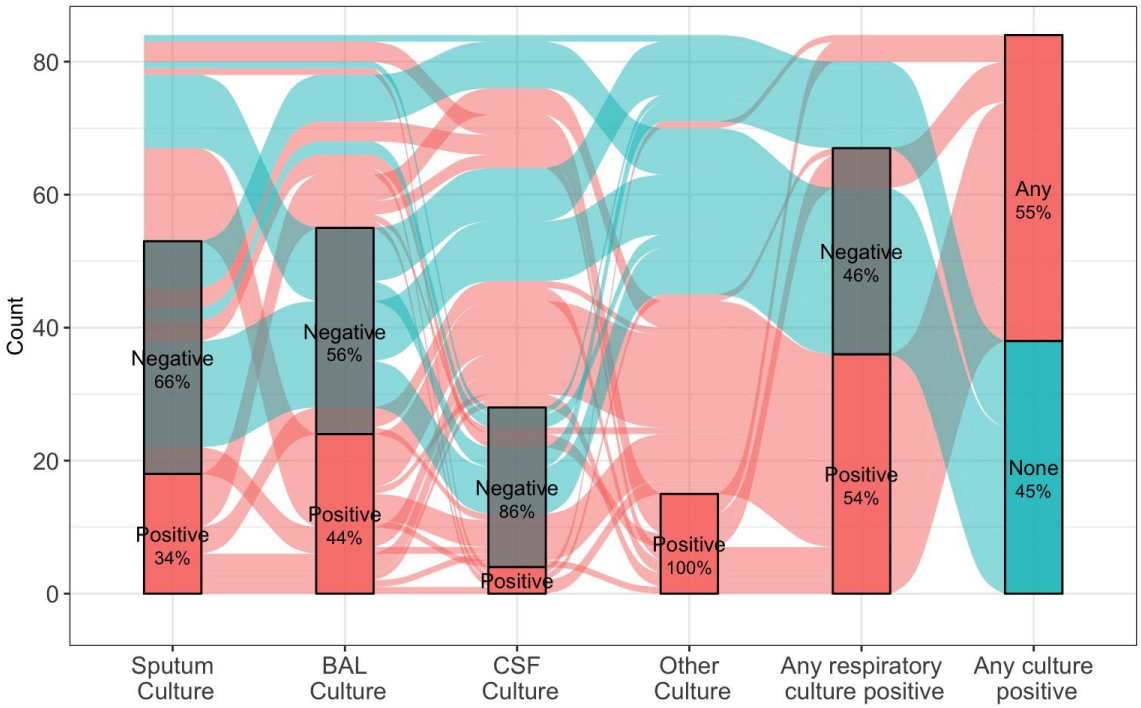

Fig 1. Alluvial plot summarising available cultures and positivity rates. Logistic regression showed positive cultures were more likely with increasing age in years (p=0.03), male sex (p=0.001) and those with any CNS disease (p<0.001).

Of those with CT available within 1 month of starting treatment, 31% had classical miliary imaging, 24% had primary/post-primary changes, 2% had sarcoid-like changes, and 20% were classified as 'other' on radiology review. 55% of those with a completion CXR had a clear film. Patients who had classical miliary appearance on initial CT imaging were more likely to have a clear CXR at the end of treatment (76% vs 38%, p=0.025).

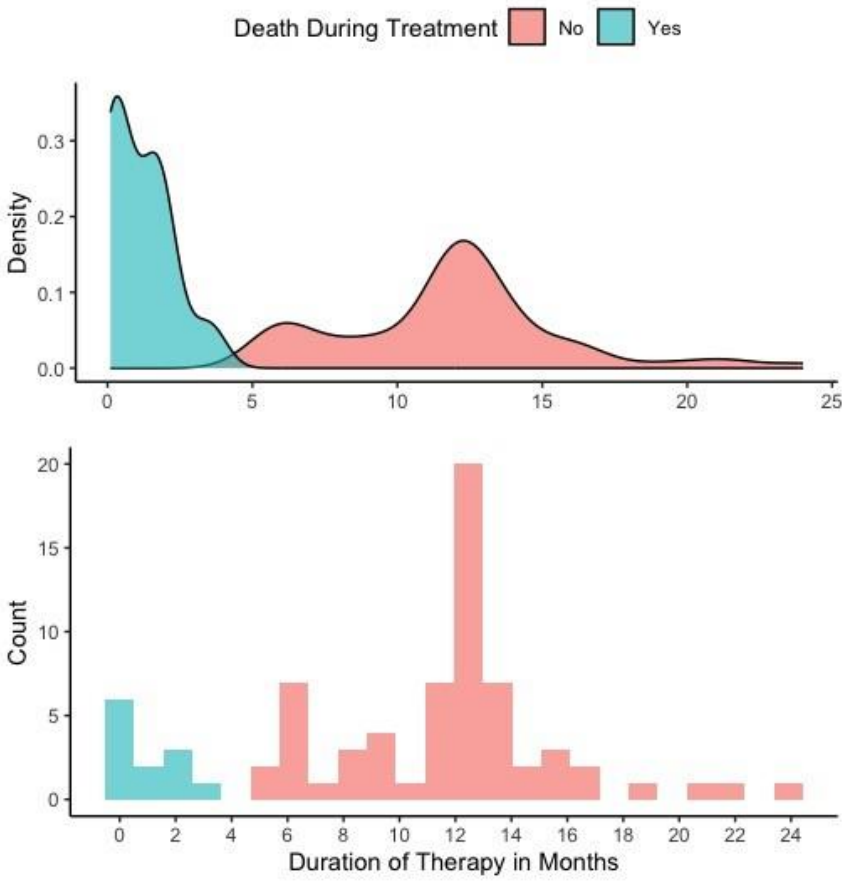

Fig 2. Duration of therapy grouped by death during treatment demonstrating two main outcomes: early death within around 3 months or successfully completing (usually) 12 months of therapy.

80% were admitted to hospital (median length of stay 14 days) and 14% died during treatment. Eleven received an alternative or dual diagnosis, of which the two patients with cancer died. In a logistic regression model, death was more likely with increasing age in years (OR 1.30, 95% CI 1.13-1.63, p = 0.003) and an initial CT classification of primary or post-primary TB (OR 124, 95% CI 4.68-18,785, p=0.019). Any positive culture was associated with not dying (OR 0.003, 95% CI 0.00-0.16, p =0.029).

Conclusion

Miliary TB mortality remains high, with low culture positivity. CNS disease was associated with having a positive culture, and having a classical CT appearance at the start of treatment was associated with a clear chest X-ray at the end of treatment.

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Perception and utilisation of artificial intelligence tools among NHS doctors

Authors: Hesham Ismail[A]

[A]Bradford Teaching Hospitals NHS Foundation Trust

Introduction

AI is revolutionising patient care by providing accurate diagnoses and treatment recommendations, while also aiding healthcare professionals in achieving their educational and scientific goals. This survey-based study investigates the perceptions and utilisation of AI technology by NHS doctors.

Materials and methods

An anonymous online questionnaire, designed by the author, was distributed via email to junior doctors working at Bradford Teaching Hospitals and to members of various online forums tailored for medical doctors working in different specialties and locations within the NHS.

Results and discussion

In this survey-based study, 55 responses were collected. Among participants, 51 (93%) were junior (non-consultant) doctors currently working in the NHS and four (7%) were consultants. A significant proportion of participants (64%) believed that AI would replace at least part of their job in the future, while 25% were confident it wouldn't and 11% remained uncertain (Fig 1). Most participants thought AI would be most useful in medical record keeping (98%). A substantial proportion endorsed AI's potential role in medical research (74%), risk stratification and prognosis (63%), remote consultations (49%), diagnosis (41%), proposing treatment plans (41%), and other fields of healthcare (14%). Despite the enthusiasm, 60% expressed ethical concerns regarding the utilisation of AI in healthcare.

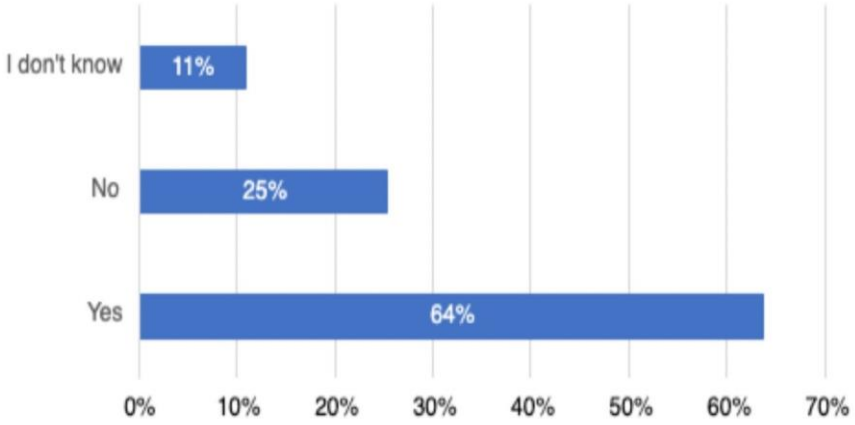

Fig 1. Would AI replace part or all of your job in the future?

The second section of the survey explored the utilisation of AI tools by NHS doctors. Remarkably, 63% of participants reported using ChatGPT, or similar AI tools, in their professional work. The main use was in writing emails (81.0%), followed by studying and medical education (47.6%), scientific research (33.3%), searching the web (33.3%), and other tasks (14.3%) such as time management, and optimising job applications (Fig 2).

Fig 2. What do you use ChatGPT for?

While limited by a small sample size, this survey highlights the eager anticipation, particularly from junior doctors, for the role of AI in transforming medical records. AI should be used to relieve physicians of burdensome administrative tasks, granting rapid access to information and 'reducing clicks rather than adding more pop-ups'.[1]

Additionally, AI should serve as an aid rather than a replacement, supporting physicians in providing precise and expeditious diagnoses.[2] AI has already demonstrated its value in diagnosing stroke and cancer within the NHS,[2] as well as various domains of healthcare, including precision medicine,[3] early detection of heart failure[4] and diabetes management.[5]

However, ethical and legal concerns regarding informed consent, transparency, data privacy, bias and algorithmic fairness persist. It is vital for regulatory bodies and the medical community to address these critical issues as AI technology advances.[6]

On the other hand, as healthcare professionals increasingly utilise evolving AI tools for communication, research and education, a pressing need emerges for clear and comprehensive guidance. This guidance is essential to empower medical professionals to maximise their benefits while ensuring they stay within ethical and legal boundaries.

Conclusion

A significant number of medical professionals displayed positive perceptions and effective interactions with AI tools. Larger studies are imperative to further explore the dynamics of doctors' interactions with AI.

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Revising the medical night handover protocol – Improving the clinical and educational merits of departmental handover processes

Authors: Alexander Hackney,[A] Emily Steer,[A] Francesca Rees[A] and Mark Whitsey[A]

[A]The Royal Wolverhampton NHS Trust

Introduction

The general internal medical (GIM) handover is a critical juncture where preventable causes of patient harm can be addressed.[1–2] Variations between handover systems have been reported, with poor human factors and systemic errors being thought to arise in part from a lack of structured frameworks through which to practically guide handovers.[1-3] In line with General Medical Council regulatory guidance, UK medical training programmes further outline clear recommendations regarding engagement with effective handover activities as a required component of professional development.[4-8]

Whilst optimising handover processes may improve clinical safety, they may also therefore serve as important educational forums.[1] We present the implementation of a re-structured, simultaneous acute medical take and ward GIM night handover protocol in a large West Midlands district general hospital, aiming to standardise and embed recommended clinical and educational principles into this important activity.

Materials and methods

PDSA methodology was used throughout. A novel proforma was devised to standardise the night GIM handover, in line with recommendations by the Royal College of Physicians (RCP) toolkit (Plan).[1] Handover was split into parallel acute take, (medical registrar-led) and ward ('Tier 2' – IMT1-2/senior clinical fellow-led) handovers; detailing a specific structure, time and location for handover, compared to previously where ward doctors would handover informally (Do). A 3-day trial was undertaken (n=7) and following positive feedback a further 7-day trial was held (n=12) (Study). A 3am huddle was introduced during the second trial, acting as a mid-shift 'check-in' and further opportunistic educational juncture. Feedback from on-call colleagues during trial periods guided further proforma iterations (Fig 1) (Act). The second trial focused particularly on surveying the perceived educational benefit of medical handovers.

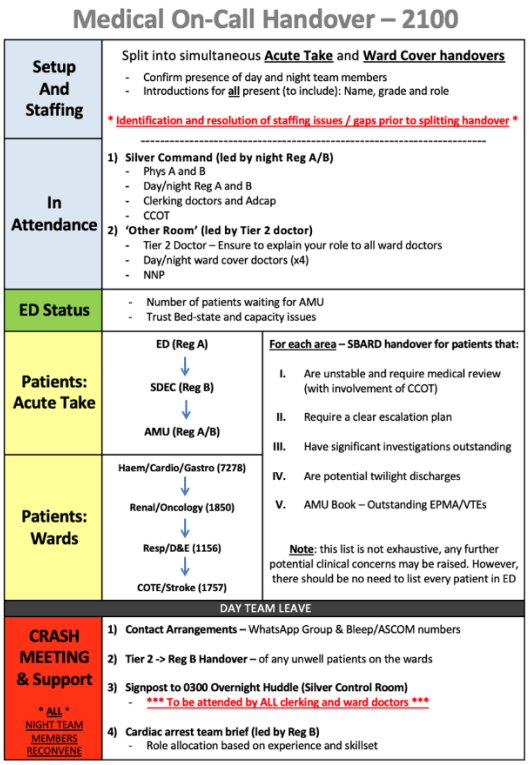

Fig 1. GIM night handover proforma – post-cycle 1

Results and discussion

Initial feedback themes directed protocol design towards safety, efficiency and developing clinical/leadership training opportunities. 75% of respondents strongly/agreed innovations were an improvement, providing formal structure and early identification of unwell patients. 75% of trainees strongly/agreed that handover was an educational experience post-innovation, improving from 58.3% previously. Supervised handover leadership and workload prioritisation opportunities were particularly valued (Fig 2).

As colleagues from numerous healthcare practices are in attendance, handovers provided interdisciplinary learning opportunities, where those at earlier training stages could observe role models coordinating effective practice. This is particularly important in the local context of our hospital's medical on-call team structure, 'Tier 1' ward cover doctors comprising of junior clinical fellows, foundation and GP trainees. A sample of the qualitative data collected was mapped onto the themes of the RCP recommendations for good standardised clinical handover toolkit (Fig 2).[1]

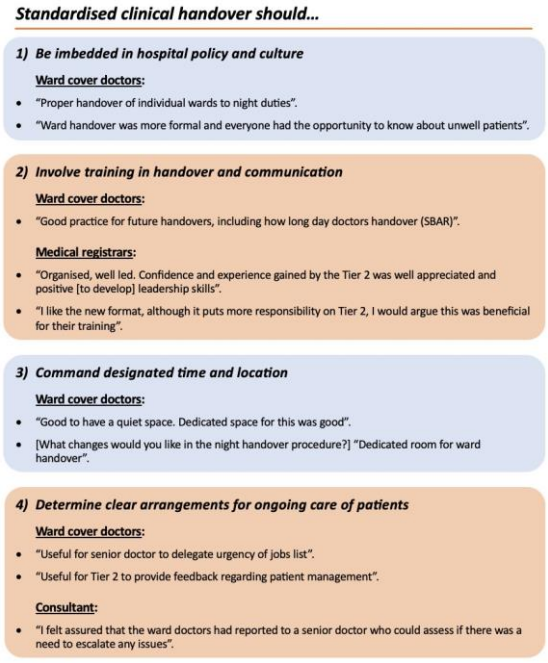

Fig 2. Qualitative response mapping against RCP handover recommendations.[1]

Conclusion

Although scarce, reports of formally implemented improvements targeting medical handover processes have evidenced positive outcomes.[8-9] Our local handover developments were well received, emphasising a sustainable, standardised and educational approach.

Following local GIM steering group review, our protocol has been permanently implemented into the night handover standard operating procedure. Suggested improvements have prompted plans to introduce ongoing educational forums focused on developing effective and educational handover leadership styles.

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'Generalism' in internal medicine training: nurturing holistic clinicians

Authors: Khin Yadanar Kyaw,[A] Zuleikha Mistry,[B] Sacha Dowling,[B] Kandace Baggan[A] and Nebras Hasan[A]

[A]University Hospitals of Derby and Burton NHS Foundation Trust; [B]Chesterfield Royal Hospital NHS Foundation Trust

Background

It is well documented the UK has an ageing population with complex multi-morbidities.[1] To combat this, NHS England commissioned the innovation of a pilot 'generalism' training program 'Enhance', incorporated within internal medicine training (IMT). The East Midlands was one of the trailblazer sites, with 5 IMT doctors from Royal Derby Hospital and Chesterfield Royal Hospital starting in August 2022.

Community placements

The authors of this abstract present a novel 4-month Lladership and social medicine rotation in the first year of internal medicine training to experience 'generalism' alongside 'specialist' training. We undertook experiential community learning, embedded within healthcare services including, but not limited to, a home visiting service, frailty team, dementia palliative care team, podiatry clinic, diabetes education service, urgent treatment centres, community wards, sexual health clinics, a mortality review group and rehabilitation teams. These are valuable experiences to doctors on hospital medicine training programmes.

Immersive placements

Through immersive placements, we continue to collaborate with organisations providing care to vulnerable communities on quality improvement projects. We have been working with Changing Future Nottingham to raise awareness of persons with SMDs (severe multiple disadvantages), Inclusion Health Leicester to understand the service provided to the marginalized population who have complex or unmet needs, and Nottinghamshire Sexual Violence Service where they provide specialist support for survivors of sexual violence. We work with these teams to review care pathways and train professionals on dealing with complex health issues faced by vulnerable communities.

Teaching and leadership opportunities

Teaching sessions were centred around population health, informing social policy and human factors. These have encouraged us to identify and address health inequalities in our day-to-day practice, whilst teaching on stress and trauma sciences has increased our awareness of how some of our patients' own experiences can affect their own health choices and subsequently the healthcare services available to them.

As the premier cohort, we participated in leadership opportunities at regional workshops and conferences with stakeholders and interested parties to co-create the future curriculum. After our first year of Enhance program, we are now well-equipped to provide peer-mentoring for new Enhance trainees. This involves offering guidance to overcome the challenges alongside sharing our own experiences.
We also continue to work with our respective immersive placement organisations to have a meaningful impact on the surrounding communities.

Reflection

From this programme, we were able to appreciate holistic approach in treating patients. This has enabled heightened awareness on the social determinants of health and the capabilities and limitations of the

community services. This curriculum has facilitated streamlined communication between primary and secondary care, which is beneficial to both patients and healthcare providers.

We believe that this is a great innovation to the internal medicine training (IMT) program, we have gained Generalist skills alongside achieving progress and competencies as other IMT trainees. Due to the success of our first year of the Enhance program, it is now expanding to reach different levels of medicine trainees including medical students, foundation years and advanced clinical practitioners.

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Simulation-based training as a tool for developing non-technical skills in future medical registrars

Authors: Pharasi Kishu[A] and Alexander Hackney[B]

[A] University Hospitals Birmingham NHS Trust; [B]The Royal Wolverhampton NHS Trust

Introduction

Transitioning into the medical registrar role continues to be perceived as a challenging and stressful period of internal medical training (IMT). Trainees often work in high pressure environments, managing acutely unwell patients whilst also coordinating other, often non-clinical, management issues.[1-2] Historically, medical trainees have voiced that they felt inadequately equipped with the experience and skills to step up to the registrar role.[3] There is a growing appreciation of the role of non-technical skills underpinning a large part of this responsibility, however, formal purposeful reflection on these aspects of practice can be difficult.[2–4] High fidelity simulation-based education is a prevailing modality through which these skills can be explored and reflected upon.[5]

We present a novel simulation session locally implemented for IMT2 trainees at a West Midlands Trust, designed to explore and learn from non-technical and human factors aspects of the medical registrar role.

Material and method

The half-day pilot session was limited to six IMT2 candidates, aiming to maximise scenario exposure and engagement, comprising three, two-trainee, fifteen-minute high-fidelity clinical scenarios. Remaining trainees remotely observed whilst not participating, all trainees thereafter engaging with a thirty-minute scenario debrief. Faculty comprised medical registrars (ST5+), a medical consultant and trained simulation faculty. Scenarios were modelled after critical incidents that had previously occurred in the trust, and subsequently mapped to IMT Stage 1 curriculum outcomes.[4] Debriefing co-led by a simulation faculty/physician pair primarily addressed scenario non-technical and human factors. Anonymous pre- and post-course qualitative data was collected using online free-text and agree/disagree scale questionnaires.

Results and discussion

All trainees participated in one clinical scenario and agreed that simulation scenarios gave a realistic representation of clinical practice, debriefing facilitating exploration of non-technical learning outcomes. 50% of trainees felt that training received pre-course had adequately prepared them for the medical registrar role, with only 16.7% feeling confident to step-up to the role in practice. No trainees reported receiving sufficient feedback on their non-technical skills during their day-to-day practice. 16.7% of trainees reported being ‘always’ anxious when asked ‘are you ever anxious about being the medical registrar?’. Pre- and post-course questionnaire self-reported trainee confidence to take on the medical registrar role improved across all surveyed aspects (Fig 1, Fig 2).

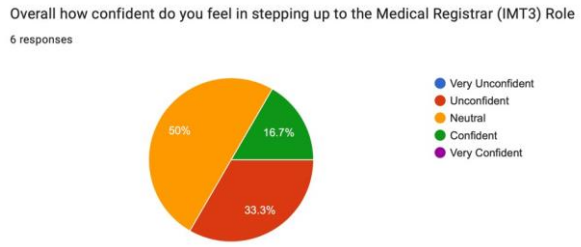
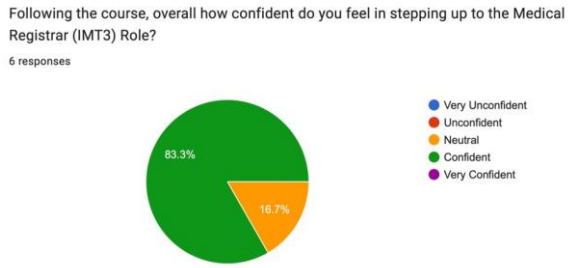


Fig 1. Pre-course confidence



Fige 2. Post-course confidence

100% of trainees either agreed or strongly agreed that further simulation would help improve preparedness for the medical registrar role and that non-technical skills-focused simulation should be a mandatory part of the IMT1 Stage 1 curriculum. The IMT Stage 1 Curriculum recognises the importance of developing these skills, however, does not require focused human factor simulation until IMT Stage 2.[4–6]

Conclusion

Non-technical skills are a vital part of a medical registrar's role. Our pilot session evidenced that trainees valued the opportunity to experience challenging technical and human factorsbased scenarios in a safe and confidential setting. Real-time feedback provision from senior physicians was felt particularly helpful to evidence non-clinical practice capabilities. We would recommend that our trust considers similar simulation session implementation.

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Should we teach foundation year 1 doctors ultrasound-guided cannulation?

Authors: Ahmed Alhussni[A] and Lewis Greenan-Barrett[B]

[A]Leeds Teaching Hospitals NHS Trust; [B]Bradford Teaching Hospitals NHS Foundation Trust

Introduction

Ultrasound-guided cannulation is an increasingly useful skill for doctors, yet it is unclear whether newly trained doctors are proficient in its use. Our aim was to evaluate the confidence and abilities of FY1 doctors before and after an ultrasound workshop.

Methods and intervention

We surveyed 43 recently graduated FY1 doctors in two trusts regarding their generic cannulation and ultrasound-guided cannulation abilities. We enrolled the same individuals in a 1-hour US-guided cannulation workshop run by FY1/FY2 doctors. The workshop consisted of a presentation, demonstration, practice session and an assessment. The group were then resurveyed after the workshop.

Results

Before the ultrasound course, recently graduated doctors were unable to do an estimated 36% of cannulas and 93% had previously needed to escalate a cannula to a senior. Only 19% had ever attempted an ultrasound-guided cannula and 100% wanted to learn how. Median confidence in cannulation increased from 50% before the course to 70% afterwards. 93% felt they will use US-guided cannulas as an FY1. 100% would recommend the course to other FY1 doctors starting their training.

Conclusion

US-guided cannulation is a useful clinical skill that recently graduated FY1 doctors are not proficient at but are enthusiastic to learn. It can successfully be taught in a single, hour-long workshop to improve confidence. We would like to resurvey these doctors at the end of their FY1 year to assess if it has improved their clinical practice.

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MedWrk: A solution to medical networking

Authors: Khan Bilal,[A] Simal Asher,[B] Callum Grewal,[A] Navivot Mehan[A] and Abdullah Shakeel[C]

[A]The Royal Wolverhampton NHS Trust; [B]Walsall Healthcare NHS Trust; [C]University of Cambridge Medical School

Introduction

Medical networking in the UK faces challenges that hinder effective collaboration and access to opportunities, particularly as competition for speciality posts intensifies.[1] Current and potential doctors must build strong portfolios to enter and progress in training, which is heavily aided through networking, yet traditional approaches are limited and the proliferation of general social networks obscures medical opportunities. Additionally, valuable contributions such as research, teaching and conferences often get lost in the vast array of social networks. This study examines the views of current and prospective healthcare professionals about medical networking and the potential benefits of a specialised medical networking application.

Methods

A survey was conducted using Google Forms to gather feedback on a proposed medical networking application, that was distributed amongst a diverse range of current and incoming healthcare professionals, including college students and consultants. The survey consisted of binary questions for quantitative data on participants' current satisfaction with medical networking and their perceptions of existing challenges in obtaining networking opportunities. Free text boxes were provided for additional explanation, including their outlook on the future of medical networking.

Results

We delivered the survey to 100 students, out of which 86 completed the questionnaire (86% response rate). Many respondents agree there is a lack of adequate networking opportunities within the medical field (61.4%). 77.1% reported difficulties in finding research, audits and work experience through social media platforms. Surprisingly, the majority were unaware of any social networking platforms exclusively designed for current and prospective medical professionals (86.7%).

83.1% of participants expressed that a dedicated social networking platform for healthcare professionals would be beneficial. Qualitative analysis of free text comments was indicative of problems with collaboration at the moment and a positive response to a medical networking application. Issues highlighted include ‘improper advertising for medical opportunities’, and ‘difficulties in finding committed supervisors’, with many citing an exclusive medical networking application as ‘a space for medics to seek mentorship, advice and opportunities within the medical field and beyond’. As a consequence, 77.1% were willing to test such an application, underscoring their interest and receptiveness to new networking solutions.

Conclusion

These results underscore the shortcomings of the current state of medical networking in the UK. Many participants encounter difficulties accessing networking opportunities and resources, emphasising the need for a comprehensive medical networking application. The participants' willingness to test such an application further highlights an innovative networking solution's potential impact and benefits.

At this time, we have created a new application, MedWrk, a comprehensive medical networking system that holds the potential to bridge existing gaps, facilitate effective networking and enhance professional growth for healthcare professionals. Addressing these challenges through a dedicated platform could foster collaboration, knowledge-sharing, and exploration of diverse opportunities, both within and beyond the medical space, and in turn, advance patient care.

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Near-peer MRCP PACES teaching: Improving confidence, skills and satisfaction

Authors: Maria Francisca Rocha,[A] James Bell,[A] Jonathan Spencer,[A] Benjamin Sacks[A] and Charles Coughlan[A]

[A]University College London

Background

The MRCP practical assessment of clinical examination skills (PACES) is a critical progression point in medical training. It is notoriously difficult, with overall pass rates of only ~50%.[1] Because of clinical pressures, bedside teaching sessions can be infrequent and inconsistent. We identified local issues in supporting and mentoring PACES candidates. Inspired by others,[2–3] we sought to sustainably improve teaching provision in our large NHS Foundation Trust.

Methods

We sought to improve PACES teaching from October 2022 until the present. We surveyed PACES candidates on baseline teaching provision to identify areas for improvement and devised a driver diagram based on this (Fig 1). We received ongoing survey feedback over 3 examination diets and PDSA cycles. We developed a near-peer teaching programme to provide a sustainable teaching model less dependent on senior staff, with tutors allocated on a weekly basis to deliver 2–3 sessions per week. A consultant colleague organised weekly consultant-led teaching. We provided station 5 focussed sessions, since this was highlighted as a high-stakes station.

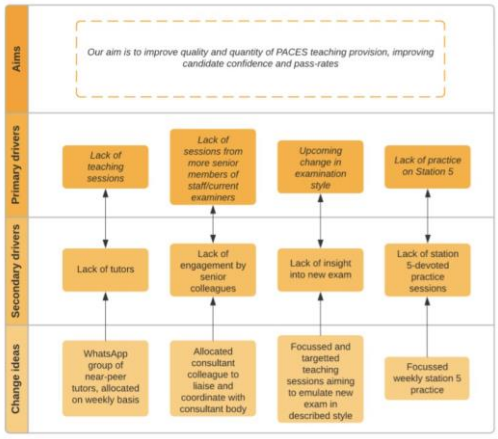
Results

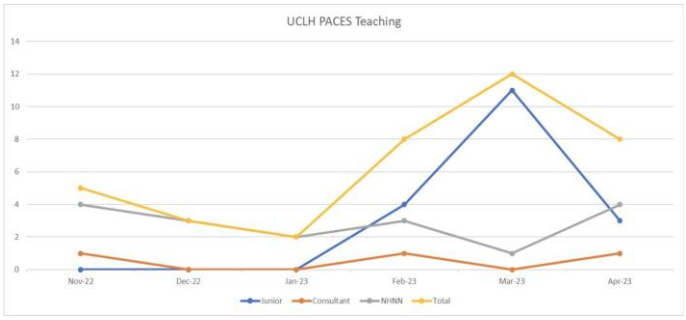
Prior to the project, 100% (n=11) of candidates had attended <1 hour of teaching. 71% of candidates (n=7) surveyed following the 2023/01 diet attended 3–4 hours of teaching per week (Fig 2).

Qualitative feedback was overwhelmingly positive and highlighted the utility of a consistent teaching programme in improving confidence prior to the exam.

Conclusion

A systematic approach has improved quantity and quality of PACES teaching provided. Work is ongoing to improve candidate confidence prior to the introduction of a new exam format later this year.[4]





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Clues and codes: The use of escape room simulation to teach medical students how to manage the acutely unwell patient

Authors: Emma Lewin,[A] Jessica Little[A] and Colette Davidson[A]

[A]Barts Health NHS Trust

Introduction

As the popularity of gamification in medical education grows, the use of medical escape rooms is increasing. Despite this, further evidence is required to demonstrate its efficacy and potential applications in undergraduate teaching. This project aims to evaluate whether escape room simulation can help third year (first clinical year) medical students develop their assessment of an acutely unwell patient and consolidate clinical knowledge from tutorials.

Materials and methods

The escape room was integrated into the year 3 teaching timetable at St Barts Hospital to ensure all students had the opportunity to participate. During a simulated on-call scenario, students were asked to assess a patient in a 'locked' room in groups of up to 6, encountering barriers in the form of locked boxes and medical clues during their management. Students were asked to work through their A to E assessment to safely treat a septic patient (mannequin) before 'escaping'. Students completed pre- and post-session questionnaires and ranked their confidence in A to E assessment and managing a patient with sepsis out of 10. Additional feedback was obtained using a mixture of qualitative and quantitative questions. Following feedback from a pilot session, a debrief was introduced to follow the simulation in order to discuss key learning points and provide an opportunity to ask questions.

Results and discussion

45 students participated in the escape room, with 40 completing the post-session questionnaire. On average, students rated the enjoyability and educational value of the session at 9.53 and 9.51/10 respectively. Most students reported an increase in their confidence of managing sepsis by at least 1 point, with a statistically significant average increase of 1.7/10 following the session. All students agreed that the session helped them to better understand how to assess an acutely unwell patient.

Themes from the qualitative data showed that students felt the escape room encouraged them to use and develop teamwork, clinical reasoning, and communication skills. Students greatly enjoyed this method of learning. Evaluation suggested that participants valued applying their A to E assessment and revising sepsis management in a fun setting, which they felt stimulated easier recall of these key concepts. This teaching will be adapted and evaluated further when it is offered to subsequent cohorts of students.

Conclusion

Students overwhelmingly enjoy this method of teaching and felt it realistically simulated the challenges encountered within a clinical setting. Escape room simulation has the potential to be used to consolidate medical topics and improve confidence in emergency medical assessments, as well as encouraging development of other skills, such as clinical reasoning, communication, and teamwork, in a novel environment. We will continue to run and improve this escape room session and we aim to develop more scenarios related to a variety of medical specialties.

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SWBH QI Foundation: 'Putting the quality in quality improvement'

Authors: Laura Pearson,[A] Rebecca Kershaw,[A] Martin Chadderton,[A] Ru Hazariki,[A] Lauren Wattley[A] and Clare Sarb[A]

[A]Sandwell and West Birmingham Hospitals

Introduction

The value of quality improvement in improving patient care and outcomes is well recognised.[1-3] The GMC states that doctors 'must take part in systems of quality assurance and quality improvement to promote patient safety'.[4] As such, clinical audit and quality improvement (QI) are key components of the foundation programme curriculum.[5]

Despite this, both undergraduate and postgraduate training in QI methodology remains variable,[6-8] and lack of understanding of QI methodology remains a significant barrier to undertaking successful QI for junior doctors.[9–10] This project sought to improve access to QI training for foundation doctors within our trust to improve understanding of QI tools and methodology and remove lack of knowledge as a barrier to undertaking successful QI.

Materials and methods

We delivered training to foundation doctors on topics relating to audit and QI over 2 sessions. Sessions involved a mix of taught work, small-group work and practical activities putting theory into practice.

Following this, participants undertook a QI project in groups of up to 3 people. Support was provided throughout, including regular drop-in sessions and provision of QI materials. Projects were then presented at a poster presentation event, following which, we held an additional session titled 'How to get your QI work published', with a guest speaker from the BMJ.

Pre- and post-course data was collected to ascertain the impact of the training sessions and the programme as a whole.

Results and discussion

The QI programme was attended by 21 delegates. As a result of the training sessions, we found increased awareness of QI methodology and tools.

Following the course, 92% of delegates rated their overall understanding of QI & audit as good or excellent, compared to 0% at before the course. Lack of knowledge of, or confidence with, QI methodology as a barrier to undertaking QI and audit reduced from 80% at the start of the course to 8% at the end.

92%t of delegates reported that the sessions had improved their confidence in being able to undertake a successful project and 85% reported that they were likely or extremely likely to use the tools that they had learnt about during the course.

Table 1 and Fig 1 demonstrate some of the topics where improved knowledge was seen.

Question	% answering yes	
	Pre-course	Post-course
Have you had any training in audit or QI previously?	65%	N/A
Are you aware what support is available to you when undertaking QIP or audit?	0%	85%
Do you know how to register a QIP or audit?	25%	100%
Are you aware of the difference between QI and audit?	70%	92%
Do you know what a fish-bone (cause and effect) diagram is?	15%	92%
Do you know what process mapping is?	15%	100%
Do you know what a driver diagram is?	0%	100%
	% answering good/excellent	
How would you rate your overall understanding of audit and quality improvement?	0%	92%
	% answering very much	
To what extent have the sessions increased your confidence in being able to undertake a successful project?	N/A	77%
	% answering likely/very likely	
How likely are to use the tools that you have learnt about when undertaking projects in future?	N/A	84%

Table 1: Comparison of pre- and post-course data

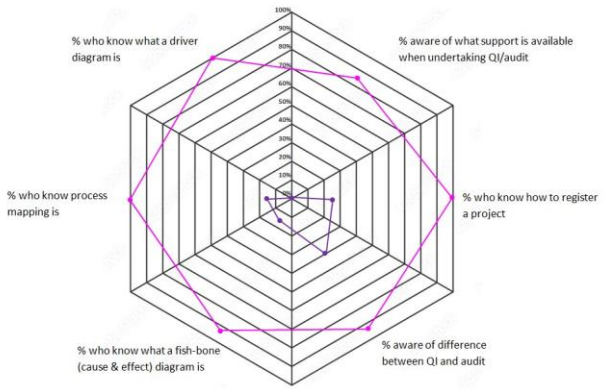

Fig 1: Spider chart showing change in knowledge following the QI training programme.

Feedback from the course was overwhelmingly positive, with 100% of participants reporting that they were likely or very likely to recommend the course to others.

The course is now being rolled out to include all junior doctors, with the ultimate goal being to provide training to other MDT members, in the hope that we can encourage a fully multidisciplinary approach to QI in the future.

Conclusion

The implementation of a dedicated QI teaching programme improves knowledge of QI tools and methodology, as well as confidence in undertaking QI. Hospital trusts should aim to provide training on QI for junior doctors as standard practice.

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Are junior doctors in the UK stressed out during their on-call shifts?

Authors: Sirajum Munira Chowdhury,[A] Muhammad Sufiullah[B] and Golan Yahia[C]

[A]Sheffield Teaching Hospital; [B]Bank Doctor (South Yorkshire); [C]Portsmouth University Hospital

Introduction

On-call duties have been rated to be among the most stressful aspects of physicians' work. On-call work has been associated, for example, with medical errors, injuries and lower well-being. Thus, because it is not possible to remove on-call duties, measures to decrease the negative ramifications of on-call work are needed.[1] Doctors across hospitals and general practice who are experiencing burnout are twice as likely to be involved in a patient safety incident and three times as likely to leave their job, according to a new research paper that included 239,246 doctors from across America, Europe and the UK.[2]

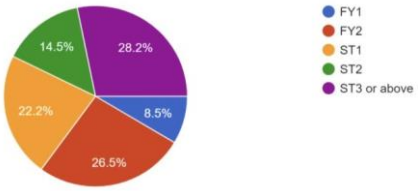
Materials and methods

In view of the above, a cross-sectional cohort study was carried out at Queen Alexandra Hospital in Portsmouth. This study focused on junior doctors representing 24 different departments, with the aim of investigating the presence of stress during their on-call shifts and identifying potential contributing factors. The study employed a semi-open questionnaire as part of its methodology.

Results and discussion

The study's findings indicate that stress is prevalent during on-call shifts, with 85% of doctors reporting its presence. Notably, the primary contributing factor highlighted by doctors is the insufficient level of staffing.

Interestingly, the study also revealed a noteworthy demographic distribution among respondents, with 53% comprising international medical graduates (IMGs) and 47% representing UK medical graduates. What added to the intrigue was the discovery that 57% of the participants indicated this wasn't their first NHS position. Surprisingly, despite having more than six months of NHS experience, these doctors continued to experience significant stress levels. An equally surprising revelation was that a substantial portion of the respondents had embarked on independent on-call duties within less than a month of commencing their posts. This juxtaposition of prior NHS exposure and the rapid initiation of independent on-call responsibilities raises compelling questions about the dynamics of stress in this professional context.



Conclusion

In conclusion, this study sheds light on the prevalent issue of stress among junior doctors during on-call shifts. Notably, our findings highlight that stress affects a significant majority of doctors, regardless of whether they are international or UK medical graduates. The surprising aspect lies in the fact that a substantial number of doctors had prior NHS experience, yet the stress persisted. Additionally, the early initiation of independent on-calls within a month of joining their posts underscores the need for further examination of workplace stressors and support systems within the NHS. These insights emphasise the

urgency of addressing stress among junior doctors to ensure their wellbeing and, by extension, the quality of patient care. Further research and targeted interventions are warranted to alleviate this issue and provide a more conducive environment for junior doctors in the challenging landscape of on-call shifts.

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Maximising clinic experience in internal medicine trainees

Authors: Thwe Han[A]

[A]Northern Lincolnshire and Goole Trust, Scunthorpe, UK

Introduction

Clinic experience is a crucial component of internal medicine training. IMT curriculum requires a minimum of 20 clinics attended in IMT1, aiming for 40 by the end of IMT2 and 80 by the end of IMT3. This must be achieved for ARCP outcome.

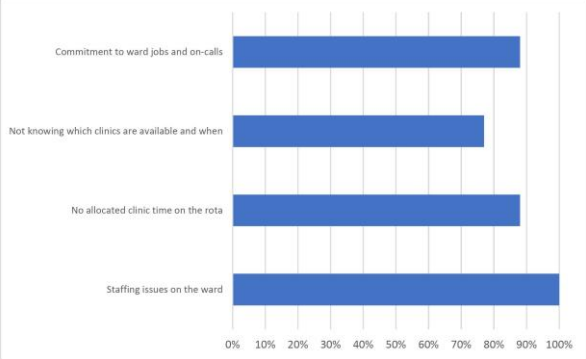
Clinic time give trainees opportunities to review patients with a different clinical approach and manage conditions which are not normally encountered on the ward. On a local and regional level, IMTs are having difficulties in meeting the number of required clinic attendances each year for their individual ARCP submission.

The aims of this project are to improve clinic attendance, to meet curriculum requirement for ARCP and improve training satisfaction in managing clinics.

Materials and methods

To explore and understand challenges faced by IMTs regarding clinic experience, I generated a survey to fellow IMTs based in Scunthorpe General Hospital. I used a qualitative survey methodology, which is increasingly recognised as a way to understanding the process and solving the problem by implementing solutions based upon context and need.

Initial survey revealed that 88% felt that they did not have enough opportunities to attend clinics and identified common barriers as:

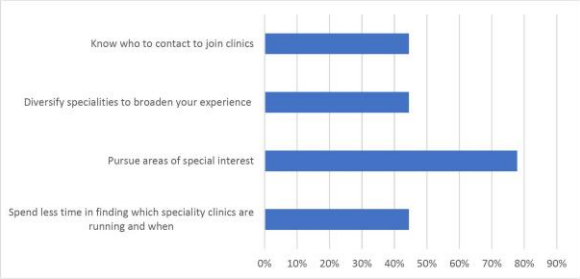


After discussion with the local college tutor and rota-coordinator, 10 clinic days were allocated to each trainee across one training year to achieve minimum clinic attendances for ARCP. I produced a clinic schedule, detailing which clinics were running, the location, time and who to contact. Local PGME helped distribute this to the trainees.

To ensure that I captured the impact after my intervention, I disseminated another survey to get a measure of the outcome.

Results and discussion

After implementation, 100% achieved minimal clinic attendance required for ARCP and found the clinic schedule useful. However, 50% found that they did not have enough opportunities to perform workplace-based assessments during clinics. Trainees highlighted the following as benefits of having a clinic schedule:



The impact in terms of IMTs who were achieving the ARCP requirement for clinic attendance is very pleasing based on my initial change, whilst accepting that this is a small sample size.

Analysis of the feedback after intervention gave even more insights into potential improvements and some barriers of performing workplace-based assessments in clinics. These barriers included no availability of rooms for the trainees to use for reviewing patients, consultant's workload, and limited time in clinic preventing assessments of the trainee's performance.

Conclusion

Implementation of allocated clinic time with a schedule is an effective way of increasing opportunities for trainees to attend clinics, increasing outpatient experience, and meeting curriculum requirements.

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Utilising volunteer patients early in medical school curricula to develop communication and professionalism domains of clinical practice - A clarification study

Authors: Victoria Floyd-Ellis,[A] Benjamin Bridgewater[A] and Thomas Grother[A]

[A]Cwm Taf Morgannwg Health Board

Introduction/Objective

Many studies justify early patient contact in undergraduate medical education to develop communication and professionalism skills, however, few clarify elements of the patient-student interaction that contribute to these findings.[1-3] To inform future teaching session design and educator practise this study explores if, and how, exposure to volunteer instructor patients (VIPs) in clinical teaching of second year medical students develops such skills.

Methods

- Control students (n=12) taught in a simulated environment with peers and intervention students (n=8), taught in a simulated environment with VIPs, examined a new VIP and subsequently scored their confidence in communication and professionalism domains described in the GMC Outcomes for Graduates document.[4]
- A focus group, sampled purposefully and conducted by an unknown moderator, asked a set of pre-defined open questions to explore elements that informed student responses. Inductive analysis of the transcript, by the moderator and researcher, identified a number of common themes.

Results

- Mean intervention group confidence was greater in 8/10 domains scored; most significant improvements occurred in 'demonstrating effective verbal and non-verbal interpersonal skills' (8.38 vs 6.0, p=0.0012) and 'listening, sharing and responding' (8.5 vs 6.17, p=0.0028).
- Five common themes; impacting student communication and professionalism confidence, are summarised in Table 1.

Theme	Associated GMC Outcome for Graduates Domain
Constant implementation of good verbal and non-verbal communication, plus clear instruction giving, with VIPs.	10a
Control group report ambiguity of what encompasses appropriate exposure, maintenance of dignity, compassion and empathy.	2d, 2e, 10a, 12b
Exploration of patient experience allows for development of empathy and compassion.	10a
Importance, and therefore consistently implementing, high standards of professional behaviour with VIPs.	2d, 2e, 2i, 5d
Patient feedback or concern for patient opinion prompts post-session reflection of behaviour and skills.	2e, 10a, 12c

Conclusion

Educators should aim to involve volunteer patients at an early stage, to promote confidence in communication and professionalism skills. Such sessions may benefit maximal verbal and non-verbal interaction, exploration of the patients' health experience and clarity in the benchmark of professional standards. Reflection on these experiences should be encouraged.

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Improving access to anaesthetic teaching for foundation doctors and medical students: Anaestethics for juniors, a webinar series

Authors: Rana Mallah[A] and Hannah Morrison[B]

[A]St George's University Hospitals NHS Trust; [B]Kings Hospital NHS Foundation Trust

Introduction

There is a paucity of anaesthetics and ICU teaching in the foundation curriculum. Many foundation year doctors are daunted by the prospect of caring for critically ill patients on the wards and referring these patients to ICU.[1]

We aimed to assess the provision of anaesthetics and ICU teaching for medical school and foundation doctors and assess the demand for additional teaching. We devised and implemented a teaching programme to enhance knowledge and confidence in these specialties.

Materials and methods

Eight webinar sessions were taught by anaesthetic trainees. The sessions covered various topics relating to anaesthesia and critical care. The sessions were attended by over 300 participants. Surveys were sent prior to the sessions and a follow-up survey was sent to the same candidates if they had attended the majority of the webinars to assess the impact of the programme on their knowledge development.

Results and discussion

Survey responses were collected and analysed. 86 participants provided feedback on medical school teaching. 71 participants shared their views on foundation year training. The majority of respondents rated their prior teaching as 'okay'. Among those who attended the majority of the webinars, 46 participants responded to the survey. 45 participants reported improvement in their anaesthetic knowledge following the webinar series. One participant considered their anaesthetic knowledge prior to and after the series as 'excellent'. The median rating shifted from 'okay' to 'good' after the series.

We have shown that the medical students and foundation doctors showed an improvement in subjective knowledge in anaesthetics and critical care following our teaching programme.

The results were subjective and relied on participants' own views on their knowledge. Infuture, an objective assessment to quantify their knowledge in the topics may be beneficial.

Conclusion

The teaching programme demonstrated an opportunity to bridge the gap in knowledge of anaesthetics and ICU among medical students and foundation doctors. The results support the need for additional teaching in these specialties and highlight the importance of providing accessible educational opportunities to improve patient care and enhance the confidence of doctors in caring for the critically unwell.

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Improving medical student experience and engagement through a team-based placement structure and comprehensive induction

Authors: Rory Fairhead,[A] Moataz Ewedah[A] and Robert Buhain[A]

[A]Queen's Hospital Romford

Introduction

Medical student placements are crucial in shaping the future of healthcare professionals, fostering both clinical knowledge and a sense of belonging within the medical community. Amidst rapidly changing health systems and pressures on students, placements are increasingly being shortened and spread across several hospitals, endangering this sense of belonging.[1] This project aimed to enhance the quality of medical student placements in a surgical department by implementing a tailored induction process and team integration strategy akin to the American model student integration in surgical firms.[2]

Methods

Data was collected from 3rd year students from a London medical school embarking on their first year of hospital placements. Prior to the intervention, placements were task based; students were allocated to rotate through 12 defined activities such as ward round, clinic, on-call, theatre etc across multiple sites. Students often felt isolated, disoriented and ignored during these placements and rated the activities poorly on whether they were educationally useful and enjoyable. Furthermore, students highlighted that they did not feel part of the surgical team and as a result received less formal and bedside teaching than desired.

Two interventions were developed to address this. The first was to restructure the placement with individual timetables which allocated students to particular surgical firms, allocating them to attend ward rounds, clinics and theatres lists with this team. The second was an induction document which set out the structure of the department, contact details and signposting educational and sign off opportunities. After this new placement structure was implemented, anonymous feedback was collected using Likert scales, multiple choice answers and free text response and results compared. 24 responses were collected in total.

Results

After the intervention, student's ratings of how educationally useful different activities were improved in 4 out of 5 domains. Averaged scores improved from 3.4 to 3.9 out of 5 (t-test $p<0.05$). Furthermore, students felt the surgical team to be more helpful and supportive post intervention (4.3 vs 3.9/5), felt more part of the surgical team (3.8 vs 3.4/5) and rated their placement more highly on average (7.8 vs 7.2/10), though not significantly at $p=0.05$. Students had good adherence to the new placement structure and found the induction document helpful.

Conclusions

This project shows how a team-based placement structure and comprehensive induction document can benefit students across a range of subjective measures and has led to the adoption of this new structure for future placements. Future research could focus on the impact of this new model on objective measures of attainment, staff perspectives and patient care.

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Non-invasive ventilation (NIV) training - the Kent, Surrey and Sussex (KSS) experience: still just optional in the post-COVID curriculum?

Authors: Myint Thu[A] and Thaw Tar[B]

Background

Acute NIV is the standard of care for acute hypercapnic respiratory failure secondary to COPD1. However, across England, junior doctors training in NIV is generally variable and not mandatory, despite the fact that it is junior doctors who inevitably look after these patients and are responsible for crucial clinical decisions, especially out of hours.[2] Objectives:

- To benchmark current training provision in NIV for IMTs
- To evaluate the NIV training provided by KSS deanery.

Method

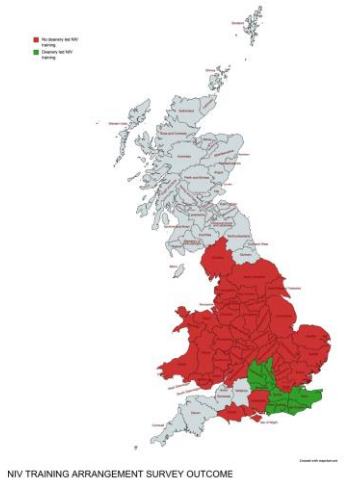
From 2014 to date, HEKSS has mandated NIV training workshops for all IMTs. These comprise of presentations, case scenarios and hands-on experience, and both qualitative and quantitative feedback/data is collated following every workshop. A survey via mobile conversations, texts and social media communication was also carried out to ascertain NIV training arrangements across England and Wales.

Results

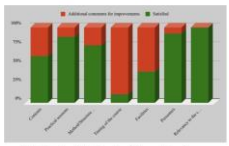
Only KSS and Thames Valley deaneries provide regional NIV training with respiratory physicians as presenters/trainers (Fig 1. Deanery NIV training England & Wales). Over the last ten years, KSS have run 29 NIV/pleural procedure workshops and trained over 762 IMTs. Data shows these are well attended with excellent satisfaction scores (Fig 2. Feedback).

Conclusion

Despite the experience of NIV and CPAP in the acute medical setting during the pandemic, NIV training has still not been acknowledged as a priority core competency or training provisioned accordingly by most deaneries. The long-established NIV course run by KSS provides a successful template that can be shared and embedded locally to improve trainees' competences and confidence and thus improve patient care and safety.



NIV TRAINING ARRANGEMENT SURVEY OUTCOME



Qualitative feedback of the attendees

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A novel course using highly realistic manikins to teach end-of-life care to final-year medical students

Authors: Stephanie Ainley,[A] Lisa Saleh-Rasool[A], Anna Bradley,[B] Zachary Tait,[A] James Patrick,[A] Ruth Caulkin,[A] Louise Robinson[A]

[A] Chelsea and Westminster Hospital NHS Foundation Trust; [B]Imperial College Healthcare NHS Trust

Introduction

The General Medical Council expects newly qualified doctors to make appropriate clinical judgement around the care of patients at end-of-life.[1] This is echoed in the Foundation Programme curriculum, where care of the dying patient is an area of core learning for foundation doctors.[2] However, it is well recognised that newly qualified doctors feel under prepared to deliver end-of-life care.[3] To address this, we designed a novel course that addressed the key areas of end of life care as detailed in the Foundation Programme curriculum, which we then delivered in a safe and supportive environment.

Materials and methods

This is an interactive 2.5-hour session for final year medical students that focusses on delivering end of life care to patients. It follows the journey of a patient at end-of-life and addresses key skills moving from recognition of dying to sensitive communication, delivering individualised care, and lastly verification of death. A significant aspect of the programme is the use of highly realistic end of life manikins throughout the session to fully engage the students in the experience and encourage them to reflect on how they would manage a similar patient on the wards. Another key part of the programme is a communication role-play by faculty, mimicking a conversation about end-of-life care between a doctor and relative.

Fig 1: Highly realistic end of life manikin

This teaching course has run twelve-times over a two-year period, across two sites of a hospital trust. A total of 98 final year medical students have attended. All students have been evaluated with pre- and post-course questionnaires assessing confidence in key areas of care for the dying patient, using a 5-point Likert scale. Free text comments were also gathered to allow for more in-depth detail on which aspects of the course students enjoyed or felt could be improved.

Results and discussion

In all 5 areas of assessment relating to care of patients at end-of-life, confidence levels improved after the course. On average, across all areas there was a 1.6-point improvement on the 5-point Likert scale. Free-text feedback from candidates reported the course was informative, highly relevant, engaging, and a safe environment for learning. The use of the communication role plays was particularly noted as being useful and effective, and many also reported they appreciated the use of the manikin.

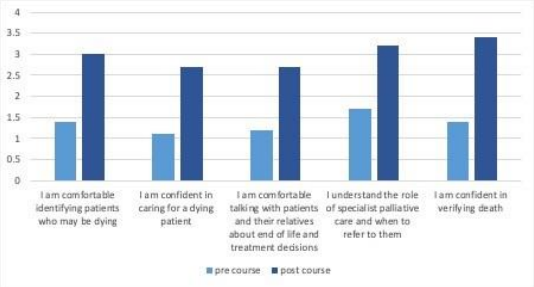

Fig 2: Mean scores on Likert scale.

Conclusion

We have developed a novel interactive session to prepare final year medical students to care for patients at the end-of-life, to the level expected of a foundation doctor. By structuring the session through the lens of a patient's journey, and allowing the students to interact with this patient through the use of highly realistic manikins, we have been able to increase their confidence in managing these patients and meeting the expectations set out in the foundation curriculum. Our course has received overwhelmingly positive feedback and we hope to expand the delivery to more sites in the future.

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Using a stimulated outpatient clinic to improve trainees' confidence and performance

Authors: Colette Davidson,[A] Emma Lewin,[A] Jessica Little,[A] Paula Lee[A] and Stephen Hamshere[A]

[A] Education Academy Barts Health Trust

Introduction

Foundation trainees are often unprepared and have limited experience seeing patients in the outpatient setting. Skills required for this are different from inpatient work and often not a focus of the medical curriculum and foundation training. Despite this, in many specialties, foundation trainees will be expected to participate in outpatient clinics. We felt that trainees lacked confidence in preparing for, conducting and managing outpatient work. Our objective was to develop a half-day clinic simulation course to address this gap in training.

Materials and methods

We created a course with 5, 15-minute stations each addressing different aspects of outpatient care. Three scenarios involved seeing simulated patients: one new patient consultation, one follow-up and one acutely unwell patient. Other stations involved writing a clinic letter to the GP and prioritising clinic administrative tasks. Each trainee completed all scenarios consecutively to mimic a real-life clinic. Following this, there was a group debrief to reinforce the learning objectives from each scenario. We ran a pilot session for foundation doctors and participants filled in a questionnaire before and after the course. Course objectives were mapped to the foundation curriculum.

Results and discussion

Five doctors attended the pilot course: three F1 and two F2 doctors. 100% of participants would recommend the course to colleagues and 60% (three doctors) felt the most useful time for this training would be towards the end of foundations year 1. Results in the table summarises the changes in confidence of trainees before and after the course, with significant increases in all areas. Participants also rated their confidence highly in managing acutely unwell patients in clinic and managing clinic admin, with an average confidence rating of 4/5 for both.

Feedback was overwhelmingly positive for this pilot session. Participants enjoyed the small group setting. They commented that the course encouraged them to think about how they would 'prioritise and manage work generated by clinics' and consider 'the technical points of writing letters'.

Conclusion

This pilot has provided evidence that doctors at an early stage of training lack experience and confidence when seeing patients in the clinic setting. Trainees' confidence can be increased with the use of simulation training. This half day course provided them with training on how to approach common clinic scenarios and manage clinic admin. This supported doctors to develop skills required for both foundation and further specialty training. We plan to develop the course based on feedback received and continue running it with subsequent groups of foundation doctors.

	Confidence pre-course (/10)	Confidence post-course (/10)
Seeing patients in clinic	3	7.2
Seeing new patient	2.6	7.4
Seeing follow up patient	2.8	7.6
Writing letters	2.2	7.6

Proposing a curriculum framework for refugee and migrant health for UK medical students

Authors: Hilary Warrens,[A] Jeyapragash Jeyapala,[B] Helena Blakeway,[A] Amy, Craig[A] and Isabel Tol[A]

[A]St George's University Hospitals NHS Foundation Trust; [B]Imperial College Healthcare NHS Trust

Introduction

The UK offered protection to 175,142 people in the 12 months leading up to June 2023, through refugee or other specific permissions. There were asylum applications for 97,390 people in this time.[1] UK doctors treat and support individuals from this vulnerable population. However, medical schools do not equip trainees with the relevant knowledge and skills to confidently care for refugees and migrants.[2]

Materials and methods

We employed a mixed-methods approach to devise a refugee and migrant health (RaMH) curriculum for UK medical trainees. Literature review, service quality improvement and educational theory informed the design of a curriculum, including core themes, learning objectives and proposed teaching methods.[3] We then mapped the curriculum components to the General Medical Council's (GMC) outcomes for UK medical school graduates.[4]

Results and discussion

We identified core topics for the curriculum by reviewing prior literature. Core topics include migrant health legislation, common clinical conditions, social determinants of health, safeguarding 'red flags' and barriers to accessing care.[2–5–6] Communication skills were identified as particularly relevant, specifically relating to trauma-informed care, cultural awareness, culturally-sensitive consultations and use of language interpreters.[2–6–7] Previous curricula have employed a creative range of teaching techniques, including online learning modules, interactive lectures, debrief sessions, community engagement and service-based experiential learning. Structured experiential learning programmes repeatedly demonstrated high student satisfaction, development, and student and patient impact.[6] This was particularly the case where student leadership, advocacy and multi-disciplinary teamworking were encouraged.[6–8] Structured and multi-faceted student support is essential to delivery and utility of such education.[8–10] Figure 1 outlines the proposed curriculum framework with five central themes and associated learning objectives. The themes and objectives align with the GMC outcomes for graduates that guide UK medical school curricula.[4] We have considered different potential delivery methods for adaptable integration into medical training.

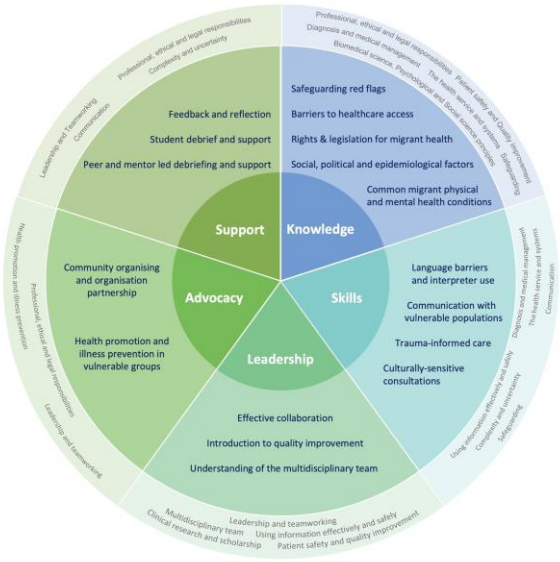

Fig 1: Refugee and Migrant Health Curriculum Framework for UK Medical Students.
The inner circle shows the five central themes of the framework. The middle circle exemplifies evidence-based learning objectives to achieve the learning goals of the themes. The outer circle demonstrates mapping of these learning objectives to the General Medical Council's (GMC) outcomes for medical graduates in the UK.

Conclusion

We propose a RaMH curriculum framework to better equip medical trainees to understand and deliver care to the refugee and migrant population in the UK. We argue that given the prevalence of refugees and migrants in the UK, integration of such training is essential to medical training. We also propose that incorporating such training will promote development of trainees in alignment with GMC's outcomes for newly qualified doctors. Such training will foster highly transferrable knowledge and skills, enabling doctors to better treat a wide range of patients. Applying the proposed framework comes with challenges for integration into medical school curricula and for safety of experiential learning in a novel setting.

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Exploring the experiences of widening participation (WP) and non-WP students in medical school: a qualitative study

Authors: Christy Varghese[A] and Kelsey Inouye[A]

[A]University of Oxford

Introduction

Widening participation (WP) is the active process of ensuring that the higher education cohort within the UK is representative of the general population.[1] There is significant work being done within the UK to ensure underepresented students are joining medical school. However, there is limited research looking at the experiences and motivations of students from widening participation backgrounds. It is unclear if they experience medical school differently. The aim of this research was to explore the experiential difference between WP and non-WP students with regards to their motivations to apply to medical school, experiences of prejudice, feelings of belonging and other aspects of student life. The study used a theoretical framework based on 'permeable habitus' developed by Dianne Reay, built on the work by Pierre Bourdieu on 'habitus'.[2] The Bourdieu theory proposes that there are certain habitus (internal dispositions and social structures) in place that cause individuals to live a certain way. However, Reay proposes that these dispositions are permeable and individuals can change and adapt to new environments.[2]

Materials and methods

This was a qualitative study conducted using online qualitative surveys as a research tool. There was a total of 34 participants; 20 WP students and 14 non-WP students from 7 different medical schools across the UK. WP students were identified using the UCAS criteria for widening participation.[3] Thematic analysis was used to analyse the data through a combined inductive and deductive process.[4]

Results/Benefits

A total of 11 themes were identified from the data and the comparisons. 9 themes were from pre-determined themes based on the literature and 2 themes emerged from the data. Some of the most significant results showed WP students have significant feelings of not fitting in within medical school; students reported they could not relate to their peers but also at times, felt like they did not deserve to be there. WP students are disadvantaged in terms of resources, social life and extra-curricular activities because of cost. Students reported they could not afford to go to conference and courses unlike their peers. Moreover, they had to sacrifice their social life at times to fund their daily living. From the non-WP data, significant number of students reported they were not aware of their privilige before medical school and they were thankful for the knowledge gained in medical school. WP and non-WP students reported discrimination during placement in terms of race from staff and patients.

Conclusions

WP students have disadvantages even before medical school and some of these disadvantages continue in medical school. Both WP and non-WP students agree diversity is necessary in medicine to ensure doctors are representative of the general population. They also agree that they can learn about difference backgrounds from each other. Experiences of widening participation students is underresearched; there is a significant opportunity to understand why the differences in experiences exist. It is important to encourage WP students in medical school but if their experiences are problematic, they are again being disadvantaged.

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Patterns of ingested foreign bodies at a tertiary paediatric emergency department: A 5-year time series analysis

Authors: Elena Wolodimeroff[A] and Alicja Zabielna[A]

[A]Bedford Hospital

Introduction

Foreign body ingestion is a common presentation in children worldwide. In our study, we describe the demographic, presentation,patterns of injury and management for children presenting with suspected or confirmed ingestion of foreign bodies.[1]

Methods

Data were collected for 1283 patients that were admitted Addenbrook's Hospital, Cambridge over a 5-year period, between 2016 and 2021. The demographics, mechanism of injury and outcomes were described for children under the age of 16 years old.

Results

The majority of patients (n=758, 59.1%) were male and had no comorbidities recorded (n=954, 74.4%). Male patients were more frequently injured compared to females in the age range of 3 to 13 years old; younger patients and older teenagers showed similar frequency of injury between male and female patients.

Ingestion of the foreign body was suspected but not certain in 56.0% (n=93) of infants compared to an all age average of 22.2%(n=286). Infants also had the highest likelihood of the foreign body in question being unknown (n=13, 7.8%). Clearly this posesses an issue for the doctor trying to gather an accurate history before deciding on a management plan. Despite the uncertain history, infants were under-investigated compared to their elder peers. Only 39.1% (n=65) of infants had any investigations performed in the Emergency Department compared to an all age average of 68.6% (n=880).

Children most commonly presented in the hours of the evening between 6pm and 9pm. Older children tended to present later in the evening, likely reflecting a later bedtime.Infants had a modal presentation hour of 7pm and 1–2 year olds of 6 pm, whereas for 11–13 year olds this was 9 pm. A peak in presentation hours across all ages was seen after midnight with presentations rising steadily from 8am through to the evening. No clear trend was observed in the weekday of presentation, with weekends and schooldays seeing similar attendance patterns.

By far the most common foreign body ingested were coins (n=156, 22.1%). Other common items were plastic (n=195, 15.2%), metalother than magnets and coins (n=156, 12.2%) and food (n=123, 9.6%). Food, though common throughout childhood, rises as the likely causative body from 12.7% in infants (n=21) and 4.1% in 1 and 2 year olds (n=16) to 28.3% in 11 to 13 year olds (n-17) and 28.1% in14 to 16 year olds (n=9).

The vast majority of younger children have no comorbidities, though this changes in the teenage years. This is principally explained by a rise in prevalence of patients with psychiatric and neurodevelopmental diagnoses.

Conclusion

This study highlights the most common ages of injury were either the early exploratory ages of a child or the late teenage years associated with increased incidence of psychiatric comorbidities. Carer and patient

education need to be the focus for the prevention of foreign bodies injection in children. Trauma services also need to be equipped and staff trained appropriately to manage the patients at peak presentation times, which are often after school and in the evenings.

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Evaluation of inpatient diabetes complications

Raisa Minhas,[A] Chris Manu[A] and Mimi Chen[B]
[A]Kings College Hospital, London UK; [B]St George's Hospital, London, UK

Introduction

The global burden of diabetes is expected to increase to 590 million by 2035.[1] In the UK, 18% of all acute hospital beds are currently occupied by patients with diabetes.[2] A survey conducted in 262 acute hospitals in the UK found massive gaps in inpatient diabetes care.[3] Regardless of diagnosis of diabetes, a relationship between dysglycemia, duration of stay and 28-day readmissions was found, hence dysglycemia can be used as a prognostic marker for an acute admission.[4] Several other studies indicated a link between inpatient hyperglycemia and the increase in hospital complications, length of stay, and mortality. [2,5–6]

Direct and immediate benefits have been observed by careful management of inpatient diabetes complications.[7] The effectiveness of multidisciplinary teams has been demonstrated in a study that showed improvement in care provision and decreased risk of diabetes complications.[8]

Material and method

This was a service evaluation project to assess the standards of care being provided for patients with diabetes, looking into inpatient diabetes complications to propose quality improvement recommendations. This was a retrospective and cross-sectional review of patients admitted with diabetes over 4 months. Data was collected from electronic records using a modified data collecting tool, based on the standard of care as depicted by the National Diabetes Inpatient Audit form. No intervention was performed at any stage. A set of recommendations were put forward based on the results.

Results

121 patients were included in the study. Mean age of the patients was 67±16 years.[10] Patients had their foot examined at the time of admission, and seven (5.78%) were admitted due to diabetic foot disease. Of 23 patients who had an episode of hypoglycaemia, 43% (10/23) were managed as per Joint British Diabetes Society guidelines. 39% (9/23) had management not in accordance with the national guideline. Furthermore, no documentation was available for 4 patients (17.39%). The mean length of stay in hospital was 16 days (SD = 33 days), with a median of 7 days.

Recommendations and conclusion

The following recommendations were put forward:

1. Patients on insulin infusion must have an electronic record of their blood glucose chart that can be easily accessed remotely by the diabetes team.
2. Educating staff (including nurses, doctors of all grades and departments, diabetes specialist nurses) in form of face-to-face/online teaching sessions, and putting up posters in different hospital premises in diabetes/diabetic foot clinics, all medical and surgical wards. The aim is to empower patients with adequate knowledge for self-examination of foot after discharge.
3. There needs to be an individual trust policy with regards to involvement of diabetic specialist nurses in provision of care for patients admitted due to non-diabetic reasons. Among 121 patients admitted, only 33 were due to diabetic reason, however the diabetes team was involved in

provision of care to 50 patients, emphasising the importance of a timely involvement of specialty teams, even if primary reason of admission was non-diabetic in the first place.

4. Transition of care needs to be pre-determined, meaning identifying readmission risk factors at time of admission, appropriate involvement of patient's family, carers including GP or community diabetes services once patient is ready for discharge.

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Improving management of NSTEMI by junior doctors on the medical take

Anoshah Arif,[A] Kathryn Frame[A] and Onesi Ogedengbe[A]
[A]Manchester Royal Infirmary, Manchester, UK

Introduction

The 2019/20 Myocardial Ischaemia National Audit Project (MINAP) report demonstrated 86,547 cases of MI admitted to NHS hospitals. 65% of these were non-ST- segment elevation myocardial infarction (NSTEMI). There is evidence from registry-based studies that case fatality from NSTEMI is higher than in STEMI.[1,2] Further research from the UK illustrates that almost one third of patients admitted with MI did not receive medications as per current guidelines, and therefore experienced higher fatality rates.[3,4] Therefore, augmenting physicians awareness of NSTEMI management is the cornerstone of improving patient care and thereby disease outcome.[5] The aim of this project is to address the knowledge gap about management of NSTEMI among junior doctors on the medical take, which should translate to improvement in clinical outcomes for NSTEMI.[6]

Methods

This study is a closed loop audit conducted at an acute medicine unit (AMU) at a tertiary hospital in the UK during October 2022 to August 2023. All patients admitted by junior doctors to AMU from A&E with the diagnosis of NSTEMI during this period were included in this study. Exclusion criteria were as follows: direct admission to cardiology department, patients for which the A&E or medical doctor discussed their plan with cardiology, type 2 MI, patients already on anticoagulation and patients who met criteria for urgent PCI. Data collection included prescription rates for dual antiplatelets, fondaparinux and secondary prevention as well as requisition for HbA1c, lipid profile, ECHO and referral to cardiology during the patient's admission. Intervention included presentation in the department meeting, discussion during medical handovers and educational posters. Data analysis was conducted using Microsoft Excel.

Results

28 patients were included in the first cycle, and 24 patients in the second cycle. In the first cycle, the prescription rates for aspirin loading dose, a second antiplatelet loading dose and fondaparinux were 85.1%, 64.3% and 35.7% respectively. Maintenance doses of aspirin and the second antiplatelet were prescribed for 67.9% and 53.6% of patients respectively. The second cycle demonstrated prescription rates for aspirin loading and maintenance dose as 91.7% and 62.5%, second antiplatelet loading and maintenence dose as 87.5% and 58.3%, and fondaparinux as 75% respectively. Among the patients who were eligible for secondary prevention: in the first cycle, the prescription rates for beta blocker, ACE inhibitor/ARB and statin were 46.1 %, 41.6% and 48% respectively. This changed to 30%, 33.3% and 55% respectively in the second cycle. In the first cycle, no patient had their HbA1c and lipid profile checked. This improved to 4.2% and 16.7% respectively.

In the first cycle, 25% and 89.3% of patients had an ECHO and a referral to cardiology requested respectively. This changed to 45.8% one 70.8% respectively in the second cycle.

Conclusion

This study identifies a significant gap in current management of NSTEMI by junior doctors on the medical take. Results of the re-audit illustrate the value of educating junior doctors on up-to-date guidelines, thereby improving compliance to the same and, in turn, patient outcomes.

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An audit of cardiovascular risk stratification rates in a tertiary oncology department

Carl Simela[A] Alex Byrne,[B] Arjun Ghosh,[B] and Clare Bannister[C]
[A]University College London Hospitals, London, UK; [B]University College London Hospital, London, UK; [C]King's College Hospital, London, UK

Introduction

Anthracycline-induced cardiotoxicity (AIC) is a potential complication of doxorubicin-based chemotherapy regimens.[1] The 2022 ESC cardio-oncology guidelines highlight the importance of cardiovascular risk stratification and cardiac surveillance of patients undergoing anthracycline treatment.[2] All patients should have a baseline transthoracic echocardiogram (TTE) with global longitudinal strain (GLS) measurement. Patients at very high and high risk of AIC should have a 3-month post treatment TTE, as well as measurement of NT-proBNP and/or cardiac troponin levels at baseline and before every subsequent chemotherapy cycle. Here, we investigate the extent to which these recommendations were met at a tertiary centre in the UK.

Methods

To be included in this retrospective audit, patients had to be at least 18 years old and have received a doxorubicin-containing chemotherapy regimen between January 2020 and January 2021 at a single tertiary centre in the UK. If a patient had a baseline TTE or cardiac troponin/NT-proBNP blood test, it had to be no longer than 12 months prior to starting chemotherapy. All doxorubicin doses had to be administered at the same trust. We used the HFA-ICOS risk stratification tool to stratify patients into low, moderate, high and very high AIC risk as per the ESC cardio-oncology guidelines.

Results and Discussion

210 (57.7%) of the 364 patients meeting our eligibility criteria had a baseline TTE. 88 (41.9%) baseline TTEs reported GLS. Of the 210 patients with a baseline TTE, 98 (46.7%) were at low risk of developing AIC, 66 (31.4%) were at moderate risk, 38 (18%) were at high risk and 8 (3.8%) were at very high risk.

10 (21.7%) of the 46 patients at high or very high risk of AIC had a baseline cardiac troponin or NT-proBNP measurement and only one (2.7%) patient had cardiac troponin or NT-proBNP levels measured before every chemotherapy cycle. 16 (34.8%) of the high or very high-risk patients had a TTE within 6 months of completing chemotherapy.

Our results show that a significant proportion of patients did not have a baseline TTE and the majority of those that did had not had GLS reported. Additionally, only a minority of high-risk patients had baseline measurement of cardiac biomarkers. As GLS deteriorations and troponin rises have been implicated as early markers of AIC,[3,4] this likely means that patients were not risk-stratified optimally and opportunities were missed to start early cardioprotective therapy, which have been shown to have prognostic benefit.[5]

This study covers a time period before the publication of the guidelines, so it is likely that cardiovascular risk stratification and surveillance of patients receiving doxorubicin has improved since. Nonetheless, these results are rationale for future quality improvement projects in this area.

Conclusion

We show that – before the publication of the 2022 ESC cardio-oncology guidelines – there was insufficient baseline cardiovascular risk stratification and cardiac surveillance of patients receiving doxorubicin at a tertiary centre in the UK. It is likely that this prevented early detection and treatment of AIC, which has shown to have cardiovascular prognostic benefits.

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A clinical audit on assessing the severity of acute pancreatitis: improving the use of the Glasgow-Imrie criteria and patient outcomes

Naadir Nazar,[A] Phoebe Read[A] and Charles Bailey[A]

[A]Maidstone and Tunbridge Wells NHS Trust, Kent, UK

Introduction

Acute pancreatitis (AP) is one of the most common gastrointestinal conditions that causes hospitalisation.[1] It can progress to severe acute pancreatitis (SAP), which is defined by pancreatic and extra-pancreatic necrosis, ITU admission, multi-system organ failure and death. Overall mortality of AP is 2–8%,[2] however when the cases become severe, mortality then rises to 85%.[3] Severity should be predicted on admission using scoring systems such as the Glasgow-Imrie criteria to appropriately risk stratify patients and ensure that severe cases are reviewed and treated aggressively to prevent death. Scores of ≥3 are indicative of SAP and the patient requires review by both a senior and ITU/HDU to optimise treatment and determine the need for transfer to the HDU/ITU.

Methods

We performed a 2-cycle closed loop audit on the practice of scoring surgical patients using the Glasgow-Imrie criteria. Each cycle was registered with our local clinical audit department (#1313, #1652, #2049). This was an audit of 95 patients who were admitted to the general surgery department with acute pancreatitis at Maidstone and Tunbridge Wells NHS Trust over the course of 6 months. For our first cycle we audited 50 patients with acute pancreatitis. We presented these findings at our clinical governance meeting, which formed part of our initial intervention alongside posters and a department-wide email to encourage the use of the score. We then performed a re-audit of 32 patients admitted with AP over the 8 weeks since the first intervention. We presented these findings and implemented a further change: the integration of an online scoring proforma on the electronic notes. A final re-audit at 6 weeks post-second intervention was then carried out on 13 patients.

Results

The analysis of initial data revealed that only 44% (22/50) of patients with AP had been scored using the Glasgow-Imrie criteria. Post-first intervention, 66% (21/32) of patients had been scored. Post-second intervention the use of the Glasgow-Imrie score was up to 77% (10/13). Accurate and complete documentation of the Glasgow-Imrie criteria improved from 78% prior to any interventions up to 100% by the end of our second cycle. Over the entire audit cycle there were a total of ten Glasgow-Imrie scores ≥3 and 4/10 scores ≥3 (40%) which correctly predicted SAP. Throughout our audit, the Glasgow-Imrie score continued to show a good correlation with SAP as defined by the outcomes above. Only 17% of scores ≥3 were acted on or escalated prior to our audit. By the end our second cycle 100% of patients with scores ≥3 were reviewed by a senior and/or ITU/HDU. There were no deaths in our study.

Conclusion

It is important to predict disease severity in patients admitted with AP and the Glasgow-Imrie criteria is a reliable and straightforward way of doing so. Early recognition leads to earlier review and optimisation of management, which improves patient outcomes. We aim to recommend other general surgical units to use this scoring system and a similar online template.

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Investigating thrombocytosis to increase early detection of LEGO-C cancers at Whitehill Surgery, Aylesbury: a clinical audit

[A]Xenia Melanie Hartwig and [A]Nicola Draper
[A]Whitehill Surgery, Aylesbury, UK

Background

Recent research indicates a strong link between thrombocytosis (PLT>450) and malignancy. Patients with persistent high platelet counts can have risks as high as 18.1% of being diagnosed with cancer within 1 year.[1] There is a specific subgroup of cancers that shows the strongest link: lung, endometrial, gastric, oesophageal and colorectal[1] – commonly shortened to LEGO-C.

NICE has developed guidelines to outline which patients with thrombocytosis should undergo investigations for occult malignancies.

The aim of this audit is to review and improve investigation of thrombocytosis at Whitehill Surgery to increase early detection of LEGO-C cancers.

Methods

Data was collected retrospectively using EmisWeb. Relevant records were identified using 'patient population reporting'. Inclusion criteria were as follows: registered at Whitehill Surgery, Aylesbury, ≥40 years, PLT count ≥450 between 9 November 2022 and 9 May 2023. 38 patients were identified and all were included.

The following standards were set for this audit:

1. LEGO-C cancers should be considered for all patients with unexplained thrombocytosis.
2. Investigations for LEGO-C cancers should be performed as per NICE recommendations for all patients qualifying.

Results

LEGO-C cancers were mentioned for 10/38 (26%) patients around the time of reported thrombocytosis. In 8/10 (80%) cases this was because of an accompanying symptom, such as rectal bleeding. In 2/10 (20%) cases, concerns regarding LEGO-C cancers were raised because of thrombocytosis.

38/38 (100%) patients met the criteria for a chest radiograph and quantitative immunochemical testing (qFIT). 2/38 (5%) patients were eligible for a pelvic ultrasound and 5/38 (13%) patients qualified for a non-urgent direct access upper gastrointestinal endoscopy.

It is unclear whether 13/38 (34%) patients would have met criteria for a pelvic ultrasound or upper GI endoscopy, as relevant symptoms were not explored.

qFITs were performed for 9/38 (24%) patients, CXRs for 2/38 (5%) patients, pelvic ultrasounds for 2/38 (5%) patients and a gastroscopy for 1/38 (3%) patient.

Conclusion

LEGO-C cancers are currently not widely considered and investigated for patients with thrombocytosis at Whitehill Surgery.

The following interventions were therefore performed:

1. A flow chart based on published research[2] (see Fig 1) was introduced to streamline assessment and investigation of thrombocytosis.
2. A presentation was given to GPs and allied healthcare professionals at Whitehill Surgery to raise awareness of the strong link between thrombocytosis and malignancy.

The practice will be re-audited 6 months, following the implementation of these interventions.

This audit highlights the significant room for improvement in early cancer detection. The FBC is a very commonly performed blood test which can incidentally highlight patients' increased risk of having occult malignancy prior to presentation with symptoms. Awareness needs to be raised among both primary and secondary care physicians to ensure that this marker is used to its fullest potential.

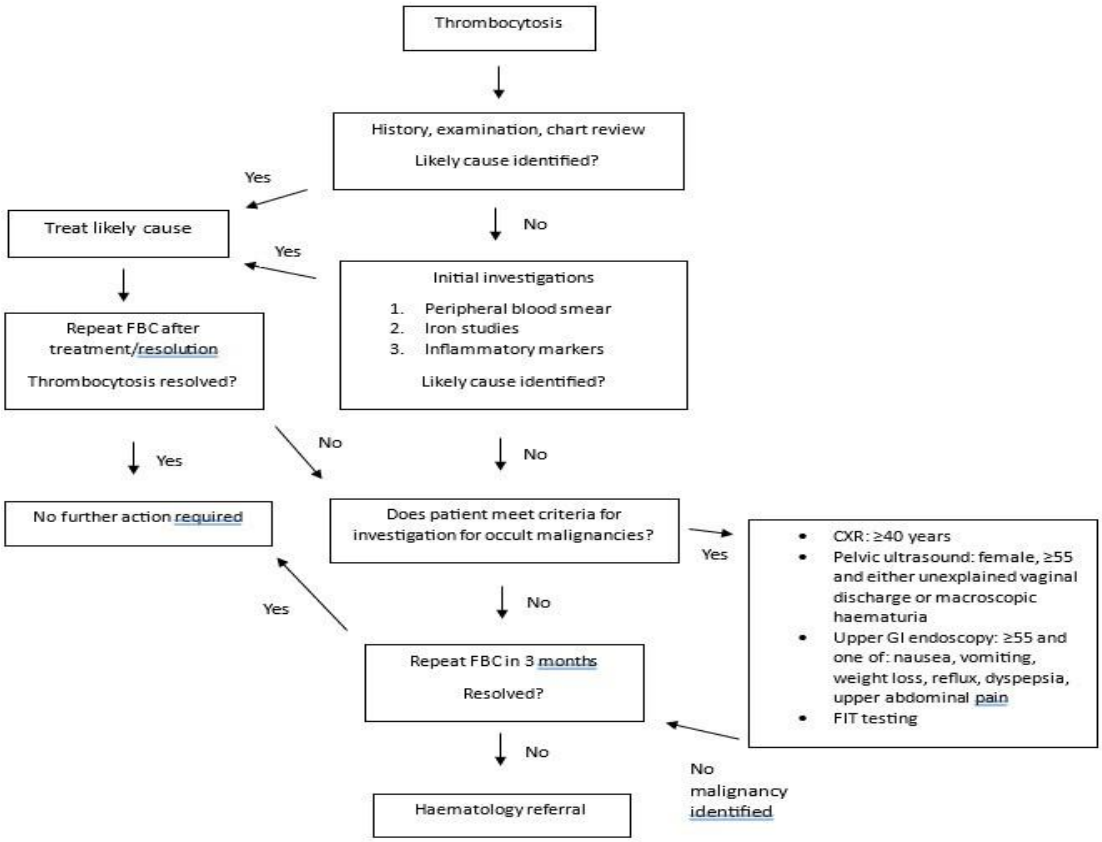

Figure 1: Flow chart to investigate thrombocytosis at Whitehill Surgery

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Utility Of FDG-PET scan in the diagnosis of Alzheimer's disease

Abdullah Almayahi,[A] Akram Hosseini,[A] Asad Ahmed,[A] and Hina Khan[A]
[A]Nottingham University Hospitals Trust, Nottingham, UK

Alzheimer's disease (AD) is a prevalent neurodegenerative disorder marked by progressive cerebral impairment and cognitive decline. Positron emission tomography (PET) scans have emerged as a diagnostic tool to assess changes in brain glucose metabolism, neurotransmitters and protein aggregates. To evaluate the utility of FDG-PET scan in diagnosing Alzheimer's disease, we conducted a retrospective cross-sectional analysis of patients who attended the dementia clinic in one of the tertiary centers in the UK from January 2019 to June 2022.

Out of the 146 dementia patients, 37 were definitively diagnosed with Alzheimer's disease (AD), 20 with frontotemporal dementia (FTD), seven with dementia with Lewy body (DLB), and three with corticobasal degeneration (CBD). There were an additional 79 cases of non-specific cognitive impairment.

Results revealed that of 37 patients with AD, 25 (67.57%) have positive findings on PET scans, while five (13.51%) were negative, and seven cases (18.92%) did not undergo PET scan. In the same group of 37 patients, eight (21.62%) had MRI features suggestive of AD, 25 (67.57%) had negative MRI results and four (10.81%) did not undergo MRI. It is worth noting that 13 cases (8.9%) of the total 146 showed PET scans features of Alzheimer’s disease; however, the clinical presentation suggested another diagnosis.

This audit provides valuable insights into the utility of PET scans in diagnosing Alzheimer's disease. The PET scan demonstrated potential as a diagnostic tool for AD, with a significant proportion of AD cases exhibiting positive results. Additionally, results demonstrate that PET scans are superior to MRI in detecting Alzheimer's disease (AD).

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A single-centre audit for assessing the appropriateness of rejected transthoracic echocardiography requests and correlation with British Society of Echocardiography published clinical indications

Abhishek Dey,[A] Ushna Riaz,[A] Arouj Abbas,[A] Salwa Anis,[A] Zina Afroja,[A] Paul Brookes Baker,[A] Nicholas Trim,[A] MeiMei Cheung[A] and Naser Elameri[A]
[A]University Hospitals Leicester NHS Trust, Leicester, UK

Introduction

Transthoracic echocardiography (TTE) is an indispensable non-invasive cardiac imaging modality that is widely utilised, forming a crucial part of patients' care pathway throughout clinical practice. The rising prevalence of cardiovascular diseases has resulted in an increased burden on TTE services, which has shown a meteoric surge of 5.7% per annum between 2014 and 2019, resulting in a breach of the 6-week maximum diagnostic wait policy.[1] This demand–supply mismatch is further compounded by inappropriate TTE requests, which lead to eventual difficulties in triaging, resulting in cancellation. To standardise the triage system and better define indications of TTE, the British Society of Echocardiography (BSE), in collaboration with the British Heart Valve Society (BHVS), has released a comprehensive set of guidelines.[2]

The aim of our study was to determine the appropriateness of TTE requests and to evaluate factors responsible for rejection in accordance with the BSE guidelines. We further assessed the perception and knowledge among requesting clinicians regarding rejected TTE requests.

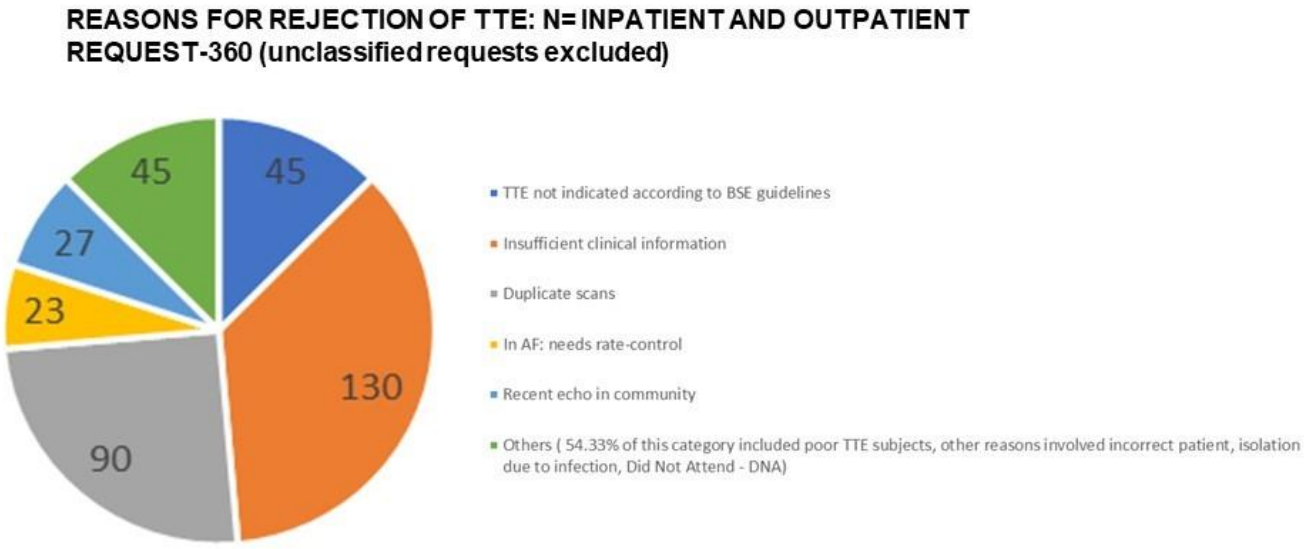
Materials and methods

A retrospective analysis was conducted of all rejected TTE requests in a university trust including a tertiary care cardiology unit for the months of January and February 2023, in collaboration with the cardiac investigations unit. The rejected requests were sub-categorised into inpatient vs outpatient, site-specific and requesting specialty-specific cohorts and compared based on reasons for rejection and BSE guidelines specified indications.

A survey was designed and distributed among all grades of requesting clinicians to retrieve anonymous responses. The aforementioned dataset was analysed to identify areas of improvement and an action-plan was designed and implemented to improve acceptance rates.

Results and discussion

455 TTE requests were rejected in the study period – the majority of them (71.6%) were for inpatient admissions. Cardiology (173) and respiratory medicine (67) were the leading specialties with rejected requests – possibly a reflection of their admitted patient cohort requiring cardiac imaging more frequently. Insufficient clinical information and duplicate scan (in recent admissions) contributed predominantly as the reasons for rejection at 36.1% and 20% respectively. Suspected heart failure, suspicion of acute mechanical valvular pathology and assessment of left ventricular function were the three leading indications of rejected TTE requests according to BSE guidelines.



A large proportion of responders (72.8%) felt they were assigned responsibility to request an echo for a patient they had limited knowledge about – most of them being junior clinicians.

Lack of adequate clinical information was identified as the primary reason for rejection in other similar studies as well.[3–4] However, promoting awareness about TTE indications and BSE guidelines was noted to have improved rejection rates.[4] Hence, educational sessions, TTE requesting memory aids (checklists) and greater access to community performed TTE reports were some of the changes proposed and implemented on a trust-wide basis.

Conclusion

The study highlights the importance of a standardised guideline-centric framework for requesting TTEs to streamline service provision and reduce diagnostic delays, thereby improving patient care.

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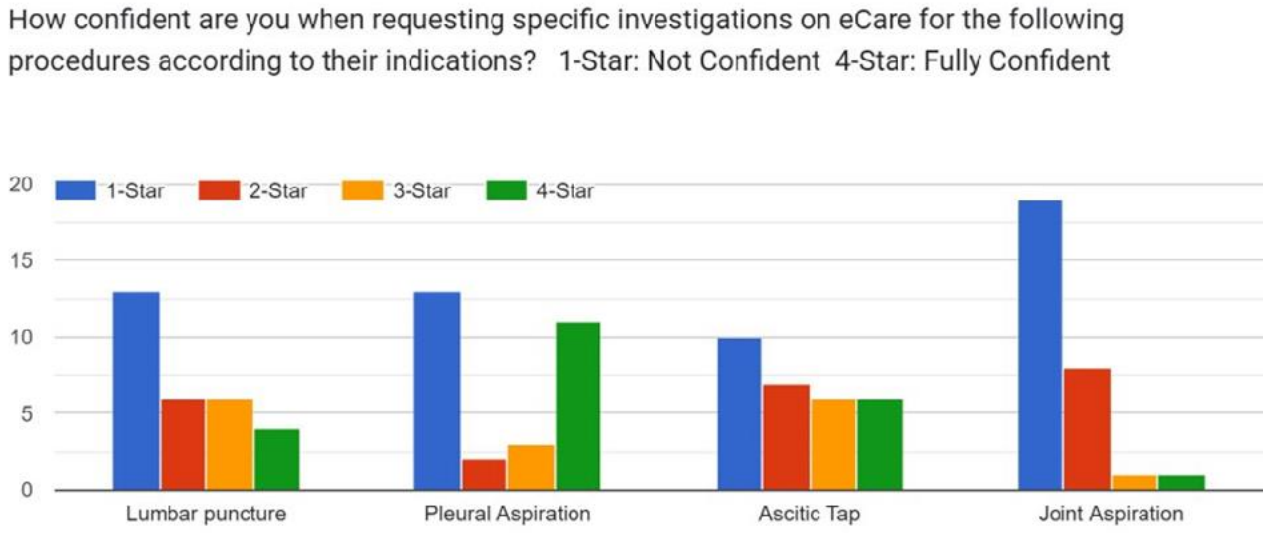
Developing a doctor toolkit for essential investigations prior to medical procedures – a quality improvement project

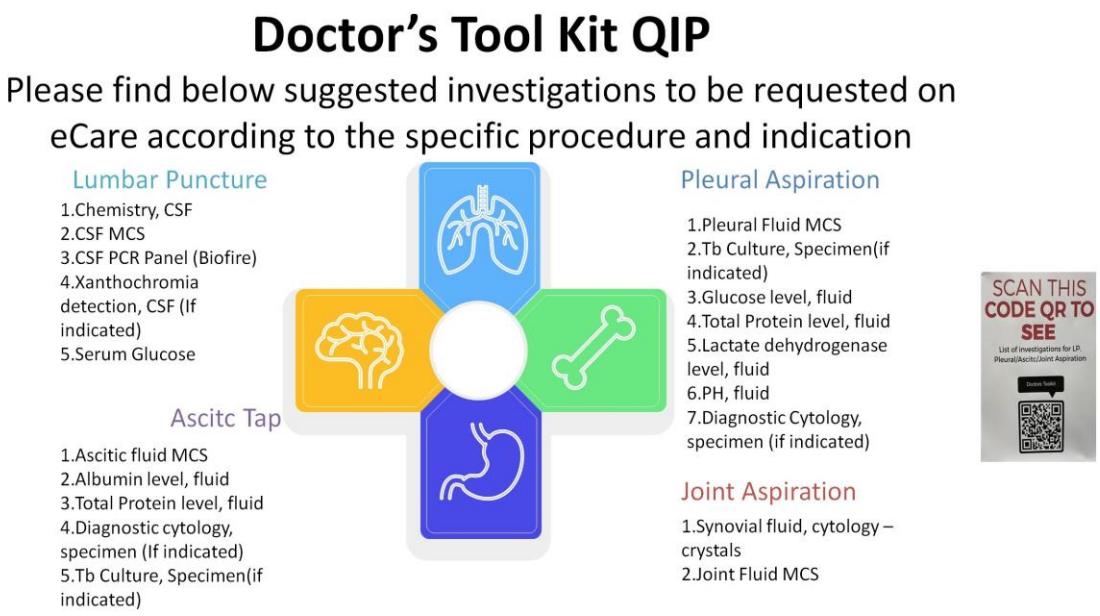
Raneem Radi,[A] Fatima Ihsan[A] and Jovita Amadi[A]
[A]Milton Keynes University Hospital

Proficiency in diagnostic procedures is a cornerstone of medical training, crucial for junior doctors' skill development and career progression. Acute medical procedures, such as lumbar puncture, pleural aspiration, ascetic tap and joint aspiration play a pivotal role in patient diagnosis and treatment planning. However, a recurring challenge among junior doctors (FY1–CT2) is the uncertainty and lack of familiarity in requesting appropriate investigations for these procedures. This knowledge gap not only hinders effective patient care, but also compromises patient safety and timely diagnoses, making the need for improvement imperative.

This quality improvement project aimed to address the aforementioned issues by equipping junior doctors with a comprehensive toolkit of investigations tailored to various acute medical procedures. Executed at Milton Keynes University Hospital, the project employed a multifaceted approach. An online survey was conducted, collecting insights from approximately 40 junior doctors spanning different levels of training (FY1, FY2, CT1/2). The collected data underwent rigorous analysis using Excel sheets, data visualisation tools and statistical techniques. These findings were then presented in a regional audit meeting, fostering collaborative discussions on areas requiring enhancement.



The project's core mission was to enhance patient safety by streamlining investigation requests for acute medical procedures. The toolkit, a central outcome of this project, provided junior doctors with a structured framework for selecting and requesting relevant investigations. The toolkit's integration into the e-care system exemplified the fusion of technological innovation with patient-centred care. With a primary focus on patient safety and achieving accurate diagnoses promptly, the project aimed to foster a culture of continuous learning and improvement among junior doctors.



The significance of timely diagnoses and patient safety cannot be overstated. By equipping junior doctors with an intelligently designed toolkit, this project contributes to the refinement of medical training and practice. The subsequent cycle demonstrated a substantial increase in the appropriateness and frequency of investigation requests, illustrating the project's tangible impact. The successful implementation of the toolkit and its integration into the e-care system showcased significant improvement in requesting the required investigations before each procedure, underscoring the efficacy of this initiative in enhancing patient safety and ensuring thorough diagnostic processes.

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Improving the discharge summaries for patients with acute coronary syndrome: a quality improvement project

Berin Gorgun[A] and Pooja Dewan[A]
[A]Milton Keynes University Hospital, Milton Keynes, UK

Background

There are established guidelines for management of patients presenting with acute coronary syndrome (ACS). However, implementation of strategies to improve adherence to guidelines regarding secondary prevention remains suboptimal.

Aims

This QIP aims evaluate the quality of discharge summaries for patients admitted with ACS to identify gaps and introduce measures to ensure appropriate secondary prevention.

Methods

Data were collected retrospectively from eCare. We identified patients admitted to and discharged from the cardiology ward in Milton Keynes University Hospital with ACS in two different cycles. We reviewed the documentation of duration of dual antiplatelet therapy (DAPT) and DVLA advice in discharge summaries and whether HbA1C and lipid levels were checked during admission. Following the initial audit, we designed an educational poster which was placed in the cardiology and acute medical wards. A re-audit was then done to analyse the effects of our intervention.

Results

We reviewed 22 discharge letters between June 2022 and July 2022 and 13 letters between February 2023 and March 2023. The results are summarised in the table below (*Table 1*).

	June – July 2022	February – March 2023	P-value
Duration of DAPT documented	91%	100%	0.52
DVLA advice given	50%	46%	1.00
HbA1c level measured	59%	69%	0.72
Lipid levels measured	73%	46%	0.16

Conclusions

Dissemination of posters did not improve the documentation of DAPT duration and DVLA advice in discharge summaries. There was also no improvement in the measurement of HbA1c and lipid levels. Therefore, a more active intervention is needed. We suggest automatic population of discharge summaries on eCare. This is currently being incorporated into our electronic patient records and would be feasible to replicate in similar units.

An audit on clinical characteristics and hospital course of patients admitted with hyponatremia

Divij Sharma,[A] and Sukesh Chandran[A]
[A]St John of God Hospital, Perth, Australia

Introduction

Hyponatremia, a serum sodium (Na) concentration less than 135 mmol/L, is the most common electrolyte abnormality in current clinical practice.[1] Despite the frequency of hyponatremia and the severity of some associated complications, research suggests clinicians often overlook hyponatremia.[2] Clinicians use different strategies to find out the cause of hyponatremia for a differential diagnosis; however, in doing so testing is often inadequate, and misclassification of the hyponatremia frequently occurs.[3] The objectives of this audit are:

- to investigate the frequency, clinical, biochemical characteristics, underlying diagnosis and clinical outcomes, and patient profiles of 30 hyponatremic patients
- to classify which treatment regime and correction rate was followed as per European Society of Endocrinology Guidelines.

Materials and methods

We classified the patients according to the clinical severity of Na as mild, moderate or severe. They were also classified into acute vs chronic as per the time of development (48 hours is cut off), symptomatic vs asymptomatic, and hypovolemic vs euvolemic vs hypervolemic. This classification was done to evaluate directions for diagnosis and treatment. In addition, the records of these patients were reviewed for relevant demographic, clinical and laboratory data. The underlying diagnoses and complications post-treatment were also sought.

Results and discussion

Fig 1 shows the percentage of the population as per classification of hyponatremia among 30 patients.

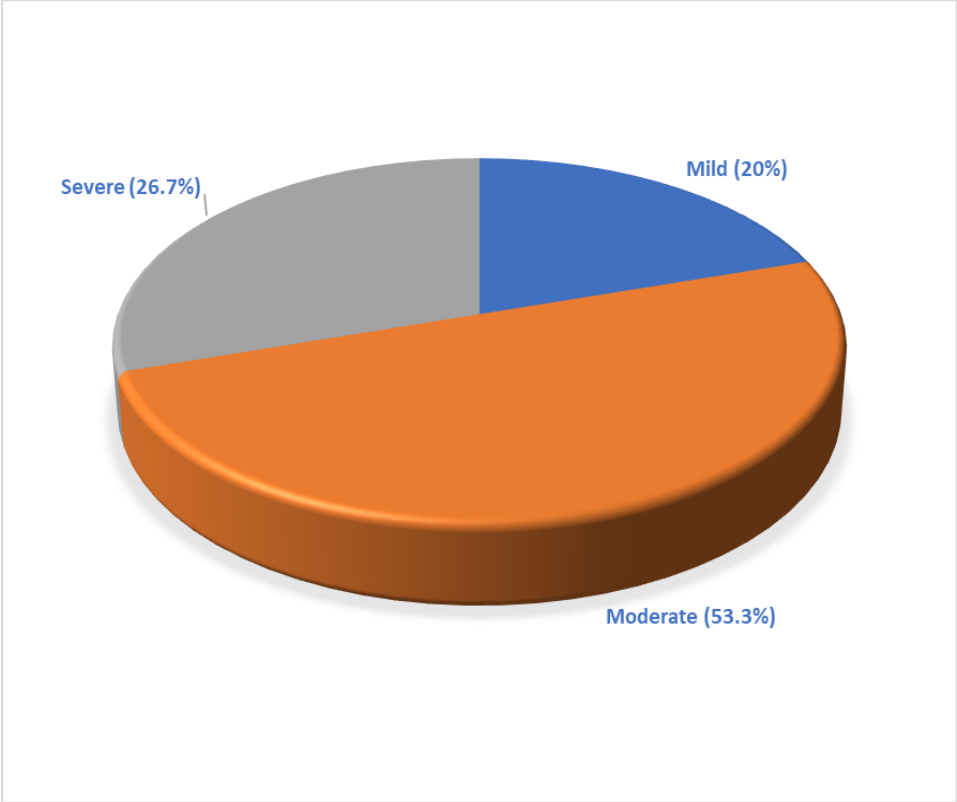

Fig 2 illustrates the number of patients as per clinical, and demographic characteristics and treatment administered in 30 hyponatremic patients.

	Mild ≥130	Moderate 125-129	Severe <125
No. of patients	6	16	8
Age	60±2	58±6	65±4
Sex			
-Males	4	10	5
-Females	2	6	3
Volume status			
-Hypovolemic	2	5	6
-Euvolemic	2	7	1
-Hypervolemic	2	4	1
Duration			
-Acute	3	9	7
-Chronic	3	7	1
Symptomatic			
-Yes	1	3	7
-No	5	13	1
Treatment administered.			
-			
fluid restriction	6	15	6
-0.9%Nacl	3	11	0
-3% Nacl	0	2	4
-drugs (mannitol, tolvaptans)	2	3	2
Rate of correction			
- <4 mmol/L	5	5	4
- 4 to 8mmol/L	1	6	1
- >8mmol/L	0	5	3
Complications after treatment			
	6	0	5
-No	0	2	3
-Yes			

Clinically, four were attributed to autoimmune encephalitis and two were secondary to new onset glioblastoma.

On the treatment front, 12 patients had more than one cause behind the hyponatremia; hence more than one treatment modality was administered in these patients. European guidelines recommend a rate of around 10 mmol/L per day. However, we kept the range of 68 mmol/L as our reference due to the risk of

osmotic demyelination syndrome in high-risk patients. The table illustrates that the correction rate did not exceed the recommended limits in most patients.

Conclusion

Following European guidelines, no treatment modality stood as the absolute gold standard or benefit in our audit; hence we saw that more than one regime was meticulously used in most patients to reach the Na target. More than 50% of patients had hyponatremia detected incidentally on routine biochemical tests, consistent with the literature. This audit is directed for doctors to know recent treatment guidelines for diagnosing, classifying and managing hyponatremia patients.

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Promoting multidisciplinary team cohesion on the acute floor through establishing medical emergency team huddles and hospital at night

Alexandra McWhirter,[A] Jemina Onimowo,[A] Claudette Hewitt,[A] Celine Dore,[A] Danielle Simpson[A] and Aditya Jaidev[A]
[A]University Hospitals Sussex, UK

Introduction

The Royal Sussex County Hospital (RSCH) is one of four hospitals that comprises University Hospitals Sussex NHS Trust. In October 2021 we began to reflect on what could be done to improve emergency and out-of-hours working.

Medical handovers and medical emergency team (MET) huddles ensure the efficient transfer of information at times of transition of responsibility and allow the team to meet ahead of stressful situations.[1] The Hospital at Night (H@N) concept was developed to improve patient safety and wellbeing of the multidisciplinary team working out of hours.[2]

From a questionnaire sent to medical juniors, 92% felt that having a structured medical handover would improve patient safety, two-thirds believed that there was a need to improve the current structure of medical handovers and 88% felt that a MET huddle was beneficial to patient safety. Modified Gemba walks and root cause analysis using the Ishikawa tool took place followed by multiple key stakeholder meetings.

Aims

1. To establish morning and night MET Huddles at RSCH by April 2022, aiming for 100% meetings being held.
2. To create, by October 2022, a sustainable method of touching base with members of the multidisciplinary team working at night in RSCH by establishing a 2am huddle meeting.

Materials and methods

A structured handover proforma and standard operating procedures for MET huddles and H@N were produced. MET huddles were established at 8.30am and 8.30pm daily, and a H@N meeting at 2am, with pre-alerts set up via switchboard. Information including a dedicated MET document was uploaded to Microguide (a website and app widely used to access guidelines) and continued education took place across inductions and teaching sessions. The paper proforma was replaced by QR code sign-in in subsequent PDSA cycles.

Results and discussion

Post-intervention analysis found that 100% of junior doctors were now clear on their roles at emergencies (increased from 25%) and the majority of respondents across the multidisciplinary team found the meetings helpful. Audit of bleeps received overnight found the large proportion of non-urgent bleeps (including 30.8% for routine prescribing tasks) meant that 58.3% of tasks could not be completed within 1 hour.

We have found that regular meetings with key stakeholders across medicine, critical care outreach and the site team have been vital, as well as working with IT fellows to make the best use of existing and new systems. To promote sustainability of the project we have recruited IMT/ACCS trainees as project champions, who spend 3-4 years at the trust. Challenges encountered include finding adequate space for meetings, resistance to change and participation from other specialties.

Conclusion

We have seen an improved culture around handovers and out-of-hours working. We have successfully spread to the Princess Royal Hospital site and been contacted by two hospitals from other trusts for advice on implementing similar projects. Our ongoing work involves the re-introduction of triaging of bleeps overnight and providing further training for clinical site practitioners to expand the support they can offer to junior doctors.

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Giant cell arteritis pathway quality improvement project (QIP)

Fatima Anees,[A] Sami Fouda,[A] Sarya Elnour,[A] Sara Hui,[A] Salma Kabashi[A] and Shahir Hamdulay[A]
Northwick Park Hospital, London, UK

Introduction

Giant cell arteritis (GCA) is a large vessel granulomatous vasculitis with a predilection for the extra-cranial vessels. Early diagnosis and treatment are crucial in preventing complications such as vision loss. An established rapid access GCA pathway was updated in 2019 to incorporate temporal artery ultrasound. In this QIP we have re-audited this pathway and compared it with the recent British Society for Rheumatology (BSR) guidance for GCA.

Objective

To audit the GCA pathway against BSR guidelines and compare it with the previous cycle audit results.

Methods

Audit standards were set against the BSR audit tool for GCA. Data from 124 suspected patients (January 2021 to January 2023) were retrospectively analysed and compared against BSR standards, as well as previous audit results.

Results

Of 124 suspected patients, 48 (39%) were diagnosed with GCA (male 15/48, female 33/48). Of all suspected cases, the majority were reviewed in the same day emergency care (SDEC) unit (SDEC 90/124, A&E 19/124, inpatient 8/124, outpatient 4/124). 79% of patients with GCA were reviewed by rheumatology within 3 working days. 94% of patients had diagnostic blood investigation at presentation. 89% of patients had a diagnostic ultrasound (US) performed within 7 days of starting steroids. 39% had positive US (48/124) and a negative result in 48% (59/124), while 14% had an inconclusive result (17/24). A total of 25 patients had a TA biopsy (10 inconclusive results, six atypical presentation, nine unclear indication). 78% of patients with suspected GCA were started on high dose prednisolone (40–60mg OD). Prior to the implementation of TAUS all patients with suspected GCA had a TA biopsy (40 biopsies per year).

Conclusion

Since implementation of ultrasound in the diagnostic pathway of GCA, more patients have been treated appropriately and less have required temporal artery biopsies (40 per year vs 12 per year).

Is transcranial Doppler underestimated in the stroke units in the UK?

Marwa Eltemamy[A]

[A]Devonshire Centre for Neurorehabilitation, Stockport NHS Foundation Trust, Stockport, UK

Introduction

Stroke is the second leading cause of death, responsible for approximately 11% of total deaths according to WHO. The incidence of ischaemic stroke has almost doubled during the last decade – compared with two decades earlier – for individuals under the age of 55 as per the European Dijon Stroke Registry.[1]

There is a wider range of potential risk factors and recognised causes underlying stroke in the young, such as illicit drug use, combined oral contraceptives and patent foramen ovale (PFO).

Cryptogenic strokes (CS) account for almost 40% of all ischemic strokes. PFO is strongly associated with CS in young subjects.[2] Transcutaneous PFO closure showed benefits to prevent recurrent stroke in several studies.[3]

Transthoracic echo (TTE) and transoesophageal echo (TEE) were the only diagnostic tools for PFO until the development of transcranial Doppler (TCD) in 1982.[4]

Aim

To identify the reason for ischaemic stroke in young people is challenging in most cases. Bubble TTE is the main test used to screen for PFO in young stroke patients in the UK. This is done as an outpatient test after the patient is discharged and usually takes a few months because of the long waiting list. TCD is used as an essential investigation for young stroke patients only in a few stroke units in the UK.

As a quality assessment project, we compared the TTE/TEO that are used to diagnose PFO in the UK with the TCD used in most of the stroke units worldwide.

Results

TTE has a low sensitivity (45.1%) but very high specificity (99.6%) for PFO detection.[5] Even when it is performed with a contrast agent and right-to-left shunt (RLS) provoking manoeuvre, it is still a poor screening tool for PFO.

TEE is considered the gold standard for the detection of PFO because of direct visualisation of the heart structures and assessment of PFO size.[6] However, it showed a sensitivity of 89.2% and a specificity of 91.4% to detect PFO.[7] Moreover, it has oesophagus-related contraindications and has some limitations when the patient is uncooperative because of sedation or dysphagia. It also may have rare but serious complications.

TCD showed excellent accuracy in the detection of PFO when compared with TEE (sensitivity of 94%, specificity of 92%) in several studies.[8] It is the only diagnostic modality that proves the embolismic potential of RLS to the target organ (brain) and quantifies the burden of embolism.[9]

Conclusion

TCD is more sensitive to detect PFO compared with TTE and TEE (94% versus 45.1% and 89.2% respectively). The presence of TCD in the stroke unit will provide quicker assessment for young patients instead of waiting for a few months to have TEE as an outpatient. Detection of PFO and its further management can decrease the risk of recurrence of ischaemic stroke. We believe that this machine is worthy as it could save the costs

of readmission of these patients (including possible thrombolysis, thrombectomy and rehabilitation) should they have a new stroke.

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From mediocre to meaningful: individualised feedback leading to improvement in the quality of discharge summaries

Wajeeha Latif,[A] Nowrin Arvy,[A] Sara Ibzea,[A] Jovita Amadi,[A] Jane Wale[A] and Robin Kearney[A]
[A]Milton Keynes University Hospital, Milton Keynes, UK

Introduction

Discharge summaries are the only formal written communication routinely received by patients and GPs, regarding the care received during a hospital admission. At our trust, several incidents, patient complaints and feedback from primary care led to the initiation of this project to improve these letters. Poor quality summaries were found to contain multiple errors regarding diagnosis, treatment and plans regarding medications and follow up. We felt that effective summaries would reduce waste, prevent errors and improve patient experience, and planned to undertake a comprehensive project to tackle this. We aimed to ensure that 90% of discharge summaries sent from the medicine department were adequate by the end of the project.

Methodology

We designed a scoring system for the text content of discharge summaries. This was agreed between a core team of junior doctors and consultants and was based on as pre-existing guidelines including from the RCP and others, as well as feedback from patients, GPs and pharmacists.[1–3]

Table 1. Discharge summary scoring system. Summaries were compared against the admission notes to score each domain. *If no procedures were performed, this was scored as 2.

Scoring Domain	Score		
	0	1	2
Diagnosis	Not done or incorrect	Partially completed	Fully completed
Past medical history			
Initial presenting complaint			
Summary of admission			
Summary of pertinent results			
Hospital follow up			
Primary care follow up			
Medication changes and plan			
Patient instruction and advice			
Procedures*			
Quality of writing	-1 for multiple spelling or grammar mistakes	-1 for excessive jargon or acronyms	

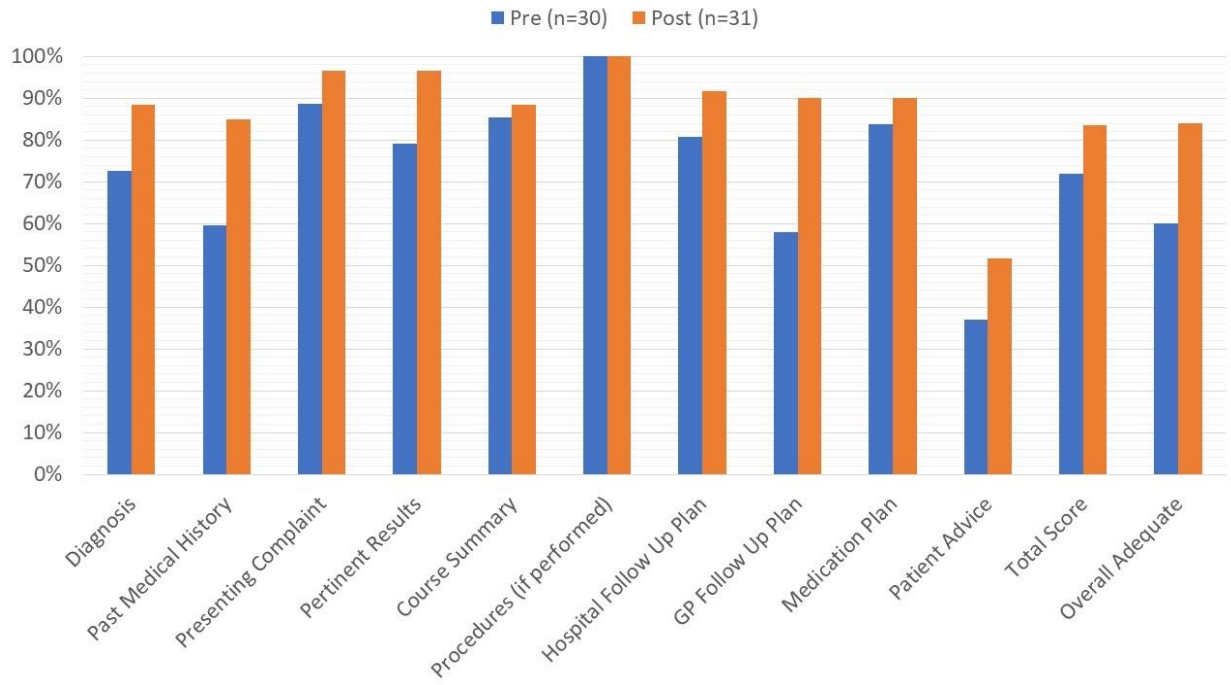
A single discharge summary was randomly selected from every junior clinical fellow and internal medicine trainee working within the department, using the electronic health record. These were marked using the scoring system by a consultant or senior medical trainee. A score of 15 or greater was deemed to be adequate.

Feedback was given individually to each doctor and their educational supervisor, including the score and feedback, and they were encouraged to discuss this at their educational meetings. Educational resources were developed, including model examples for different durations of admission; teaching sessions; posters displayed in every ward area and doctors' office; and short YouTube videos. Discharge summaries were re-sampled after 3 months, and feedback was again provided. The T test was used for statistical analysis.

Results and discussion

During the first round of analysis, the mean score was 14.2 (n=30, 95% confidence interval [CI] 13.6 to 14.8). After intervention, this improved to 16.8 (n=31, 95% CI 16.4 to 17.2, p value for difference <0.001). The proportion of summaries found to be adequate, improved from 60% to 84%. Where analysis was restricted only to paired summaries from individuals before and after intervention, the mean improved from 15.1 (95% CI 14.4 to 15.7) to 17.1 (95% CI 16.7 to 17.6, p<0.01, n=24). There was improvement seen in all but one scoring domain (Fig 2).

Fig 2. Discharge summary scoring by domain and proportion of summaries adequate.



Conclusion

A comprehensive range of interventions introduced within our department significantly improved the quality of discharge summaries. Individualised feedback has been used in similar projects to drive improvement.[4] Electronic records have the potential to greatly expand our use of personal feedback on areas such as documentation, prescribing and requesting. Our challenge is to sustain and build upon this improvement within our department, with further use of feedback to support the professional development of doctors.

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A retrospective study of antibiotic and DMARD prescription practices in rheumatology inpatients in a tertiary care centre: are we compliant with the guidelines?

Adarsh Shivaram,[A] Robin Roy Mathews,[A] Gejjalagere Chandrashekar Nishanth[A] and Veena Patel[A]
[A]University Hospitals of Leicester NHS Trust, Leicester, UK

Introduction

Patients with rheumatic diseases are known to have increased susceptibility for infections, which can be attributed to the intrinsic immunological alterations associated with these conditions and also due to the disease-modifying antirheumatic drugs (DMARDs) used to treat them. Recent guidelines by the British Society for Rheumatology (BSR) and the British Health Professionals in Rheumatology (BHPR) recommend temporarily discontinuing both conventional DMARDs (cDMARDs) and biological DMARDs (bDMARDs) during serious infections[1–2] in order to reduce the severity of infection, maximise effectiveness of antibiotics and reduce the risk of intercurrent illness.[3]

A study was therefore undertaken to analyse the current practice of prescribing antibiotics and DMARDs among rheumatology inpatients admitted for treatment of their infection and to assess if current practice is in line with the recent guidelines.

Materials and methods

From 1 September 2022 to 31 December 2022, a total of 649 were identified retrospectively as patients on DMARDs with raised inflammatory markers. Of the 649, 52 had inpatient admission and were treated with antibiotics. Further data regarding their admission was collected from the hospital's electronic medical records.

Results and discussion

Of the 52 in-patient admissions, 46 had rheumatoid arthritis, four had systemic lupus erythematosus, three had scleroderma, one had giant cell arteritis, one had granulomatosis with polyangiitis and one had Sjögren's syndrome. Mean age of our sample was 72.9, with a range from 30 to 96 years. All 52 patients were taking cDMARDs (MTX = 29, SSZ = 15, HCQ = 13, LEF = 8, MMF = 5) and four patients were also taking bDMARDs (etanercept = 2, adalimumab = 1, sarilumab = 1).

We found that 40 (77%) patients had their DMARDs stopped and 12 (23%) patients did not have their DMARDs stopped while they were on antibiotics. The DMARDs which were not discontinued were SSZ = 9, MMF = 2, MTX = 1. Further factors compared between two groups are depicted in Table 1

	DMARDs stopped	**DMARDS not stopped**
Mean highest CRP	183.17	178.167
Mean highest WBC	11.72	12.41
Mean highest neutrophil count	10.16	10.19
Average length of stay	13.25	11

Table 1. Comparison between the two subgroups

Conclusion:

- 100% of biologic DMARDs were stopped while they were on antibiotics.
- Almost one quarter of our sample did not have their conventional DMARDs stopped while they were started on antibiotics. The mean highest CRP was slightly higher in the DMARDs-stopped group while the mean highest WBC and mean highest neutrophil count were slightly higher in DMARDs-not stopped group.

Interestingly, the average length of stay in patients who had their DMARDs stopped was longer by 2.25 days than the DMARDs-not stopped group.

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A quality improvement project on infection prevention in patients newly diagnosed with chronic lymphocytic leukaemia and multiple myeloma

Abbas Zaidi,[A] Ky Lin Tan,[B] Mahmoud, Magied,[A] Vaness, Awongeyaa[A] and Shabnam Banerjee[C]
[A]Barking Havering and Redbridge University Hospitals NHS Trust, London, UK; [B]Frimley Health NHS Foundation Trust, UK; [C]University Hospitals Plymouth NHS Trust, Plymouth, UK

Background

Infection is known to be a major complication of haematological conditions such as chronic lymphocytic leukaemia (CLL) and multiple myeloma (MM). Overall, this increases a patient's morbidity and mortality risk and can lead to a delay in treatment.[1,2,7]

Current guidance on infection prevention in these vulnerable groups includes hepatitis B and C and HIV testing prior to treatment,[3,8] vaccination against influenza, pneumococcal, varicella zoster virus (VZV) and COVID-19,[3,4,8] and promotes the use of levofloxacin, anti-fungal and anti-viral in intermediate and high-risk groups.[5,6] Eligibility of use of immunoglobulin (Ig) replacement therapy in secondary immunodeficiencies factors in cause and degree of hypogammaglobulinaemia, recurrence and severity of bacterial infections despite continuous oral antibiotic prophylaxis for 6 months and failure of response to vaccines.[9]

This quality improvement project focused on steps taken to reduce risk of infection in patients newly diagnosed with CLL and MM.

Methodology

A retrospective study on 75 patients who received a new diagnosis of CLL and MM and treated in a hospital trust in the year 2021, 26 with CLL and 49 with MM. Clinic letters, discharge summaries, pathology data and GP records were used to collect data regarding pretreatment viral screen, vaccination, prophylactics, IgG measurement and license for therapeutic Ig use.

Results

It was found that in both groups patients rarely received advice on routine vaccination in their clinic letters (30.8% in the CLL group and in the 18.4% MM group), though most were encouraged to take the COVID vaccine. Pneumococcal and VZV vaccination rates were far below the target rates (only one in the CLL group and 17.1% and 4.88% respectively in the MM group). Response to vaccination is not recorded in routine practice. Post treatment IgG measurement fell below the target rates (46.4% in the MM group with a target of 80%). Prophylactic antimicrobial use was recorded in only three receiving treatment in the CLL group, 25% received antibiotic and 39.3% antiviral in the MM group, no antifungals were prescribed to those receiving treatment across both groups. Six of the 26 CLL patients had infections in the community of whom one required five courses in the community, two required inpatient stays. The other patient was on expectant management and had two inpatient stays. Seven in the MM group needed antibiotics in the community and 14 needed inpatient stays. In the MM group, there were two deaths that were secondary to sepsis.

Discussion

This study shows there is a need to improve vaccination advice to patients and GPs at diagnosis and prior to starting treatment, prescription of prophylaxis, as well as testing for response to vaccination and measuring post treatment Ig levels, as this can help highlight patients with possible secondary immunodeficiencies. Disseminating awareness among healthcare professionals about current guidance and routinely auditing infection prevention in vulnerable groups can help in this change.

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Instilling a culture of debriefing post cardiac arrest: a quality improvement project

Amelia Gelson-Thomas,[A] Harry Fox[A] and Emily Hocknell[A]
Musgrove Park Hospital, Taunton, UK

Introduction

This quality improvement project addresses the vital issue of debriefing following cardiac arrest incidents. Cardiac arrests not only pose a significant clinical challenge, but also carry profound emotional and psychological impacts on healthcare providers. This project seeks to foster a culture of debriefing to enhance the wellbeing of our colleagues.

Materials and methods

Our approach encompassed several critical phases. We commenced with an evaluation of baseline practices among junior doctors at Musgrove Park Hospital. Subsequently, we executed a sequence of plan, do, study, act (PDSA) cycles to drive enhancements. These cycles included consistent communication of findings, educational interventions, integration of a debrief tick box into handover protocols and promotion of the 'STOP5: Stop for 5 Minutes'[1] model, a streamlined framework for debriefing.

- Cycle 1: Initiated the 'STOP5'[1] model through hospital posters and conveyed baseline data results to doctors via email, underlining the need for its implementation.
- Cycle 2: Included comprehensive teaching sessions across diverse platforms, including departmental and grand round teachings, along with a poster presentation at the local training awards, catering to doctors of all levels.
- Cycle 3: Integrated debriefing education into the induction process for new doctors and introduced a debrief tick box on the oncall handover checklist to facilitate discussion during handovers.

Results and discussion

Over the course of a year, data collection and analysis yielded significant improvements. Initial data revealed a deficiency in hot debrief offerings, with 47% of doctors never experiencing or being offered one within a 6-month window. However, 87% expressed willingness to partake in debriefs. The results of our first PDSA cycle demonstrated a positive shift in debriefing implementation and attitudes. The introduction of posters highlighting the 'STOP5'[1] model increased awareness and streamlined the debriefing process, reducing time constraints. The proportion of doctors never being offered a hot debrief dropped to 20%, while 70% believed that hot debriefs should always occur.

Our second cycle highlighted that 76% of surveyed doctors had never received formal debriefing education. After implementing teaching sessions, 94% felt better informed about debriefing, resulting in a 100% increase in willingness to accept a debrief and a 94% increase in willingness to initiate one. Furthermore, 88% felt comfortable using the 'STOP5'[1] model to initiate hot debriefs.

In cycle 3, we integrated a debrief tick box on the handover checklist and incorporated debriefing education into the yearly induction of junior doctors. Monitoring the checklist over 5 weeks demonstrated that debriefing discussions occurred in 86% of completed checklists, affirming progress towards instilling a culture of debriefing.

Conclusion

Our project has revealed a previous lack of engagement and education surrounding debriefing, but with a willingness of doctors to engage regularly. Throughout this project, there has been a positive shift in the

attitudes towards and enforcement of debriefing. To further strengthen this culture, our ongoing efforts include continual reinforcement of debriefing during medical handover meetings and maintaining debriefing sessions in induction programmes for new doctors. The next cycle will introduce simulation-based teaching, allowing doctors to practice the skills required to request, initiate, and lead a debrief effectively.

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Iron therapy in heart failure patients – challenging logistics, invaluable benefits

Murad Alshadawi,[A] Yusuf Kiberu[A] and Fady Magdy[A]

[A]Peterborough City Hospital, North West Anglia Foundation Trust, UK

Background

More than a million people in the UK are living with heart failure (HF) and it accounts for one million bed days per year, which is 2% of the NHS total and 5% of all emergency admissions to hospital. HF accounts for approximately £2bn per year.[1,2] Iron deficiency anemia is common in HF and is independently associated with HF re-hospitalisations. The European Society of Cardiology (ESC) recommends that all patients with HF are screened for anaemia (class I, Level C) and if iron deficiency anaemia is identified, recommends consideration of intravenous (IV) ferric carboxymaltose (FC) for improvement of symptoms, exercise capacity and quality of life in patients with a left ventricular ejection fraction (LVEF) of <45% as well as reducing re-hospitalizations even in patients with an LVEF of 50% (class IIa, Level IIA,B).[3]

IV FC administration usually requires two doses a week apart. With ever increasing demands on all NHS services, the logistics of offering this service efficiently cannot be under-estimated. However, neither should the benefits.

We therefore carried out an audit to evaluate our hospital's adherence to these ESC guidelines with the aim of developing strategies to streamline delivery of the HF IV FC service and reduce HF re-hospitalisations.

Materials and methods

All HF admissions are recorded locally for National Institute for Cardiovascular Research (NICOR) data. These records were searched retrospectively for all HF admissions to Peterborough City Hospital (PCH) between January and March 2023. Patients with an LVEF<45% on echocardiogram were selected from this period. Their blood results were checked for hemoglobin (Hb), serum ferritin and transferrin saturation (TSAT). Adherence to ESC criteria for IV FC was determined by Hb<150g/L, ferritin<100ng/mL, or ferritin100-299ng/mL with TSAT<20%. Readmissions were also recorded.

Results and discussion

A total of 116 patients were included. Among them, 49 patients had LVEF<45% (see Fig 1 below). The overall adherence to ESC guidelines was suboptimal.

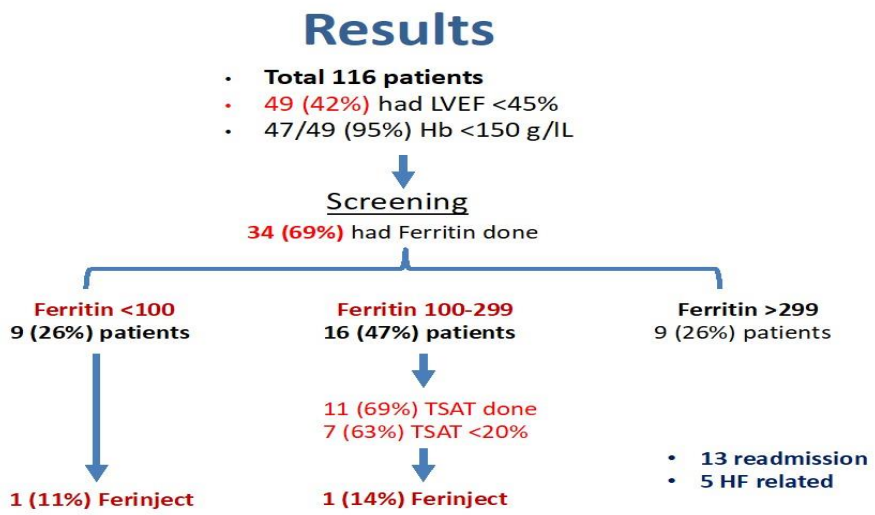

Fig 1*:* Results showing the proportion of eligible patients n(%) who were given IV FC as well as the number of readmissions.

Despite many patients meeting criteria for IV FC, with no contraindications, this audit highlights the suboptimal adherence to ESC guidance. Breakdown in adherence occurred at all stages. Only 69% of eligible patients had their initial ferritin screening. The main reason was a lack of awareness, particularly in non-cardiology wards/outliers, highlighting the importance of a heart failure team. There is an increasingly higher volume of admissions, and not all HF admissions get to a cardiology ward and often due to staffing shortages, not all HF patients get a heart failure specialist review prior to discharge.[4] Education of all medical teams is therefore key in this regard.

Secondly often patients require at least one outpatient dose of FC, in most centers, this service is usually run by ambulatory care, which is already oversubscribed. We therefore aim to pilot the use of our new community heart failure hub.

Conclusion

For the patient, the benefits of IV iron therapy on symptoms/quality of life is immeasurable, for the hospital, reducing HF readmissions is invaluable.

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Improving the care of the deteriorating cardiology patient with the utilisation of simulation-based education: a quality improvement project

Daniel Phillips[A] and Elinor O'Neill[A]
[A]Cardiff and Vale University Health Board, Cardiff, UK

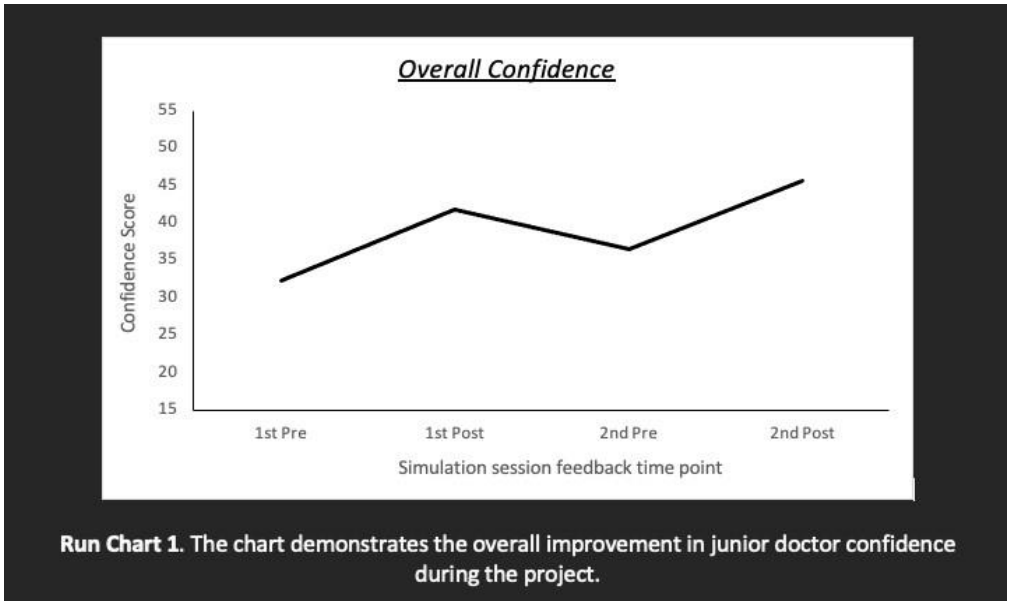
Introduction

Simulation-based education is valuable tool for modern medical education and provides an opportunity for healthcare professionals to demonstrate and develop skills in a safe environment.[1] It is a popular technique to teach emergency and life-threatening scenarios, in a deliberate manner, to allow mastery of complex and stressful situations. [2] Recognising and initiating management of cardiac emergencies maybe a daunting prospect for doctors in training. In addition, specialist emergencies require time critical management and appropriate escalation. With the increasing volume of percutaneous cardiovascular interventions such as transcatheter aortic valve implantation (TAVI),[3] doctors in training are managing more complex cardiovascular emergencies with minimal prior exposure. Prompted by poor feedback from doctors in training on deanery and GMC National Training Surveys, we aimed to improve confidence, attitude and knowledge of managing acute cardiovascular emergencies through simulation-based teaching using simulation-based education.

Materials and methods

To create an effective simulation-based education programme, we sought out appropriate stakeholders in the health board's medical education centre. We used the available simulation suite, which allowed for high-fidelity simulation. Simulation scenarios were developed from previously reported learning events and previous cardiac emergencies in the department. Emergencies included acute pulmonary oedema, inferior myocardial infarction, and femoral/retroperitoneal haemorrhage post TAVI. The scenarios included dynamic timelines with an interactive mannequin, pre-programmed vital signs and dynamic clinical courses depending on management. We collected feedback in pre and post simulation sessions via a Likert-style measure, assessing confidence and attitude. We also allowed for and open answer feedback to assess thoughts and suggestions. The sessions were designed to include a debrief to allow feedback and further learning.

Results and discussion



Run Chart 1. The chart demonstrates the overall improvement in junior doctor confidence during the project.

After completing two cycles of the project, there was an overwhelming positive attitude towards simulation teaching. Every junior doctor strongly agreed that simulation was a good way to learn after the final session. Comments such as 'I'd like more!' and 'Useful to have these sessions on a regular basis' highlighted a positive and successful learning intervention. There was a positive improvement in confidence from baseline to the end of the second cycle with an overall improvement of 24% (Run chart 1). This included combined measures such as confidence recognising an emergency situation, using a defibrillator and escalating an unwell cardiac patient. Importantly, confidence in managing a cardiovascular emergency doubled from baseline by the end of the second cycle (42% improvement).

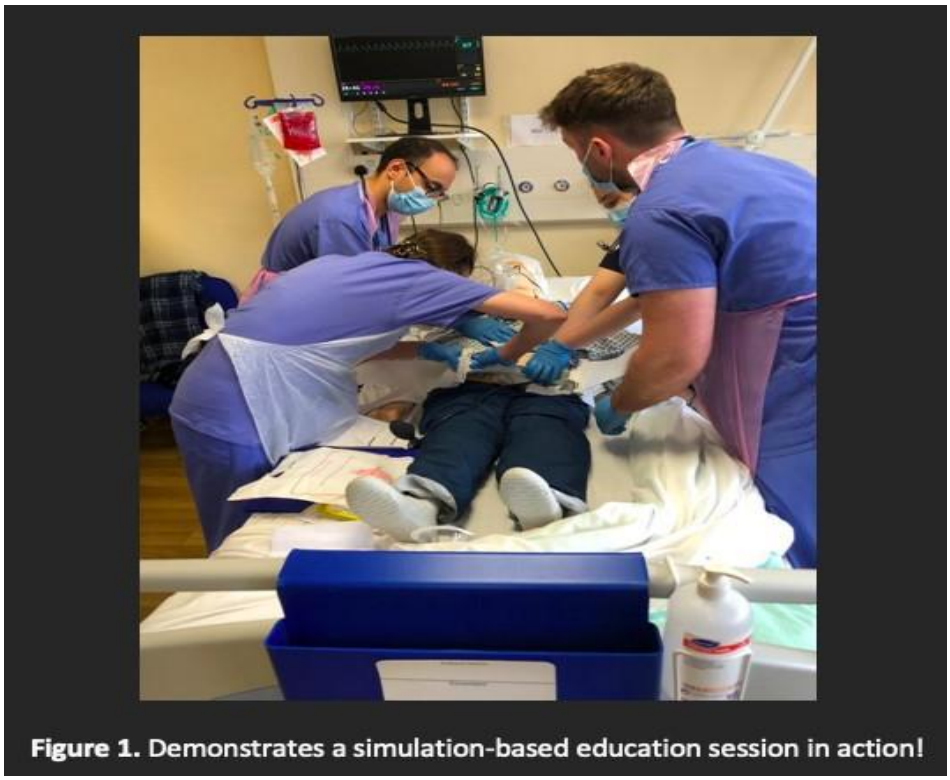


Figure 1. Demonstrates a simulation-based education session in action!

Conclusion

Simulation-based education improved confidence and provided a safe, controlled and nurturing learning environment for doctors in training. This technique for learning is a desired, rewarding and effective method to improve clinical care and trainee satisfaction during a cardiology rotation (Fig 1).

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The investigation and management of adrenal incidentalomas at Guy's and St Thomas' NHS Foundation Trust

Nirali Desai,[A] Alexander Hodson,[A] Catherine Santucci,[A] Shravan Gowrishankar,[A] Isabel Demel,[A] Panagiotis Armonis,[A] Benjamin Zuckerman,[A] Dimitra Christodoulou,[A] Anand Velusamy,[A] Paul Carroll[A] and Aaisha Saqib[A]

[A]Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction

An adrenal incidentaloma (AI) is defined as an adrenal mass greater than 1cm in diameter, detected on imaging not performed for a suspected adrenal disease.[1] It is a common endocrine diagnosis, with autopsy studies suggesting the overall prevalence of adrenal masses ranges from approximately 1.05% to 8.7%.[2] Rapid improvements in cross-sectional imaging have led to a 10-fold increase in the incidence of AIs over the past two decades.[3]

Delays in diagnostic evaluation of AIs are associated with patient anxiety and significant burden on medical resources.[4] To improve the variability in approach to the investigation and work up of AIs, we retrospectively audited the investigation and management of AIs at Guy's and St Thomas' NHS Foundation Trust (GSTT).

Materials and methods

We reviewed patients with newly identified adrenal incidentalomas, discussed at the weekly adrenal multidisciplinary team meeting (MDM) at GSTT during a 3 month period between 1 January 2022 to 31 March 2022. Data was collected by reviewing medical records on electronic patient record and e-noting.

Results

Of the 139 patients discussed, 100 patients were excluded (non-adrenal pathology, referral due to abnormal investigations, rereferrals); therefore 39 patients were included in data analysis.

The mean age of patients at the time of referral was 63.87 years, and the percentage of female and male patients were 54% and 46% respectively.

In terms of adrenal lesion characteristics, 66.7% of patients had unilateral lesions with a mean maximum size of 27.24 mm, while 33.3% of patients had bilateral lesions with mean sizes of 26.17 mm and 20.23 mm for the right and left lesions respectively.

Diagnosis	**Number of patients (%)**
Non-functioning adenoma	19 (48.7)
Primary hyperaldosteronism	3 (7.7)
Adenoma and mild autonomous cortisol secretion	5 (12.8)
Adenoma and autonomous cortisol secretion	2 (5.1)
Co-secreting adrenal incidentaloma	2 (5.1)
Phaeochromocytoma	2 (5.1)
Myelolipoma	1 (2.6)
Haemorrhagic cyst	1 (2.6)

Diagnosis not confirmed	4 (10.3)

82% of patients were referred to the MDM by endocrinology; the remaining referrals were from non-endocrine specialties including urology and gastroenterology. The diagnoses of the adrenal lesions are shown below.

Table 1: Diagnoses of adrenal lesions discussed at the adrenal MDM.

The table below shows the proportion of functional tests sent before the MDM discussion by endocrinology and non-endocrine specialties.

	Percentage of tests sent by endocrinology (%)	**Percentage of tests sent by non-endocrine specialty (%)**
Plasma/urinary metanephrines	56.3	14.3
Aldosterone-renin ratio	71.9	14.3
Urinary steroid profile	3.1	14.3
Overnight dexamethasone suppression test	71.9	0

Table 2: The proportion of functional tests sent before the MDM discussion by endocrinology and non-endocrine specialties.

Conclusion

The majority of AIs discussed at the MDM were referred directly from endocrinology compared with non-endocrine specialties. While there were generally high overall completion rates of functional tests, our results highlight a significant disparity in the proportion of functional tests sent off by non-endocrine specialties before the adrenal MDM discussion, in comparison with endocrinologists. This has subsequently led to delays in decision-making about the management of AIs at the MDM (ie decision for surveillance, discharge, surgery or pharmacological management of the adrenal lesion).

To improve the efficiency of the AI pathway at GSTT, we intend to implement a trust-wide A4 guideline aiming to educate non-endocrine teams on how to initially investigate AIs. This would aim to increase the proportion of functional tests performed before referral to the adrenal MDM, therefore reducing the number of endocrinology clinic visits and reducing the overall time taken from initial identification of the AI to definitive decision being made regarding management.

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Inpatient TAVI: patient characteristics, journey and potential for practice change

Authors: Adarsh Shivaram,[A] Rija Sheikh,[A] John Steele,[A] Elved Roberts,[A] NS Rajendra[A] and Jan Kovac[A]

[A]University Hospitals of Leicester NHS Trust, Leicester, UK

Background

Symptomatic aortic stenosis has very poor outcomes if left untreated and there has been a significant increase in the number of patients treated, both electively and on an urgent inpatient basis, in the past few years.[1] Transcatheter aortic valve implantation (TAVI) is a minimally invasive procedure that has revolutionised the way that patients with symptomatic severe aortic stenosis who are unfit for surgical valve replacement are treated. Limitations include feasible access routes with suitable valve/annulus size and accessibility to a TAVI service. Inpatient TAVI requires a work-up, discussion in TAVI MDTs and procedure within a single admission. These patients are transferred to the Coronary Care Unit (CCU) post-procedure. Discharge summaries help to bridge the patient care from in-hospital to primary care, and serve as one of the resources for financial coding.

Thereby we conducted an audit for:

- evaluating the pre- and post-procedure length of stay of patients undergoing inpatient TAVI
- qualitative assessment of discharge summaries
- identifying any existing gaps in the current practices and propose changes to bridge them.

Methodology

We conducted an audit on individuals who had inpatient TAVI procedures, in the cardiology department at a high-volume tertiary centre in UK. The data were collected retrospectively from the hospital's TAVI registry, patients' discharge summaries and care plans from the hospital's electronic medical record. The timeline for the data was from 1 April 2022 to 31 March 2023. We analysed our data against the national and trust guidelines.[1–3]

Results

A total of 254 TAVIs were performed from 1 April 2022 to 31 March 2023, among which 48 were inpatient procedures. 123 inpatient TAVI referrals were made, of which only 48 individuals (58% male and 42% female) were accepted for an inpatient TAVI procedure. Inpatient mortality was 0% and 6-month mortality was 6.25%. The table below depicts the findings of our audit.

	Average	Range
Patient's age at the time of procedure (years)	80	56–93
Frailty score at the time of procedure	4	1–7
Pre-procedure length of stay (days)	16	1–42
Post-procedure length of stay (days)	6	1–36

No excessive post-procedural complications were noted in this high-risk cohort. 10% of patients had their discharge delayed due to physiotherapy or occupational therapy needs. Most discharge summaries did not have all the crucial information about the procedure such as type and size of valve, complications, post-TAVI echo, follow-up plans and anti-platelet regime.

Conclusion

We established that our department's existing practices were in keeping with national TAVI guidelines. However, there is a scope for improvement in reducing the pre- and post-procedure length of stay in the inpatient TAVI group. CCU bed availability was identified as another factor affecting the length of stay. In addition, there is a potential to improve the documentation of TAVIs in discharge summaries.

To address the above, we proposed the following:

- establishing a pathway that includes designated slots for work-up of patients in need of urgent TAVI
- creation of a ward dedicated to post-TAVI patients
- pre-procedure assessment of care needs by physiotherapy and occupational therapy teams
- undertake a QIP to ensure complete documentation of the procedure.

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Follow-up imaging recommendations on a chest radiograph report: a comparative study of inpatient and GP chest radiograph pathways at a tertiary thoracic centre

Authors: Adarsh Shivaram[A] and Rajashri Patil[A]
[A]University Hospitals of Leicester NHS Trust, Leicester, UK

Introduction

Chest radiograph has a longer reporting time than other radiograph requests, and clinicians may miss follow-up advice in reports. The British Thoracic Society recommends arranging a follow-up chest radiograph after 6 weeks for patients with persistent symptoms or physical signs, or at higher risk of underlying malignancy.[1] The hospital team is responsible for arranging follow-up with the patient and the GP.[1] The recommended time periods for chest radiograph and CT scan follow-up are 6 weeks and 1 week, respectively.[2] The radiology department currently uses a code in reports for GP requests to automatically override the GP pathway and directly arrange a follow-up imaging appointment, ensuring that the follow-ups are not missed and relieving GPs of the burden of arranging follow-up imaging.

The aim of this study is to:

- review the onus of chest radiograph requests from clinicians in hospital and GPs
- calculate time taken to report for chest radiographs with follow-up advice
- assess if 'actionable reporting' is followed in chest radiograph reports with follow-up advice
- compare if the follow-up alerts were observed equally by clinicians in hospital and GPs
- calculate burden of reports with follow-up advice after patient discharge.

Materials and methods

The data from chest radiograph requests from 1 November 2022 to 10 November 2022 were collected retrospectively. The data source was information available about chest radiograph requests on PACS (picture archiving and communication system). The sample for the audit data included only chest radiograph reports with follow-up advice. Actionable reporting was assessed based on whether reports answered clinical questions, provided tentative/differential diagnosis and had appropriate/clear advice for next steps.[3]

Results and discussion

A total of 2,562 chest radiographs were performed, with 1,299 GP and 1,263 inpatient requests. Our sample included a total of 180 chest radiograph reports with follow-up advice; 63 were inpatient and 117 were GP requests.

	Inpatient requests	**GP requests**
Total chest radiographs performed	1,263	1,299
Chest radiographs with follow-up recommendations	63	117
Number of follow-up imaging done	24 (38%)	106 (90.5%)
Average time taken for reporting (days)	8.9	6.6

All inpatient reports answered clinical questions and provided tentative/differential diagnosis, while only three reports did not have appropriate/clear advice for next steps. All GP reports answered clinical questions and provided tentative/differential diagnosis, and the advice for next steps was appropriate/clear.

47 out of 63 inpatients (74.6%) were discharged before their radiograph was reported. The average length of stay for inpatients was 13.9 days.

	Length of stay
Average length of stay in total (days)	13.9
Follow-up done – average length of stay (days)	16.4
Follow-up not done – average length of stay (days)	9.1

Conclusion

- Inpatient follow-up rate (38.1%) was lower than GP follow-up rate (90.5%).
- GP-requested chest radiographs were reported 2.35 days faster than inpatient chest radiographs.
- Inpatients with a longer duration of stay were more likely to have their follow-up imaging.
- Actional reporting is comparable in both inpatient and GP categories.

To address the above issues, our study recommends the following:

- Increase awareness among clinicians to follow up on reports post-discharge through posters and videos.
- Check the feasibility of implementing existing code for follow-up used in GP reports for inpatient reports.
- Send alerts to clinicians and GPs for reports with follow-up advice.
- Re-audit after measures have been taken to ensure adherence to guidelines.

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Impact of COVID-19 on motor neurone disease services in a tertiary neurological centre

Authors: Michelle Ying Hui Ting,[A] Rayanna Pereira,[A] Leo Moulder[A] and Andrew Barritt[A]
[A]University Hospitals Sussex NHS Foundation Trust, Sussex, UK

Introduction

A diagnosis of motor neurone disease (MND) takes an average of 10–16 months from symptom onset. Early diagnosis is important to access supportive measures to maximise quality of life.[1]

Materials and methods

All patients with MND admitted to Princess Royal Hospital during the 18-month period before the COVID-19 pandemic and 18 months following the start of the pandemic were included in this audit. The aspects evaluated were the type of admission (emergency versus elective admissions), diagnostic delay, specialties referred prior to diagnosis, length of admission and referrals for non-invasive ventilation (NIV), as well as gastrostomy services.

Results and discussion

There were more emergency admissions during the pandemic period than the pre-pandemic period, as shown in Fig 1.

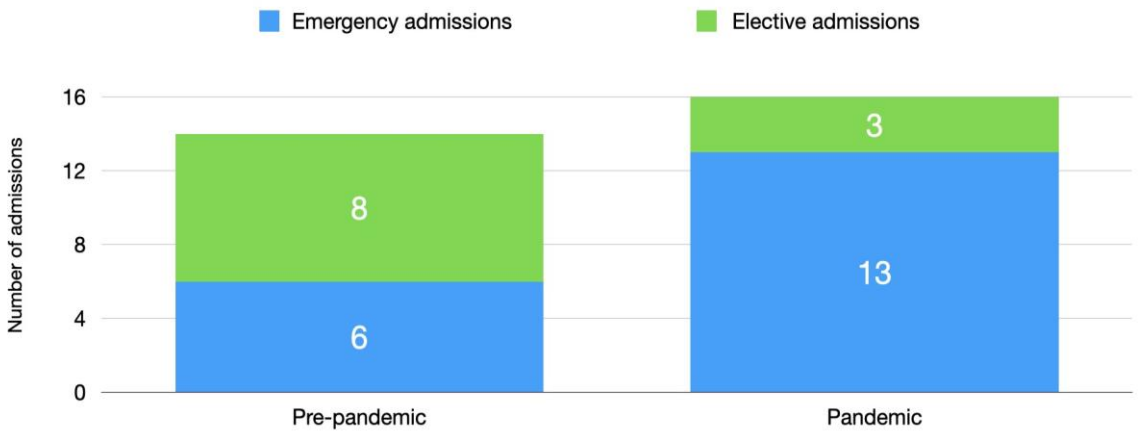

Fig 1. Elective admissions versus emergency admissions.

Surprisingly, there was a shorter average diagnostic delay during the pandemic period, at 42 (21–144) weeks compared with the pre-pandemic period at 63 (13–60) weeks. This could be because the patients included in the pandemic period were skewed towards those requiring urgent admission for diagnostics or those with bulbar involvement.

The main cause of diagnostic delay identified across both cohorts was seeing multiple other specialists prior to seeing a neurologist for a diagnosis of MND. 17 out of 30 (57%) patients saw a different specialty prior to being referred appropriately to a neurologist.

The average length of admission was shorter during the pre-pandemic period at 9 (1–47) days, as a larger proportion of the patients were investigated as an outpatient first followed by a planned admission. During the pandemic period this was longer, at an average of 26 (656) days.

In Scotland, in a clinician survey of MND services such as respiratory function tests, the worst affected services during the pandemic were identified to be NIV and gastrostomy.[2] In our unit, patients with respiratory compromise were referred for NIV assessment to a separate tertiary centre and dysphagic patients were diverted to local gastrostomy services. The outcomes are displayed in Table 1.

	Pre-pandemic	Pandemic
Total number of King's ALS Stage IV patients[3]	3	8
Outcomes	1 died prior to receiving any intervention 1 was started on NIV as an inpatient 1 received both NIV and gastrostomy as an inpatient	1 died prior to receiving any intervention 2 patients declined all interventions 3 patients had an inpatient gastrostomy 1 was started on NIV as an inpatient 1 was started on NIV as an outpatient

Table 1. Comparison of MND services between the pre-pandemic and pandemic period.[3] King's ALS Stage IV refers to patients requiring respiratory/gastrostomy support.

13 out of 16 (81%) patients in the pandemic cohort died, in comparison to the pre-pandemic cohort, where nine out of 14 (65%) patients died by October 2022. The primary cause for the three inpatient deaths in the pandemic cohort were listed as MND, with only one death listing COVID as a contributory cause. A study in Scotland concluded that the all-cause mortality in MND had been unaffected by COVID-19.[2]

Conclusion

This audit highlights the need to improve education and awareness regarding MND among healthcare professionals to reduce misdiagnoses and facilitate early referrals. Availability of face-to-face appointments for patients with bulbar or speech problems, local pathways for gastrostomy and NIV services should be revised for future pandemic preparedness.

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Impact of age-adjusted D-dimer in the diagnostic accuracy of pulmonary embolus and its cost-saving implications. A district hospital experience

Authors: Simon Abraham,[A] Gayathri Prakash,[A] Mohammad Kabir,[A] Sharmeen Leeza[A] and Channa Nadarajah[A]

[A]Basingstoke and North Hampshire Hospital, Basingstoke, UK

Background

Venous thromboembolism (VTE) is a condition where blood clots form in veins. It encompasses deep vein thrombosis (DVT) and pulmonary embolism (PE). Deaths from VTE increased by 21% to 10,884 in 2019/20 to 2020/21.[1] Untreated PE has 30% mortality, which is reduced to 2% with treatment.[2] The Royal College of Radiologists (RCR) recommends 15% PE detection in all CT pulmonary angiograms (CTPA) done.[3] The National Institute for Health and Care Excellence (NICE) introduced VTE guidelines that include age-adjusted D-dimer, to help improve diagnostic accuracy.[4] We evaluate Hampshire Hospitals NHS Foundation Trust's (HHFT) PE management in accordance with NICE guidelines, analysing the impact of age-adjusted D-dimer on diagnosis and its potential cost savings.

Methods

A retrospective audit of all patients who underwent CTPA over a 6-month period between 1 January 2022 and 30 June 2022 in HHFT was reviewed. Patients under the paediatric team were excluded. The data were analysed to see whether current practice was compliant with NICE guidelines in managing PE and whether the accuracy of CTPA was in line with RCR guidance.

Results

1,478 patients had a Wells' score documented, of which 35% (n=518) were accurate on retrospective calculation. With a low Wells' score and negative D-dimer, 0% scans were positive for PE in this audit. With a low Wells' score and positive D-dimer, 12.90% (n=682) scans were positive. With a high Wells' score, 13.17% (n=167) scans were positive. A novel observation was, with a high Wells' score and negative D-dimer, 0% were positive for PE in this audit, while with a high Wells' score and positive D-dimer, 21.81% (n=36) were positive for PE.

Over a 6-month period 1,518 CTPAs were done, of which 198 were positive, yielding a diagnostic accuracy of 13.04%.

Patients aged over 50 were analysed with age-adjusted D-dimer, and 1,214 scans were done with 174 positive. This equates to 14.33% accuracy.

Patients aged over 50 were further analysed in accordance with NICE guidelines and with age-adjusted D-dimer. With a low Wells' score, high D-dimer and negative age-adjusted D-dimer, 2.06% (n=2) were positive for PE. With a low Wells' score, high D-dimer and positive age-adjusted D-dimer, 17.24% (n=75) were positive. A novel observation was, with a high Wells' score, high D-dimer and negative age-adjusted D-dimer, 0% were positive for PE in this audit, while with a high Wells' score, high D-dimer and positive age-adjusted D-dimer, 25% (n=31) scans were positive.

Cost savings over the 6-month periods: inappropriate D-dimers £1,037.85, inappropriate CTPAs £8,855.24 and inappropriate CTPAs in age-adjusted patients £16,206.76. The total cost saving would have been £26,099.85.

Conclusion

This audit has shown that there are areas for improvement in the current practice for management of PE at HHFT. The use of age-adjusted D-dimer can improve diagnostic accuracy that is close to RCR guidelines,[3] as well as significant cost saving for the trust. It should be noted that scan slots saved have overreaching implications, such as allowing opportunities for CT times to be used for other scans/patients, which could facilitate earlier discharge, reduced length of stay and improved flow within the hospital, all of which can help in the coming winter crisis.

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A review of the process of eating and drinking with acknowledged risks (EDAR) in a district general hospital: a three-cycle quality improvement project

Authors: Talapatra Avraneel,[A] Winson Cheung[A] and Patrick McDonald[A]
[A]Mersey and West Lancashire Teaching Hospitals NHS Trust, Prescot, UK

Introduction

Dysphagia has a prominence of up to 29% in older adult inpatient wards and can be due to dementia and other neurodegenerative diseases.[1] Risks include aspiration, recurrent pneumonia, bronchiectasis, malnutrition, dehydration, delirium and death.[2] Clinically assisted nutrition and hydration (CANH), including enteral feeding, can be considered in some patients with dysphagia.[3] Eating and drinking with acknowledged risks (EDAR) is where individuals continue to eat and drink orally, despite a perceived risk of choking or aspiration.[3] EDAR may be considered if dysphagia is unlikely to improve a patient's quality of life with the preferred food and drink takes priority.[3] Speech therapists (SLT) may recommend an amended consistency of food and fluid to reduce the risk of aspiration.[4] A patient with capacity can decline CANH or any modification to diet or fluids. There should be consideration of advanced care planning regarding whether readmission for future aspiration pneumonia is appropriate.[4]

We aimed to find out whether proper discussions and plans were completed for patients on EDAR, including completion of the trust's EDAR summary forms. Patients with dysphagia from stroke were excluded.

Materials and methods

Patients on EDAR on three medical wards were identified. The documentation and EDAR forms were assessed. Three plan, do, study, act (PDSA) cycles were carried out in February, April, and June 2023, with these interventions being talking to the ward medical and nursing teams, speaking to SLT and putting up posters. Data were presented at the weekly medical meeting at the beginning and end of the project.

Results and discussion

There were improvements in all measured parameters in the third cycle. The EDAR forms were fully completed in 25%, 11% and 33% cases respectively in the three cycles. The remaining results in the three cycles in order included: joint decisions for EDAR in the MDT were taken in 63%, 11% and 83% of cases; reasons for dysphagia were documented in 63%, 56% and 83% of cases. There was discussion with patients with capacity before the decision was taken in 25%, 67% and 100% of cases; discussions with relatives or IMCA were done where patients did not have mental capacity in 38%, 100% and 100% of cases. Risks of EDAR including aspiration were discussed in 13%, 22% and 50% of cases. Advanced care planning including avoiding readmission to hospital for aspiration pneumonia was discussed in 12.5%, 77% and 100% of cases. SLT advice regarding modified texture of food and fluids was documented in 62.5%, 56% and 83% of cases.

Conclusions

Although RCP guidelines are available on EDAR,[3] there has been no national study on it. Increased usage of our local EDAR forms and interventions carried out through the project correlated with improvement in the parameters assessed. The EDAR forms were designed to be taken home by patients when discharged and GPs were to be notified. We recommend that every trust has an EDAR proforma with all points, as mentioned above, discussed prior to getting the form signed off. Through improved management of EDAR,

we were able to improve quality of life, show respect to patients' autonomy and help reduce unnecessary readmissions to hospital.

Results summary

	Cycle 1 (1 Feb 2023 – 10 Feb 2023)	Cycle 2 (18 Apr 2023 – 28 Apr 2023)	Cycle 3 (22 May 2023 – 5 June 2023)
Number of patients	8	9	8
Mean age (years)	83.4	85.6	82.5
Gender (male : female)	3:5	3:6	4:4
Completed EDAR forms	25%	11%	33%
Reason for loss of swallowing documented	63%	56%	83%
Joint decision for EDAR by an MDT	63%	11%	83%
Patient has the capacity to make the decision about at-risk feeding and has chosen the option	25%	67%	100%
Patient does not have the mental capacity and, in their best interests, a joint decision was agreed with the relatives or IMCA	38%	100%	100%
The outcome or the associated risks, including aspiration and death from pneumonia, has been clearly discussed	13%	22%	50%
Discussion of advanced care planning including further admissions to hospital	12.5%	77%	100%
Proper advice from SLT about the safest consistencies of fluids and diet	62.5%	56%	83%

IMCA, independent mental capacity advocate.

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Adherence to oxygen saturation models during COPD exacerbations and associated morbidity and mortality

Authors: Philip Jones,[A] Ahmed Banat,[A] Ben Willis[A] and Elizabeth Anderson[A]
[A]Darlington Memorial Hospital, Darlington, UK

Background

There can be a significant variation in both the prescription and administration of supplemental oxygen during COPD (chronic obstructive pulmonary disease) exacerbations. We aimed to assess current practices at Darlington Memorial Hospital compared with local guidance, alongside morbidity and mortality data before making several interventions and reassessing practice.

Methods

After local approval, we used the electronic patient record to recruit all adult patients admitted with COPD exacerbations to the acute medical ward in October 2022. Interventions were made including nurse / healthcare assistant (HCA) teaching, doctor teaching and by disseminating trust protocol in the emailed newsletter. Patients were then identified for July 2023 using the ward admission log.

Findings

Of the 38 patients in the October cycle, there were two patients who required non-invasive ventilation (NIV) and one patient who died during their admission. This compares with 17 patients being included in the second cycle, with one death and one person requiring NIV. Across both cycles, there was a length of stay averaging 7.2 days for patients prescribed 88–92% oxygen compared with 5.2 days for patients prescribed 94% oxygen and above.

Over-oxygenation was a significant issue identified in the first cycle, with one patient with an 88–92% oxygen prescription having nine episodes of over-oxygenation, defined as consecutive sets of observations with oxygen saturations at 93% and over with supplemental oxygen unchanged, before requiring NIV. Across 252 patient-days in the first cycle, there were 91 episodes (one episode per 2.8 patient-days) of over-oxygenation. Moving to the second cycle, there was a significant decrease in episodes of over-oxygenation, with only six episodes across 88 patient-days (one episode per 14.7 patient-days).

From the first cycle, there were 21/32 patients (66%) who were prescribed oxygen as per trust guidelines, while six patients who did not have their gas measurement performed were excluded from this number. This compares with eight of 17 patients (47%) who were prescribed oxygen as per the trust oxygen guideline in the second cycle. From cycle to cycle, there was an overall increase in the proportion of patients with normal CO_2 being prescribed 88–92% oxygen saturations, from 6/32 (19%) to 10/17 (59%).

Conclusion

It was evident that there was work to be done to ensure that allied professionals recognised the need to down-titrate oxygen therapy in over-oxygenated patients and, given the results above, it may be that the teaching methods used were successful in this regard. There was also a reduction in the adherence to trust guidelines during the quality improvement project, with a move towards prescribing normocapnic patients 88–92% oxygen. Despite this being against trust guidance, there is emerging evidence that treating all patients with COPD exacerbations with target saturations of 88–92% may reduce mortality and this approach is endorsed by the National Institute for Health and Care Excellence (NICE).[1,2] Moving forwards, it would appear sensible to start regular teaching about over-oxygenation and oxygen down-titration, given the

seemingly beneficial effects of the intervention. It may also be worth considering moving to 88–92% oxygen prescription for all patients with COPD exacerbations, given existing prescribing practices and recent evidence.

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To compare the advice given to GP surgeries in discharge summaries against NICE recommendations for patients presenting with acute coronary syndrome (ACS) to a tertiary care coronary care unit in order to ensure optimisation of ACS treatment and secondary prevention in the community

Authors: Akash Thakkar,[A] Bilge Eylem Dedeoglu[A] and Ratna Krishnaswamy[A]
[A]University Hospital Southampton NHS Foundation Trust, Southampton, UK

Introduction

According to the 2023 summary report of the Myocardial Ischaemia National Audit Project (MINAP) and the National Audit of Percutaneous Coronary Intervention (NAPCI), the number of heart attacks reached its pre-pandemic level in the UK.[1] It is well documented that optimal medical treatment reduces the risk of consecutive coronary events.[1] Hospitalisation due to acute coronary syndrome (ACS) could be an effective intervention point for specialists not only to start guideline-directed therapy, but also to facilitate optimisation of secondary prevention in the community.[2]

Materials and methods

60 patients who were admitted to the coronary care unit (CCU) with provisional diagnoses of chest pain or ACS between 5 April 2023 and 5 May 2023 as per their admission records and had final diagnosis of unstable angina, non-ST segment elevation myocardial infarction (NSTEMI) or STEMI on their discharge summaries were included in this prospective observational audit. The summaries were checked for six main areas of advice to the community outlined by the National Institute for Health and Care Excellence (NICE) for all patients with a diagnosis of ACS. The areas were: the duration of antiplatelet(s), whether advice to titrate statin and ACE-I/ ARB in the community was given, and whether advice to repeat lipid profile in case of change in statin dose or repeat renal function test (RFT) in case of change in an ACE-I/ ARB dose was given.[2,3] Lastly, discharge summaries were checked to see whether an outpatient follow-up with ACS practitioners was documented.[2]

Results and discussion

More than 97% of the patients were started on appropriate antiplatelet therapy during their hospitalisation. 35% of patients did not have clear documentation of antiplatelet duration in their discharge summaries. 90% of the patients were discharged on maximum statin dose. For two of six patients who were eligible for titration of lipid-lowering medication, GPs were advised to do so. For more than 70% of the patients, GPs could have been advised to repeat lipid profile. This was advised only for 3% of the patients. 13% of the patients were advised for titration of their ACE-I or ARB in the community. 59% of the patients could have benefited from similar advice to their GP surgeries. More than 21% of the patients were advised to have a follow-up with their GPs for a repeat RFT following an ACE-I/ARB up-titration as an inpatient. 47% of the patients' discharge summaries did not include such advice. 26 out of 60 patients did not have a documented ACS follow-up.

While the 2023 summary report demonstrated that 115 out of 188 hospitals in the UK offered appropriate secondary prevention to more than 90% of their patients, the NICE guidelines clearly emphasise the importance of communicating with GP surgeries, potentially via discharge summaries, for optimisation of prevention in the community.[2] Our audit revealed that post-ACS discharge summaries could be better utilised to facilitate community teams to optimise ACS prevention.

Conclusion

Our findings emphasise the untapped potential of post-ACS discharge summaries as a tool for enhancing collaboration between hospital specialists and GPs to better optimise ACS prevention in the community.

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To improve the discharge summaries from the cardiology department in a tertiary hospital in London

Authors: Kyaw Soe Tu,[A] Gregory Gibson[A] and Una Buckley[A]
[A]Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction

General practitioners raised concerns that discharge summaries from the cardiology department are too long, contain excessive/confusing cardiology jargon, including copying and pasting entire reports, and no point-of-contact number if there is any concern. As a result, the concern from a patient safety perspective was that pertinent information to the GP may not be recognised. The local patient safety team has suggested to conduct an audit to review the quality of the discharge summaries within the department.

Methods

An initial audit was conducted from Sept 2022 to Oct 2022 to review the quality of discharge summaries. Subsequently, PDSA (plan, do, study, act) models of quality improvement were used.

First PDSA cycle (Dec/2022 to Jan/2023):

- Plan – to improve the discharge summaries
- Do – advice to junior doctors via email with a sample discharge letter and discussion at induction
- Study – first cycle of data collection to see the improvement
- Act – more action to sustain and further improvement

Second PDSA cycle (April/2023 to May/2023):

- Plan – to further improve discharge summaries
- Do – the same information with additional reminders, including a poster in the junior doctors' office and the cardiac catheterisation laboratory
- Study – second cycle of data collection to see progress
- Act – more action to sustain and further improvement

15 inpatient and 12 day-case discharge summaries were audited randomly in each cycle. Patients who stayed for more than 2 weeks are excluded.

Results

The overall improvement in discharge summaries is demonstrated in the table.

	Inpatient discharge summaries			**Day-case discharge summaries**		
	Initial	**First cycle**	**Second cycle**	**Initial**	**First cycle**	**Second cycle**
Length too long	47%	13%	13%	100%	59%	25%
Copied/pasted	47%	7%	13%	100%	92%	20%
Excessive jargon	53%	27%	13%	100%	83%	20%
Follow up plan	93%	100%	100%	83%	83%	100%
Point-of-contact	0%	0%	40%	0%	0%	30%

Conclusion

A discharge summary is considered a handover to our GP colleagues. Therefore, it should be concise and easy to understand without excessive jargon and inappropriate abbreviations, with a point-of-contact number (arrhythmia nurse for electrophysiology patients) if there is any concern. Regular monitoring of the quality of discharge summaries and frequent reminders are essential for sustainability and maintaining compliance.

This type of quality improvement project should be expanded to improve the quality of hospital discharge summaries within the NHS.

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Venous thromboembolism (VTE) prophylaxis in the haematology ward at King's College Hospital; a quality improvement project

Authors: Su Thinzar Han,[A] Jitha Vijayakumar,[B] Ben Fidler,[B] Austin Kulasekararaj[B] and Lara N Roberts[B]

[A]Colchester Hospital, Essex, UK; [B]King's College Hospital, London, UK

Introduction

Venous thromboembolism (VTE) is one of the most common causes of preventable morbidity and mortality in hospitalised patients. Patients admitted to haematology wards are often at high risk of VTE due to underlying malignancy and its treatment, but also at risk of bleeding due to frequent therapy-related thrombocytopenia. We aimed to evaluate compliance with local and National Institute for Health and Care Excellence (NICE) guidelines on VTE prevention within the haematology ward at King's College Hospital.

Methods

We report a quality improvement project (QIP) in the haematology wards (n=4) at King's College Hospital. Data were collected from 50 randomly selected patients on the haematology wards before (May/June 2021) and after (Jan/Feb 2022) the intervention. All patient documentation and prescriptions are in the electronic patient record (Allscripts). Data collected included VTE risk assessment completion within 14 hours of admission, patient's weight and eGFR, daily platelet counts throughout admission, and enoxaparin dose prescribed and administered throughout admission. Our audit standards were 100% of admitted patients must have a completed VTE assessment on admission and receive appropriate VTE prophylaxis with low-molecular-weight heparin (LMWH) when indicated, according to their platelet count, body weight and renal function.[1,2]

Enoxaparin dose as per body weight	**Enoxaparin dose for patients with renal impairment (eGFR <30 mL/min)**
<50 kg: 20 mg OD	<40 kg / >150 kg: contact haematology for advice
50–100 kg: 40 mg OD	40–150 kg and eGFR 15–30: 20 mg OD
101–150 kg: 80 mg OD	eGFR <15 and weight <100 kg: unfractionated heparin 5,000 units BD
>150 kg: 120 mg OD	eGFR <15 and weight >100 kg: unfractionated heparin 5,000 units TDS

Intervention

An electronic hard stop for VTE risk assessment was introduced in December 2021. This meant that no prescriptions or blood orders could be entered without completion of a VTE risk assessment for patients admitted to haematology wards. Using an electronic hard stop for VTE risk assessment is highly effective in improving VTE risk assessment rates during initial admission and regular reminders for repeat VTE assessment when the clinical situation changes. We also provided education about platelet thresholds, weight- and renal function-adjusted dosing of enoxaparin in junior doctor teaching sessions. Several teaching sessions were conducted to ensure widespread understanding.

Results

Following the intervention, the VTE risk assessment was compliant in 98% of admitted patients, while the national target is 95%.[1,2] One patient was missed as a short-stay discharge occurred within 16 hours. The compliance of enoxaparin dose administration according to platelet count increased from 82% to 90%. In addition, the compliance of enoxaparin dose administration according to weight increased from 86% to 97%. We also achieved 100% compliance for dosing of enoxaparin based on renal function.

Audit standard	Number of patients audited	% compliance pre-intervention	% compliance post-intervention
VTE risk assessment performed, 100%	50 patients	44 patients: 88%	49 patients: 98%
Appropriate enoxaparin administration according to the platelet count, 100%	50 patients	41 patients: 82%	45 patients: 90%
Appropriate enoxaparin dose according to the weight, 100%	50 patients	43 patients: 86%	48 patients: 97%
Appropriate, enoxaparin dose according to eGFR, 100%	50 patients	47 patients: 94%	50 patients: 100%

90% of patients with adequate platelet count had appropriate thromboprophylaxis; 10% missed their enoxaparin dose despite having a platelet count >50 without any clinical indication. Around one to three doses were missed in a post-transplant patient while recovering their platelet count without a documented clinical reason.

Conclusion

Using an electronic hard stop for VTE risk assessment is highly effective in improving VTE risk assessment rates. Improvements in thromboprophylaxis dosing were also noted and are attributed to education. However, more awareness is required to restart enoxaparin dose when platelet counts recover unless there is contraindication.

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Ambulatory emergency care unit (AECU) first seizure pathway audit

Authors: Alexander Emery,[A] Ambreen Fatima,[A] Mohamed Dardir,[A] Ifedayo Ojo,[A] Zarminak Kakakhel[A] and Gothandaraman Balaji[A]
[A]London North West University Healthcare NHS Trust

Introduction

Our ambulatory emergency care unit (AECU) runs a pathway for patients presenting with a suspected first seizure that aims to avoid admission and streamline assessment and onward referral to neurology outpatients. This pathway contains a number of criteria that should be fulfilled to ensure proper assessment, as well as a number of investigations that should be completed or requested to allow thorough review when the patient eventually attends their neurology appointment.

National Institute for Health and Care Excellence (NICE) guideline NG217 provides specific guidance on assessment and referral for patients presenting with a suspected first seizure.[1]

We are aware that some criteria in the current trust policy are not always completed. Similarly, there have been cases where investigations such as electroencephalograms (EEGs) have been requested, but do not happen in the required timeframe before the clinic appointment or are not reported before the clinic. This can mean that patients need further unnecessary follow-up appointments, for example.

Our audit aims to looks at these issues in three main areas:

- Were things correctly assessed and documented in AECU as per the trust's current first seizure pathway?
- Were other things correctly and assessed and documented in AECU as per NICE guidelines for a first seizure (NG217)[1] and were patients given correct information and safety netting advice?
- Timings of referrals to clinic and investigations, and when these happened, eg did the MRI/EEG happen before clinic?

Materials and methods

Patients referred to AECU for a potential first seizure over a 3-month period were screened. Retrospective data collection over a 3-month period using a password-protected data collection tool including emergency department discharge records, electronic patient records, clinic referral data, clinic letters and investigation results with reference to the three areas above.

Results and discussion

Over a 3-month period, 47 patients were identified. Eleven patients were excluded from sampling for incorrect referral details or not attending their AECU appointment. A further five were excluded as they did not attend their subsequent neurology appointment. One patient was excluded after it was established that they had an historical diagnosis of epilepsy. A total of 30 patients were included in the audit.

There was significant variation in the completion of both the local pathway criteria and NICE criteria for patients attending AECU.

Documentation of driving status, occupation and safety netting advice including with regards to driving was inconsistent (Fig 1). This may well have been discussed with patients, but documented evidence of this was often missing.

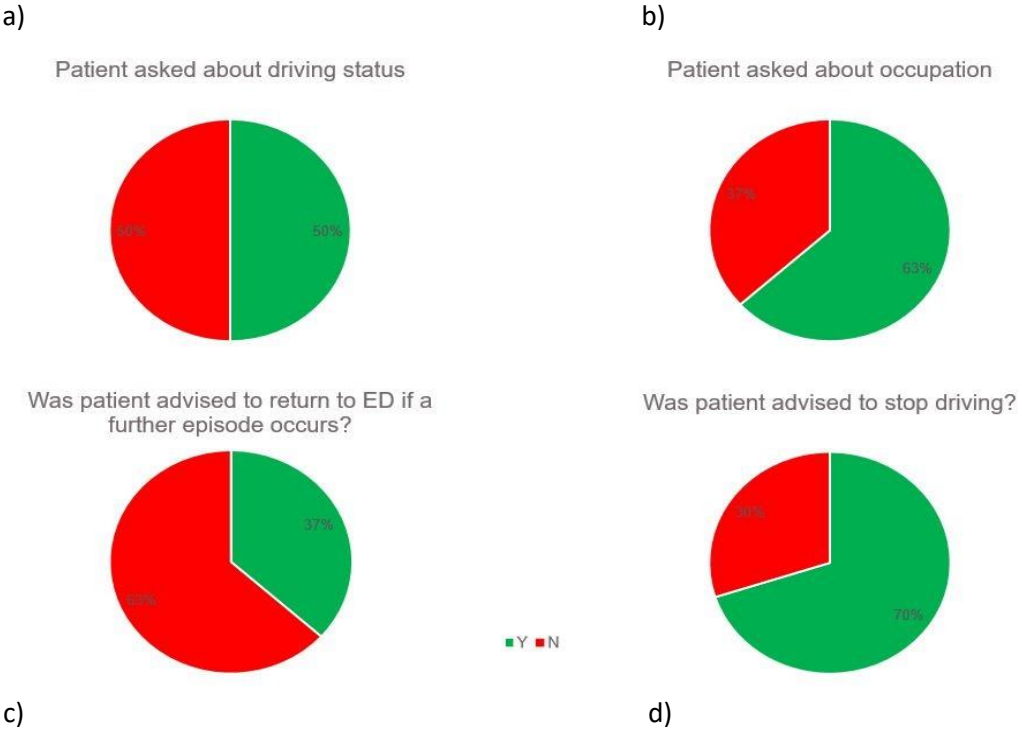

Fig 1. Proportion of patients asked about a) driving statues and b) occupation status, and advised c) to return to ED in the event of a further episode and d) to stop driving..

Investigation results were often not available by the time of a patient's neurology outpatient appointment. An EEG was completed in 46% of patients for whom one was requested by the time of their outpatient appointment, with only 16% reported. An MRI brain scan was completed in 79% of patients for whom one was requested, with 66% reported.

Conclusion

We have incorporated reiteration of the need for documentation of driving status etc in local induction and teaching. Work is ongoing to update the first seizure pathway to improve performance.

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Pre-biologic assessment of adherence in severe asthma and association with biologic response

Authors: Freda Yang,[A] Ron McDowell,[B] John Busby,[B] Anna Murphy,[C] Chloe Bloom,[D] Pujan Patel,[E] David J Jackson,[F] Adel H Mansur,[G] Paul E Pfeffer,[H] Thomas Pantin,[I] Robin Gore,[J] Thomas Brown,[K] Shamsa Naveed,[C] Hassan Burhan,[L] Mitesh Patel,[M] Elfatih Idris,[N] Ian D Pavord,[O] Deepak Subramanian,[P] James Dodd,[Q] Paddy Dennison,[R] Rekha Chaudhuri,[S] Aashish Vyas,[T] Shoaib Faruqi,[U] David Sammut,[V] Simon Message,[W] Matthew Masoli,[X] Liam G Heaney[Y] and Salman Siddiqui[D]

[A]Imperial College London; [B]Centre for Public Health, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, UK; [C]University Hospitals of Leicester NHS Trust, Leicester, UK; [D]National Heart and Lung Institute, Imperial College London, London, UK; [E]Royal Brompton and Harefield Hospitals, London, UK; [F]Guy's and St Thomas' Hospitals, School of Immunology and Microbial Sciences, King's College London, London, UK; [G]Birmingham Regional Severe Asthma Service, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK; [H]St Bartholomew's Hospital, Barts Health NHS Trust and Queen Mary University of London, London, UK; [I]Wythenshawe Hospital, Manchester University NHS Foundation Trust, Manchester, UK; [J]Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK; [K]Portsmouth Hospital, Portsmouth Hospitals University NHS Trust, Portsmouth, UK; [L]Royal Liverpool Hospital, Liverpool, UK; [M]University Hospitals Plymouth NHS Trust, Plymouth, UK; [N]Royal Stoke University Hospital, Stoke-on-Trent, UK; [O]John Radcliffe Hospital, Oxford University Hospitals, Oxford, UK; [P]Royal Derby Hospital, University Hospitals of Derby and Burton NHS Foundation Trust, Derby, UK; [Q]Southmead Hospital, North Bristol NHS Trust, Bristol, UK; [R]Southampton Hospital, University Hospital Southampton NHS Foundation Trust, Southampton, UK; [S]Gartnavel General Hospital, NHS Greater Glasgow and Clyde, Glasgow, UK; [T]Lancashire Teaching Hospital, Lancashire Teaching Hospitals NHS Foundation Trust, Lancashire, UK; [U]Hull Royal Infirmary, Hull University Teaching Hospitals NHS Trust, Hull, UK; [V]Sheffield Teaching Hospitals NHS Foundation Trust, Sheffield, UK; [W]Gloucester Royal Infirmary, Gloucestershire Hospitals NHS Foundation Trust, Gloucester, UK; [X]Royal Devon and Exeter Hospital, Royal Devon University Healthcare NHS Foundation Trust, Exeter, UK; [Y]Centre for Experimental Medicine, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, UK

Background

Biologic therapies are approved for severe asthma that remains uncontrolled despite optimisation and adherence to preventive treatments. We determined the prevalence of pre-biologic adherence testing in the UK and examined the relationship between pre-biologic adherence to inhaled corticosteroids and biologic response.

Methods

We included all adult patients with severe asthma from the UK Severe Asthma Registry and surveyed 21 severe asthma centres. Pre-biologic adherence to inhaled corticosteroids was defined as ≥75% medication possession rate (MPR). Biologic response was assessed according to the National Institute for Health and Care Excellence (NICE) guidance and continuation at 1 year was used as a surrogate marker for biologic response.

Results

Of 4,972 patients in total, 91.2% (4,148) of those on inhaled corticosteroids were on high-dose treatment, 92.0% (4,518) received LABA treatment and 44.9% (2,219) were on daily oral corticosteroids. 67.4% (3,353) started biologics, of which 58.8% (1,943) had MPR recorded and only 15.6% (272) of patients on daily oral corticosteroids had a prednisolone level recorded. In patients who underwent pre-biologic adherence testing, 7.3% (141) and 1.8% (5) of those on inhaled and oral corticosteroids were non-adherent, respectively. The odds of biologic continuation were 2.65-fold (95%CI 1.02–6.91) higher in patients who were

adherent to inhaled corticosteroids compared with those who weren't, even after accounting for hospital site, age, gender and daily oral corticosteroid use.

Conclusion

Assessment of pre-biologic adherence to preventative treatments is variable in UK severe asthma patients and good adherence to inhaled corticosteroids prior to biologic initiation was associated with increased likelihood of biologic continuation, underscoring the importance of adherence assessment in severe asthma management.

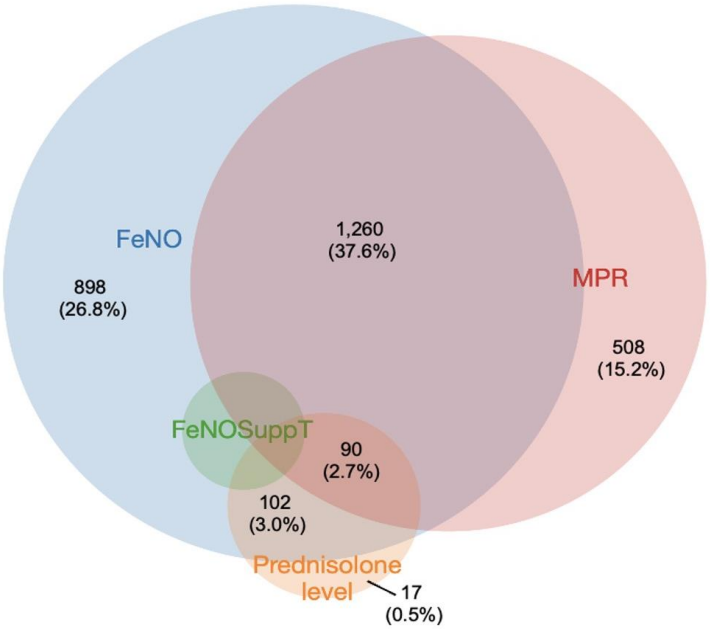

Fig 1. Venn diagram of pre-biologic adherence testing methods in patients who underwent adherence testing. FeNO = fractional exhaled nitric oxide; FeNOSuppT = FeNO suppression test; MPR = medication possession ratio.

	n	Univariable model* OR (95% CI)	*p*	Multivariable model OR (95% CI)	*p*
FeNO (ppb)	889		0.526		0.779
≥45		1		1	
<45		0.88 (0.59,1.31)		0.94 (0.63,1.42)**	
FeNO suppression test	51		0.882	‡	‡
Positive		1			
Negative		1.15 (0.17,7.92)			
MPR to ICS (%)	569		**0.033**		**0.046**
<75%		1		1	
≥75%		2.82 (1.09,7.31)		2.65 (1.02,6.91)***	
Prednisolone level	118	‡	1.000†	‡	‡
Undetectable					
Detectable					

* adjusted for specialist centre
** adjusted for age, sex, hospital, oral steroids at baseline, ICS dose at baseline
*** adjusted for age, sex, hospital, oral steroids at baseline
‡ OR inestimable or not estimated due to small numbers/sparse data
† Fisher's Exact Test

Table 1. Associations between pre-biologic adherence test results and continuation of biologic therapy at nnual review (n=1,237). FeNO = fractional exhaled nitric oxide; ICS = inhaled corticosteroid; MPR = medication possession ratio.

Recognition and initial management of AKI in hospitalised patients

Authors: Waqar Moniba,[A] Jonah Robinson,[A] Wen Xi Tang,[A] Yaser Mohammed,[A] Lucas Jullian,[A] Oliver George,[A] Aditi Gunjal,[A] Mrinmayi Morje,[A] Donal O'Rinn,[A] Ahmed Abousamra[A] and Josh Davies[A]

Conquest Hospital – East Sussex Healthcare NHS Trust

Introduction

Acute kidney injury (AKI) describes as a rapid deterioration in kidney function that is usually reversible, depending on the cause. The KDIGO criteria are commonly used to assess the degree of AKI, which is determined by the increase in serum creatinine and decrease in urine output.[1] According to NHS England, one in five emergency hospital admissions is associated with AKI in the UK;[2] however, only a few of these cases are cared for by the renal team, with the majority of cases being cared for by other medical teams.[3] The 2009 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report[4] identified that one in five AKIs were 'predictable and avoidable'; however, studies have shown that there are gaps in the knowledge of junior and senior medical staff in diagnosing and managing AKIs.[5]

Aims

The aims of this quality improvement project (QIP) was to initially evaluate the management of AKI in patients admitted to Conquest Hospital and subsequently re-evaluate after an AKI care bundle was implemented.

Materials and methods

The first cycle of this QIP was conducted in December 2022 and involved collecting data from patient clerking notes, drug charts and test results. The clinical standards being used in the QIP were National Institute for Health and Care Excellence (NICE) guidelines[6] and local trust guidelines. A data collecting toolkit was designed using the NCEPOD AKI toolkit 2009.

The second cycle was conducted between April and August 2023. This involved re-evaluating the diagnosis and management of AKIs using the same data collecting toolkit after introduction of the AKI care bundle.

Results and discussion

AKI staging was documented in 54% of patients in the second cycle compared with 20% in the first. There was an overall improvement in management of AKI and in documenting this management. In particular, fluid input/output monitoring improved from 50% in cycle 1 to 68% in cycle 2. Recording of urine dip improved from 35% to 60%. There was consistency of AKI cause being identified in the first 24 hours to 80%. However, it was noticed in the second cycle that 36% of patients with AKI were refractory to management, of whom 12% were not discussed with a specialist renal team.

Good medical practice was identified in many areas, such as adequate fluid assessment and resuscitation in those required. However, there were still certain domains that needed improvement to fulfil compliance with set standards.

Conclusions

The results of this QIP showed that there was an overall improvement in AKI management between the first and second cycle; however, there needs to be greater awareness among all medical professionals in the importance of thorough investigation of AKIs and optimisation of management.

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Evaluation of the delivery of pulsed intravenous methylprednisolone to patients with interstitial lung diseases

Authors: Alexander Emery,[A] Nazia Din,[A] Kritchai Vitipongsatorn,[A] Richard Hewitt[A], Melissa Wickremasinghe [A], Dhivya Ilangovan [A] and Dr Abigail Harrison [A]
[A]Imperial College Healthcare NHS Trust, London, UK

Introduction

Interstitial lung diseases (ILDs) are a spectrum of lung diseases that cause inflammation and/or progressive scarring to the lung parenchyma. Pulsed intravenous (IV) methylprednisolone (MP) is given for many progressive primary ILDs with an inflammatory component. Pulsed IVMP can be safely given in an ambulatory setting, and is ocassionally currently delivered on an informal ad hoc basis through our same-day emergency care (SDEC) centre or in an inpatient environment. We are aware of a number of issues recently:

- long waits for patients with ILD attending SDEC
- SDEC staff not knowing the patient's plan when they attend
- SDEC staff struggling to contact the on-call respiratory team for support.

We worked collaboratively with the planned and unplanned care teams in respiratory and emergency medicine / SDEC to audit the care of patients with ILD attending SDEC for IVMP against a historical standard operating procedure. We also evaluated a number of factors contributing to patient flow and experience.

Materials and methods

We created a data collection tool to capture all patients with ILD who had been referred to SDEC for IVMP over an 8-month period.

We recorded whether the following current agreed standards were being met:

- Patients reviewed by the ILD team prior to treatment
- Bloods taken ≤1 week before treatment
- Blood sugar levels taken before each treatment
- Clinical observations taken before each treatment
- Clinical observations taken after each treatment
- Follow-up plan arranged prior to treatment

We recorded the following factors that affected patient flow and experience:

- Who prescribed the IVMA
- Who prescribed outpatient prescriptions
- Time in department
- Time IVMP prescribed
- Time IVMP administered
- Blood glucose testing method
- Whether the patient required clinical review prior to IVMP treatment, and which team did this review
- Any adverse events and their details

Results and discussion

All patients were reviewed by a member of the ILD team prior to attending SDEC on day 1, and most had relevant blood tests up to 7 days prior to treatment (83%). Observations were recorded and documented in the majority of patients before (96%) and after (71%) administration of IVMP. A blood glucose was only recorded in 25% of patients.

IVMP was prescribed by the SDEC team 17% of the time, and the respiratory team 83% of the time. Medications to take away were presribed 50/50 between the SDEC and respiratory teams.

Time spent in SDEC was shorter when the SDEC team were able to prescibe IVMP (Fig 1).

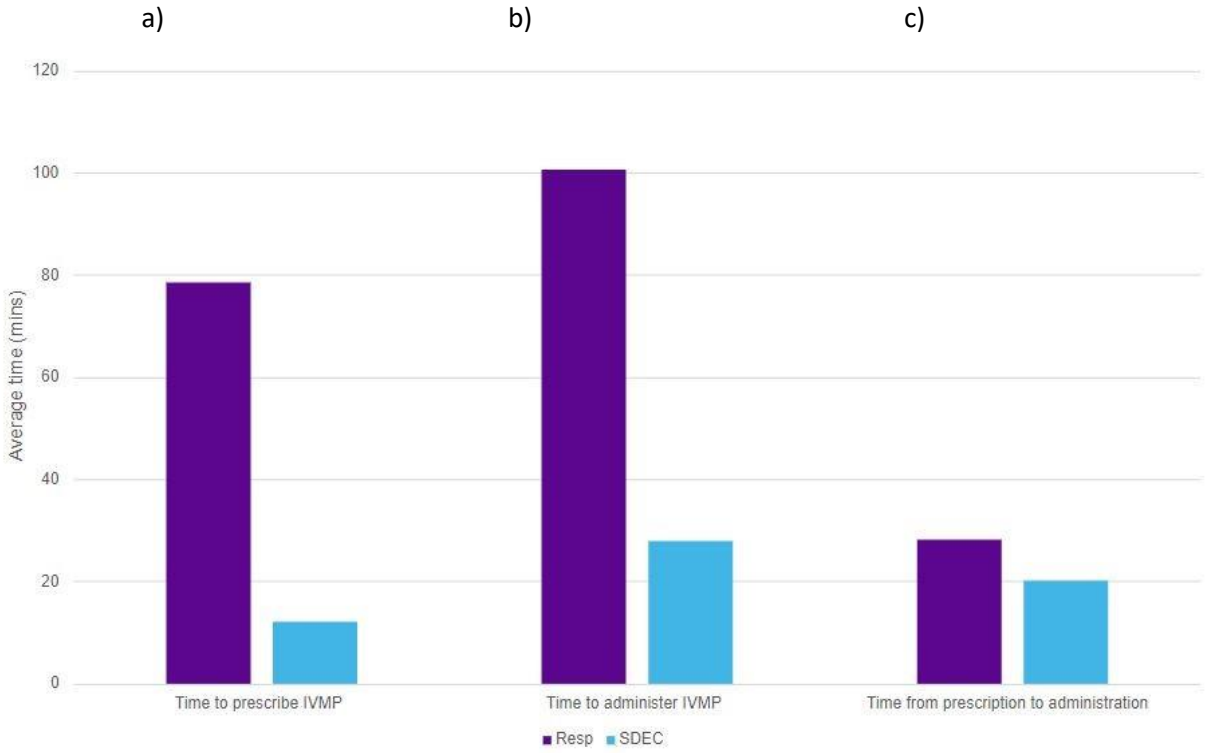

Fig 1. Average time taken to a) prescribe IVMP and b) administer IVMP, and c) average time from prescription to administration of IVMP when the prescription was made by the respiratory team vs the SDEC team.

Conclusion

Review of patients prior to IVMP is generally done well, but there is room for improvement. There is a lack of clarity over which teams do certain jobs when patients come to SDEC. The SDEC team are very efficient, and able to speed up the process of medication prescripton and administration when empowered to lead by the presense of a well-documented plan.

We have created a new pathway to standardise and streamline the treatement of patients with ILD requiring pulsed IVMP in an outpatient setting (Fig 2), and will re-audit this in future.

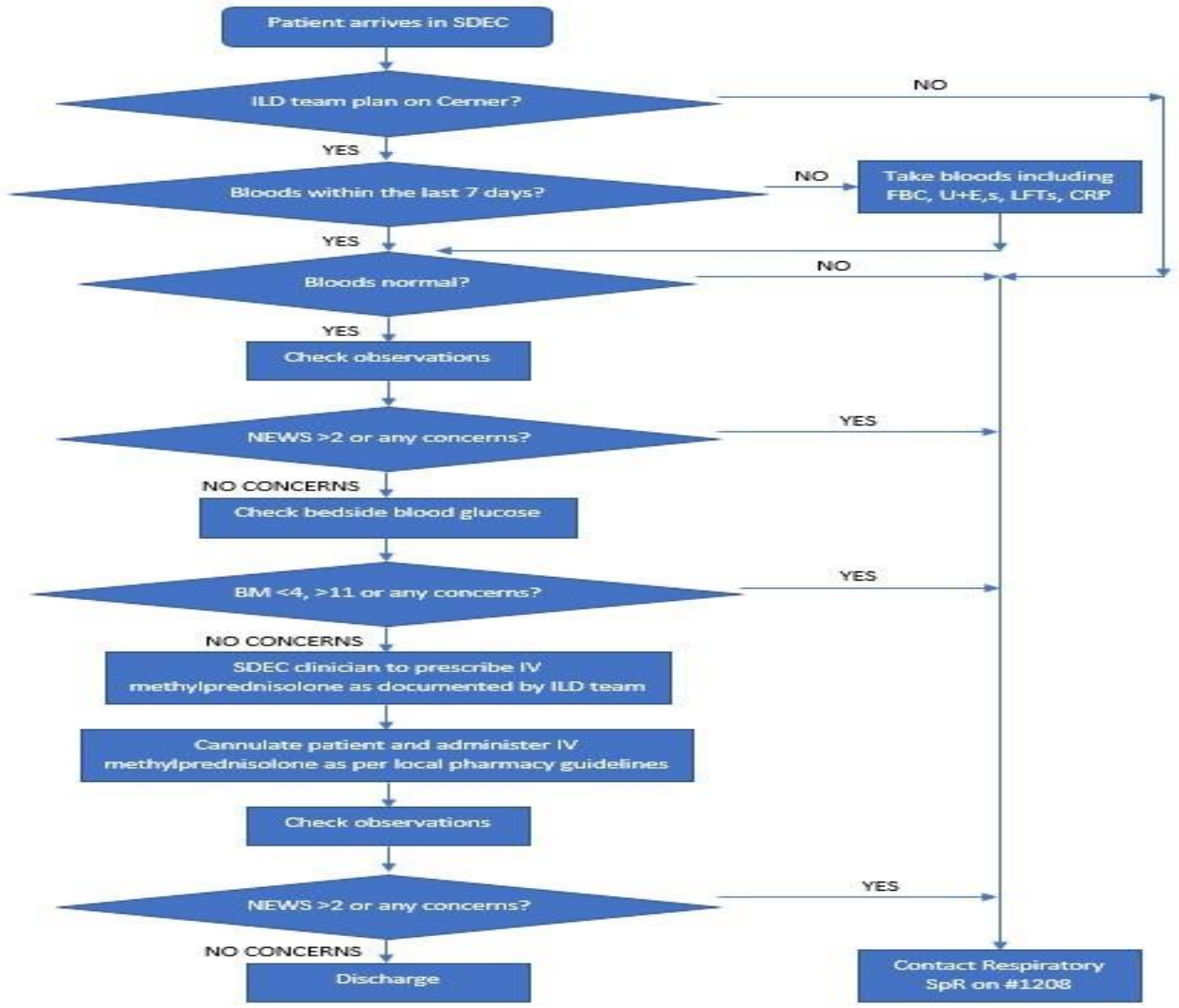

Fig 2. Flowchart of new patient pathway for patients attending SDEC for pulsed IVMP.

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Using AI to achieve 100% compliance with NICE guidance; a quality improvement project on lipid profile assessment in patients with NSTEMI

Authors: Sadaf Cheema,[A] Ali Hussain[A] and Neil Mara[A]
[A]Pinderfields Hospital, Wakefield, UK

Introduction

National guidelines on lipid modification for cardiovascular disease advise checking a lipid profile in all patients admitted with acute coronary syndrome (ACS).[1] It has been demonstrated that ACS can impact lipid profiles unpredictably, so cholesterol measurements should be taken within 24 hours of an infarct.

Materials and methods

Aim of our quality improvement project (QIP) was to achieve the following recommendation:

The National Institute for Health and Care Excellence (NICE) guidelines on lipid modification for cardiovascular disease prevention, published in 2014,[2] emphasise the importance of initiating high-intensity lipid-lowering therapy early during hospital admission for patients with acute myocardial infarction (AMI).

Standards: All patients should have a cholesterol measurement prior to discharge from hospital, preferably at 24 hours after admission.

Audit duration and cycles: Four audit cycles – data from June 2019 till Oct 2022:

- First cycle: June 2019 – Aug 2019
- Second cycle: Oct 2020 – Dec 2020
- Third cycle: March 2021 – May 2021
- Fourth cycle: 15 Sep 2022 – 12 Oct 2022

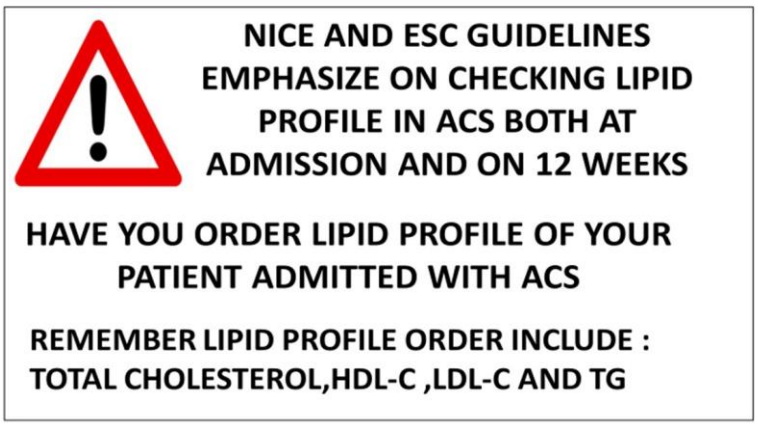
Place: Pinderfields Hospital (Mid Yorkshire Trust) Retrospective data collection.

Results presented in acute and cardiology clinical governance meetings.

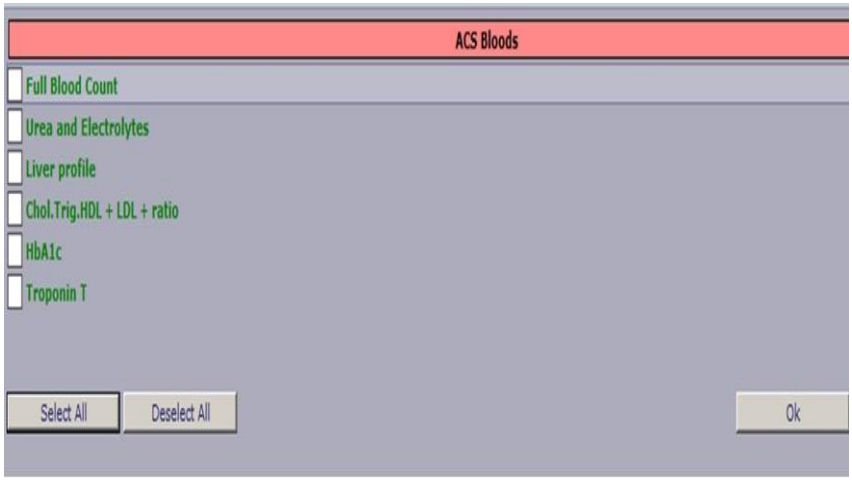
Methods

The following methods were used to improve the quality:

- Re-audits after first cycle and presentation of results at acute and cardiology clinical governance meetings.
- Departmental posters were displayed (Fig 1).



- ACS ICE (Integrated Clinical Environment, a software for reporting) blood panel is created on ICE system (Fig 2).



- Teachings were conducted.
- Automated lipid fractions (artificial intelligence).

Results and discussion

Results of all each cycle are shown in Table 1 and 100% compliance was achieved after the fourth cycle.

Cycles	First	Second	Third	Fourth
Lipid levels checked	16.77%	55.69%	49%	100%
Lipid levels not checked	83.23%	44.31%	51%	0%
Actions	Audit following NICE guidelines	1) Face-to-face teaching sessions 2) Displayed illustrative reminder / posters	1) Face-to-face teaching sessions 2) Displayed Illustrative reminder / posters 3) ACS blood panel	1) Automated lipid fraction testing for second positive troponin tests

National guidelines recommended initiating early high-intensity lipid profile therapy (ie statin) in ACS for secondary prevention of cardiovascular disease. We have noticed that, in some instances, baseline cholesterol was not measured (either at all or prior to statin therapy), potentially leaving familial and non-familial hypercholesterolaemia undiagnosed. Additionally, if baseline results are known, it helps to further intensify therapy or add on new therapies. Every 1.0 mmol/L (40 mg/dL) reduction in LDL-C is associated with a corresponding 22% reduction in cardiovascular disease mortality and morbidity.[3] Latest evidence suggests that if lipid-lowering targets are not achieved on statins, additional medications like ezetimibe and PCSK9 inhibitors have well-documented efficacy.[4]

Conclusion

Lipid profile is an important test and required in patients admitted with NSTEMI. We used several methods to achieve the 100% results including presentation at governed meetings, teaching of junior doctors,

signposting and creating separate blood panel, but failed to get the desired results. Therefore, we decided to use artificial intelligence and introduced automated lipid fraction testing, in which software itself requests the test in patients admitted with NSTEMI without any human interference. As a result, we achieved 100% results.

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Smoking status documentation and nicotine-replacement prescription review on a respiratory admissions unit: a quality improvement project

Authors: Leonard Ron Chieng,[A] Arkadeep Dhali,[A] Adam Sharif[A] and Charlotte Ford[A]
[A]Nottingham University Hospitals NHS Trust, Nottingham, UK

Introduction

Cigarette smoking continues to be the primary reason for early deaths across the globe. It is unmatched in generating premature and avoidable ailments, impairment and mortality, especially linked to heart and lung conditions as well as cancer.[1] Hence, a quality improvement project (QIP) on the documentation of smoking status and nicotine-replacement prescriptions for patients admitted to the respiratory admissions unit at Nottingham University Hospitals NHS Trust was conducted with the aim to improve treatment of patients who are tobacco dependent.

Methods

Data were collected on 99 patients over a 3-week period on a respiratory admissions unit (RAU), based on respiratory medical notes and the hospital electronic health record system, Nervecentre. Information collected includes age, gender, NEWS on admission, smoking status of patient, quantity and duration for active and ex-smoker, action plan documented for active smokers, smoking status documented locations, community smoking cessation therapy referrals, relevant comorbidities, working diagnosis, nicotine replacement therapy offered, accepted and prescribed. Action plans to educate doctors and nurses about the importance of smoking documentation and to encourage the distribution of smoking cessation leaflets to patients were implemented after analysing the information collected.

A repeated collection of data for another 100 patients was conducted after 3 months.

Results

Data collected from the first and second cycles of the QIP were compared.

Smoking status: the number of smoking status documentation on Morton Ward RAU improved significantly, with the number of undocumented smoking statuses reduced from 16/99 (16.2%) to only 5/100 (5.0%) in the second cycle (Fig 1).

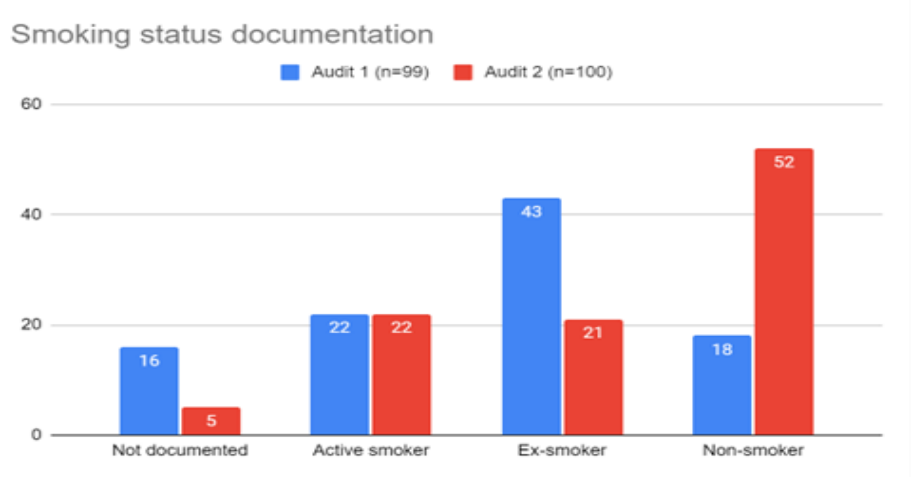

Fig 1. Smoking status documentation from first and second cycle of QIP.

Nicotine replacement therapy (NRT): There was a slight increase in the number of NRT offered to active smokers, from 20/22 (90.9%) to 21/22 (95.5%) in the second cycle. It was also noted that there was an increase in the number of active smokers who accepted the NRT offered, from 7/20 (35%) to 9/21 (42.9%) patients (Fig 2).

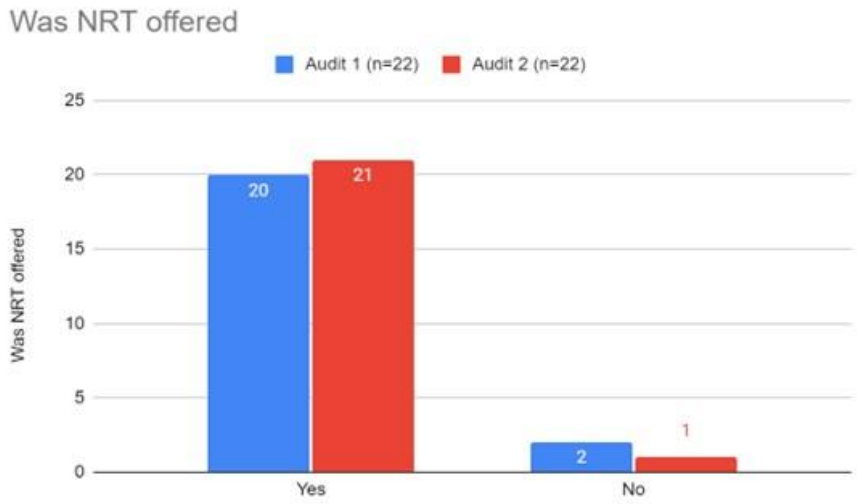

Fig 2. NRT offered to active smokers for first and second cycle of the QIP.

Conclusion

Smoking status documentation is essential for patients as it helps with the process of formulating diagnoses and treatment plans. Prescribing NRT helps with smoking cessation, hence improves the outcomes for patients. This QIP proves that education and awareness among colleagues along with supplementary leaflets provided helps with the compliance of smoking status documentation and NRT prescriptions.

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Quality improvement project: diagnosing postural hypotension in patients admitted with falls

Authors: Zayar Min,[A] Naeem Yousaf,[A] Win Htet,[A] David Platts,[A] Kadambari Tyagi,[A] Emma Ooi,[A] Shridhar Budhev,[A] Albin Shaji,[A] Yan Lin Kyaw,[A] Benjamin Brazier[A] and Irfan Malik[A]
[A]University Hospitals Birmingham, UK

Introduction

Falls represent the most common reason for presentation to the emergency department for those aged over 65.[1] Postural hypotension often associated with falls in older patients[2] and hence diagnosing it becomes crucial in multifactorial fall risk assessment. The Royal College of Physicians (RCP) sets out a clinical guideline to standardise the correct technique of measuring lying and standing blood pressure (LSBP).[3] The aim of this quality improvement project (QIP) is to evaluate the methods of measurement of LSBP on geriatric wards and to improve the standard of care in diagnosing postural hypotension.

Method

Retrospective review of inpatients, aged over 65, who had been admitted with falls to Queen Elizabeth Hospital Birmingham (QEHB) was carried out between January 2022 and July 2023. This audit assessed the measurement and accuracy of LSBP across various geriatric wards, which includes whether LSBP was requested and completed as well as correctly recording the measurements according to the RCP guideline.[3] We used the plan, do, study, act (PDSA) method. Each cycle was followed up by various interventions such as small group teachings, awareness measures and posters to improve the quality and standards of diagnosing LSBP.

Results

261 patients were reviewed over three cycles. The findings show progressive improvement with the interventions carried out after each cycle. Clinicians requesting LSBP has improved from 72% to 98% (Fig 1). The completion of LSBP measurement also shows an improvement from 52% to 91% within our study periods (Fig 2). Evidence of recording three readings has improved from 5% to 49%.

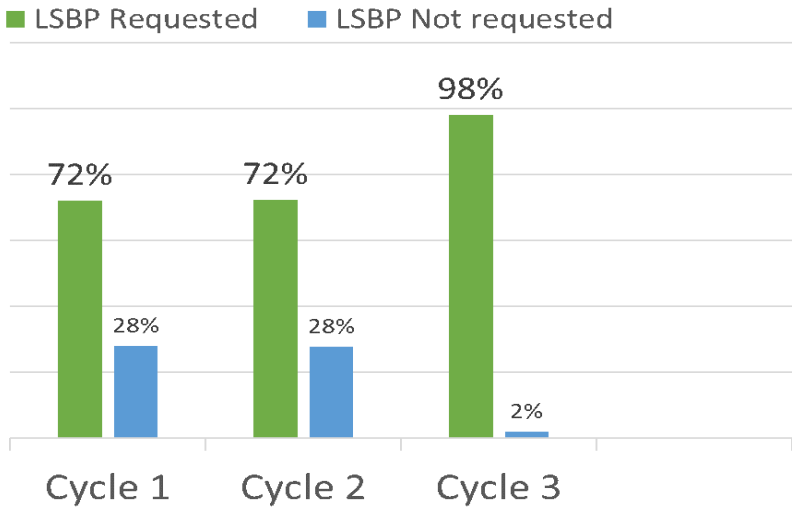

Fig 1. Percentage of requesting LSBP in patients admitted with falls.

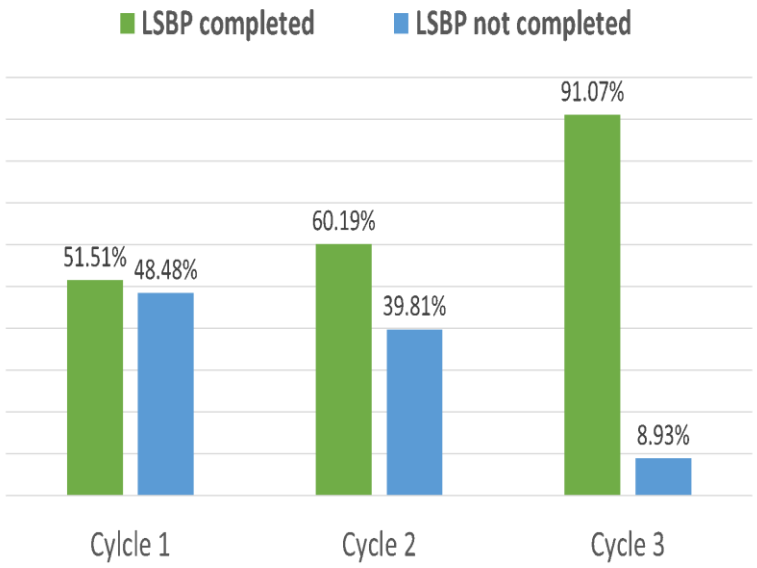

Fig 2. Percentage of completion of LSBP in patients admitted with falls.

Conclusion

Our interventions in this QIP have led to significant improvement in quality of measuring and recording LSBP in accordance with the RCP guideline.[3] Diagnosing postural hypotension and addressing the issues with appropriate clinical intervention aims to prevent further falls in older patients[4] on geriatric wards. However, this QIP excluded patients who were bedbound and receiving end-of-life care. And there are also limitations in recording of three readings in our trust's electronic noting system, which was difficult to improve in the short time. Overall, this QIP has signifcantly increased the awareness of diagnosing postural hypotension in patients admitted with falls and improved the methods of correct measurement and interpretation of LSBP.

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Complications of mechanical thrombectomy in ischaemic stroke: prevalence, types and pattern

Authors: Ale Pramol,[A] Olubunmi Omojowolo,[A] Rami Abdallah[A] and Abinas Gurung[A]
[A]Kent and Canterbury Hospital, East Kent Hospitals University NHS Foundation Trust, Canterbury, UK

Introduction

Stroke is a leading cause of morbidity and mortality worldwide.[1] Patients with acute ischaemic strokes who meet the criteria are offered cerebral reperfusion therapy in the form of mechanical thrombectomy (MT). This involves introducing a catheter to retrieve the blood clot in the intracranial arteries.[2]

As Kent and Canterbury Hospital is not currently performing MT, we refer the patients to the Royal London Hospital (RLH) by rapid ambulance transfer. Most often, patients are thrombolysed with alteplase before transfer and during transfer in the ambulance.

This audit is looking into local protocol in East Kent Hospitals University NHS Foundation Trust (EKHUFT) and comparing with national standards, focusing on the numbers as well as the pattern of complications that may arise from MT.

Objectives

- To determine the number of our stroke patients offered MT.
- To determine the prevalence and types of adverse event in patients who had MT.
- To find out whether there is aggregation of these adverse events to certain periods of the day.

Materials and methods

This was a combination of retrospective and prospective study spanning from April 2021 to March 2023, conducted in the emergency care centre (ECC), hyperacute stroke unit (HASU) and acute stroke unit (ASU) of Kent and Canterbury Hospital. The data were obtained from the Sentinel Stroke National Audit Programme (SSNAP), clinical records on Sunrise and case files.

All patients with acute ischaemic stroke who were referred and had MT with or without thrombolysis were included in the study. 1,615 patients were admitted to SSNAP, with total of 123 who were referred for MT.

Results and discussion

7.6% (123 out of 1,615 patients) were referred for MT, which is more than threetimes the national average of 2.01% for 2021.[3] 6.1% (98 out of 1,615 patients) had MT. The main reasons for not doing the procedure were recanalisation after thrombolysis, worsening of imaging criteria on re-imaging at the RLH, and technical difficulties.

64.3% (63 of 98 patients) who had MT developed various types of complications after the procedure. Haemorrhagic transformation (38%) and intracerebral haemorrhage (25%) were the commonest in those who had both MT and thrombolysis (Fig 1).

Haemorrhagic transformation (57%) and failed procedure (15%) were the commonest complications in 30.0% (29 patients) who had MT only (Fig 2).

There was a higher proportion of complications (55.9%) in patients referred during the in-hour period (8am–5pm) compared with those referred out of hours (5pm–8am) at 45.1%. The reason for this could be reduced duration of patient transfer to RLH out of hours.

There was improved post-MT NIHSS (National Institutes of Health Stroke Scale) in virtually all the 98 patients (Fig 3). However, the post-MT and discharge modified Rankin score (MRS) were consistently higher than the premorbid MRS (Fig 4).

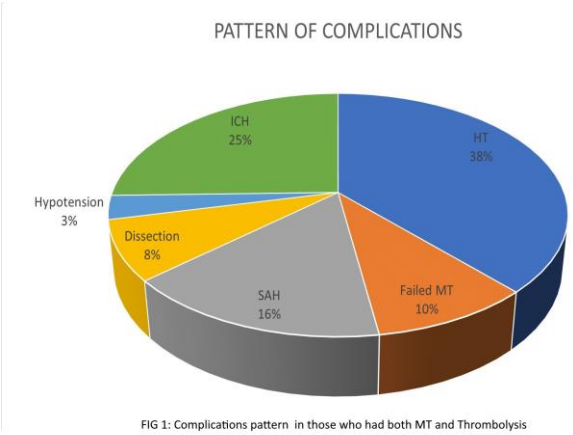

FIG 1: Complications pattern in those who had both MT and Thrombolysis

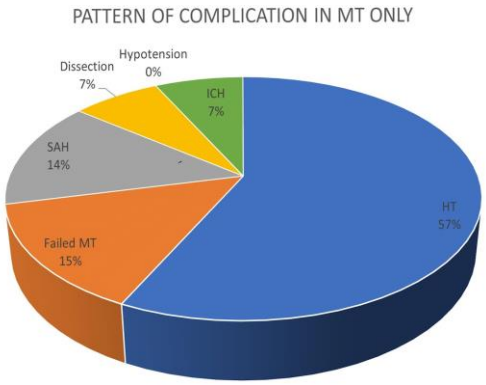

Fig 2: Complications pattern in those who had MT only

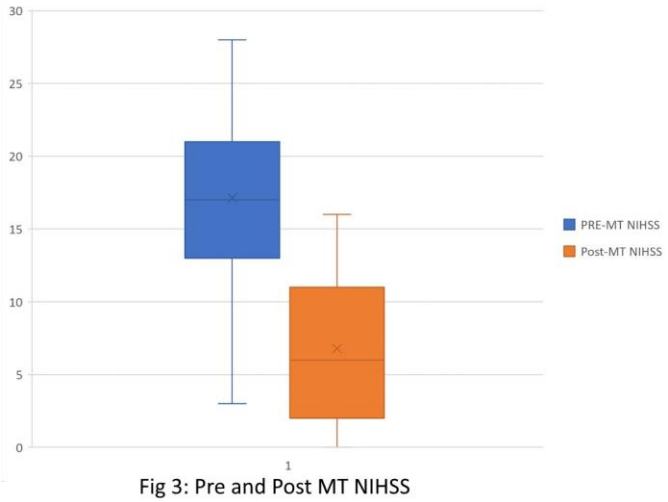

Fig 3: Pre and Post MT NIHSS

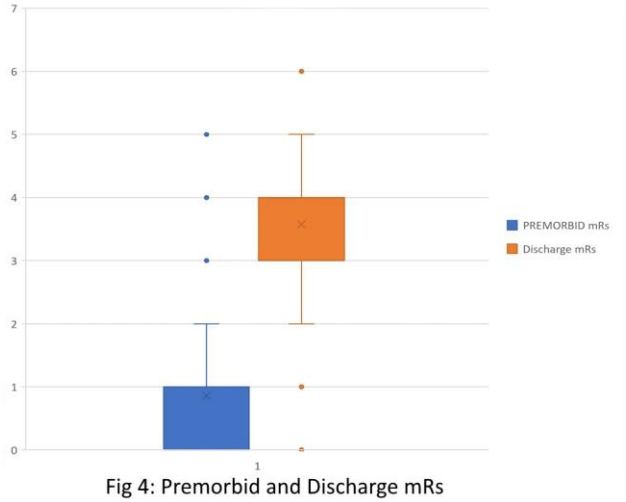

Fig 4: Premorbid and Discharge mRs

Conclusion

EKHUFT has substantial higher MT referral and procedure rates than the national average. Subsequent studies can explore the correlation between the imaging characteristics and complication pattern. The relationship between the door-to-needle time and complications can be analysed.

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The chameleons of medicine: stroke mimics

Authors: Venkatesh Ashwini[A] and Vijay Gupta[A]
[A]Milton Keynes University Hospital, Milton Keynes, UK

Introduction

On average, stroke mimics account for 25% of patients presenting to hospital with possible strokes. There are two main categories of mimics: medical mimics (80%) and functional mimics (20%).

The commonest diagnoses presenting as stroke mimics according to existing literature are recrudescence, functional disorders, migraines and seizures.

Why this audit?

Identifying stroke mimics accurately could avoid potential misdiagnosis and side effects associated with use of acute stroke and/or preventative management, including thrombolysis or long-term antiplatelets.

Methods and standards

All patients presenting to Milton Keynes University Hospital (MKUH) with symptoms of a possible stroke between July 2022 and October 2022 were identified, including:

- community stroke calls
- inpatient stroke calls
- repatriations of confirmed strokes.

All those presenting with stroke or stroke-like symptoms should have a 'stroke call' put out so that the on-call stroke team at MKUH are notified to assess the patient. Local results were compared with data from the SSNAP Stroke Mimic Audit 2021.

Results

50.7% of stroke calls at MKUH were diagnosed as mimics, compared with the national average of 52.8% as identified in the SSNAP audit. 55.2% of stroke mimics nationally occur in women, and 52.8% of our patient cohort of mimics were female. Though the above figures appear similar, SSNAP categorises transient ischaemic attacks (TIAs) as mimics, accounting for nearly 20% of mimic diagnoses, whereas TIAs were categorised as strokes in our audit. Fig 1 illustrates the percentages of mimic diagnoses in MKUH.

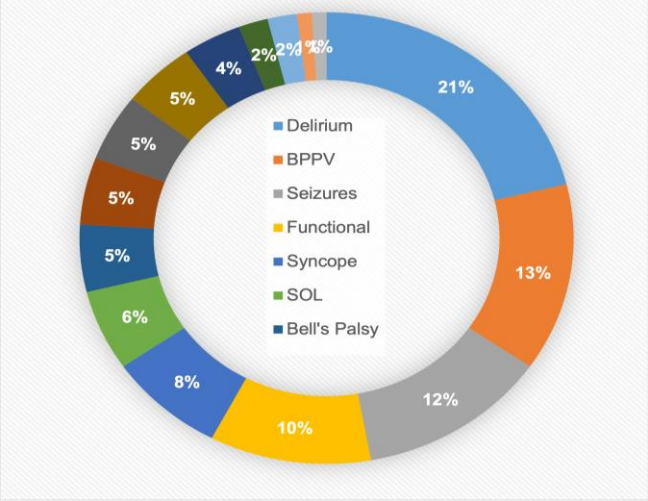

Fig 1. Mimic diagnoses at MKUH.

Thrombolysis, if administered within the recommended time window (4.5 hours from symptom onset once haemorrhage has been excluded), offers benefits of likely reperfusion to those who have had an ischaemic stroke; however, administering thrombolysis to someone who has not had a stroke comes with increased risks of bleeding with none of the reperfusion benefits. 10% of strokes and 0.7% of mimics are thrombolysed on average nationally; at MKUH, only 4.8% of strokes were thrombolysed (Table 1).

Month of Presentation	Strokes in Time	Mimics in Time	Strokes Thrombolysed	Mimics Thrombolysed
July	4	9	2	0
August	5	11	2	0
September	3	10	0	0
October	7	5	1	0
Total	19	35	5	0

Table 1. Patients with strokes and mimics presenting to MKUH between July and October 2022.

Conclusion

We have identified that older patients with delirium form a large proportion of those presenting to MKUH as suspected strokes. In someone who is delirious and possibly septic, time is of the essence in starting appropriate treatment. Appropriate recognition of delirium vs stroke is also helpful in utilising the stroke team's resources in a more efficient manner and to reduce the risk of inadvertent thrombolysis. There is scope for improvement, as we have noted a significantly smaller proportion of stroke mimics presenting and being diagnosed with delirium nationally.

Recommendations

- The CT team are now being involved in stroke calls that are put out in order to minimise door-to-needle time and possibly aid in ruling strokes in/out rapidly.
- A review of assessments and subsequent referrals to the stroke team for suspected strokes from ambulance crew / emergency department / wards to identify areas of learning and examination among clinical staff to reduce the proportion of mimics being treated as stroke calls / strokes.
- To consider looking into the prevalence of risk factors in those with confirmed strokes vs mimics to investigate any correlation between certain risk factors and neurological presentations of stroke mimics.

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Pyrexia thresholds in patients 65 years of age and over being treated for infection

Authors: Robert Ambrogetti,[A] Parveen Doddamani,[A] Anna Evetovits[A] and Dilesh Lakhani[A]
[A]University Hospital Leicester, Leicester, UK

Introduction

Infection is a leading cause of morbidity and mortality in individuals aged over 65.[1,2] Physiological changes in older people confer increased susceptibility and altered responses to infection.[1–3] Common comorbidities seen in older people, such as chronic pulmonary disease, chronic kidney disease, heart failure and diabetes, also impair immunity.[4] As a result, many older patients with infection don't present with typical signs. Specifically, a blunted febrile response to infection is well recognised.[1,3]

NEWS2 utilises an upper-temperature limit of 38.1°C, the World Health Organization (WHO) recommends 37.8°C, and some authors suggest 37.3°C to define pyrexia in older patients.[1,3,5–7]

Objective

To compare different upper limits of temperature cut-offs as a marker of infection in patients ≥65 admitted as emergencies to a large teaching hospital in the UK.

Methods

Electronic records of 106 patients aged ≥65 with a temperature ≥37.3°C admitted between February and May 2023 were retrospectively examined. Patients with hypothermia (≤35.0°C), temperature >38°C in the emergency department (ED), neutropenic sepsis, and those given a stat dose of antibiotics in ED were excluded. All temperatures were recorded until the initiation of antibiotics. A novel temperature score was applied as follows 37.3–37.7°C = 1, 37.8–38.0°C = 2, >38.0°C = 3. The NEWS2 clinical risk was calculated with the novel temperature scoring.

Results

106 patients aged 81±7.5 years had a temperature of ≥37.3°C. The male-to-female ratio was 1. The most common comorbidities included hypertension (49%), type 2 diabetes mellitus (29%) and CKD3 (24%).

86 (81%) of the 106 were treated for infection. In these patients, the mean C-reactive protein (CRP) was 77 mg/L (95% confidence interval, 60.5–94.5 mg/L). The most common sources of infection were lower respiratory tract (39.5%) and urinary tract (39.5%) infections. The mean temperature of those treated for infection was 37.62±0.32°C. Only 10% of patients treated for infection had a temperature >38.0°C, with 90% having temperatures between 37.3°C and 38.0°C. The mean temperature by infection source in relation to the different temperature cut-offs is shown in Fig 1.

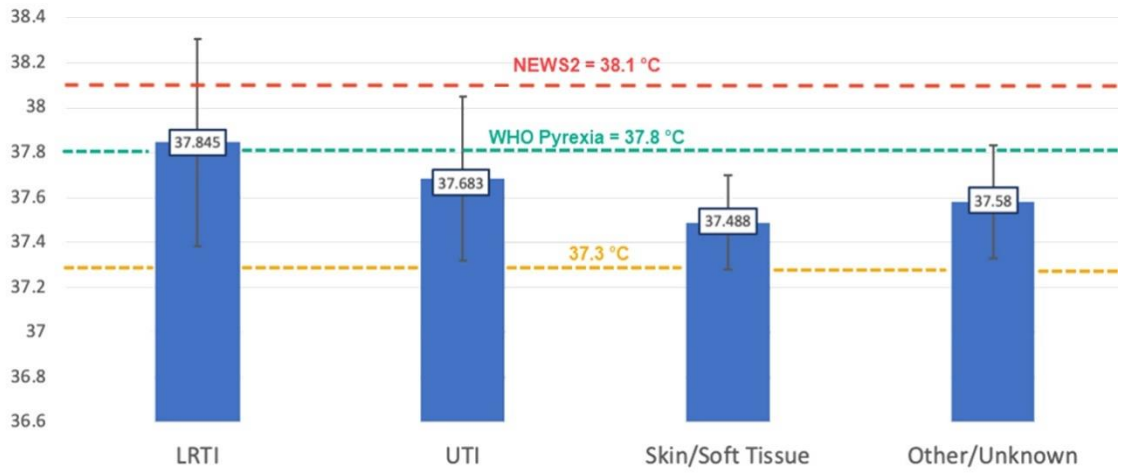

Fig 1. Mean temperature (°C) by infection source.

When the novel temperature scoring system was applied, 20 (23%) patients who were treated for infection had a change in clinical risk from either low to medium (11.5%) or medium to high (11.5%). A total of 12 patients died. When the novel temperature scoring was applied to this group, the clinical risk score changed for 4 (33%).

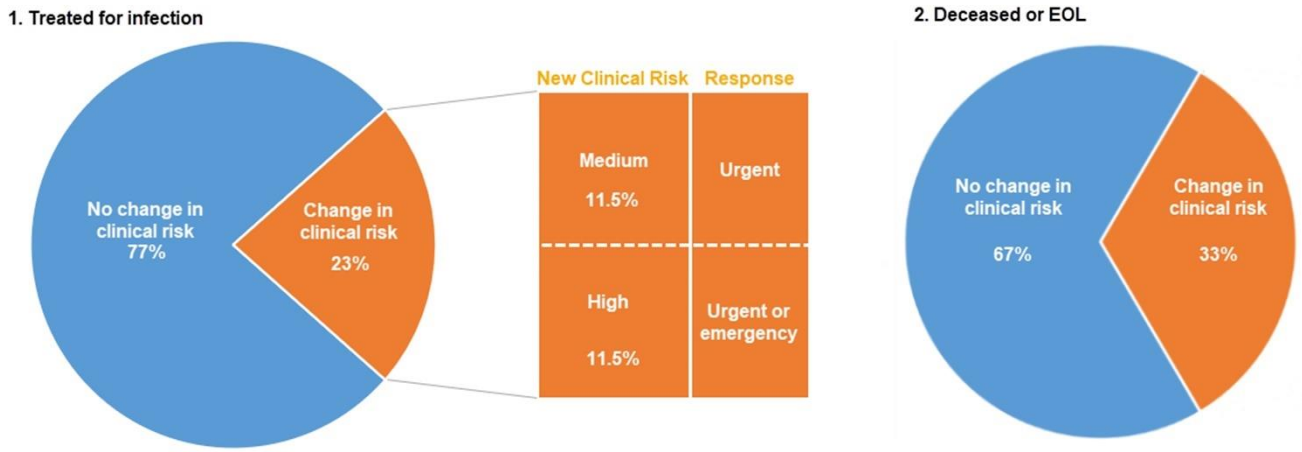

Fig 2. Change in clinical risk.

Conclusion

In this cohort, only 10% of patients treated for infection would 'score' for pyrexia with the conventional NEWS2. Lowering the temperature threshold changed the clinical risk in 23% of patients treated for infection and 33% of those who died. This suggests that utilising a lower temperature threshold as an alert for infection could prompt earlier clinical review and intervention in patients ≥65, which could be incorporated in a geriatric-specific NEWS. However, a low sample size and many uncontrolled variables make it difficult to draw firm conclusions. Further evaluation with larger sample sizes and controls should be considered.

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Atrophy of the insula as a biomarker for prodromal dementia with Lewy bodies

Authors: Mark McKeague,[A] Frederic Blanc,[B] Vincent Noblet[B]

[A]London North West University Healthcare NHS Trust; [B]Université de Strasbourg

Introduction

Dementia with Lewy bodies (DLB) is the second leading cause of dementia yet remains largely underdiagnosed.[1] Significant symptom overlap with both Alzheimer's disease (AD) and Parkinson's disease make accurate diagnosis an exacting task. Achieving a correct diagnosis is most pertinent during the prodromal stage, when disease progression could potentially be altered. Using neuroimaging, atrophy of the insula presents a potential non-invasive biomarker to aid early and accurate diagnosis.[2] The aim of this study was to determine the efficacy of visual assessment of insula atrophy found on MRI imaging as a biomarker specific to prodromal DLB.

Methods and materials

This was a retrospective cross-sectional study analysing MRI images attained from patients recruited in a wider study (AlphaLewyMA) and consisted of a qualitative and quantitative component. Six diagnostic groups were included; advanced DLB, advanced AD, prodromal-DLB, prodromal-AD, mixed DLB+AD and healthy older people controls. In the qualitative arm, three research assistants assessed 163 T1 MRI images for atrophy of the hippocampus and three anatomical areas of the insula, using Scheltens' scale[3] and novel visual rating scales, respectively. Atrophy was assessed in coronal plane with raters blinded to patients' diagnoses. In the quantitative arm regional brain volume analysis was conducted using Freesurfer volumetric analysis. SPSS Version 22 was used to analyse the data.

Results and discussion

Visual rating analysis showed significant differences in insular volume between the dementia cohorts and controls (Control vs AD p=0.018, Control vs DLB p=0.01). No significant difference was found between the two prodromal groups, or indeed between prodromal groups and controls (Fig 1). Inter-rater agreement was highest when assessing atrophy of the hippocampus (K=0.41) likely due to the validity of the established Scheltens' atrophy scale. Freesurfer volumetric analysis showed significant volume differences in bilateral insulae of DLB patients when compared to controls, using an independent samples T-Test (p=0.014); no other group showed a significant result. No statistically significant volume difference was found in the insulae between the prodromal AD and prodromal DLB patient groups. The prodromal DLB group was the only group found not to have a statistically significant hippocampal volume reduction compared to controls (p=0.403.)

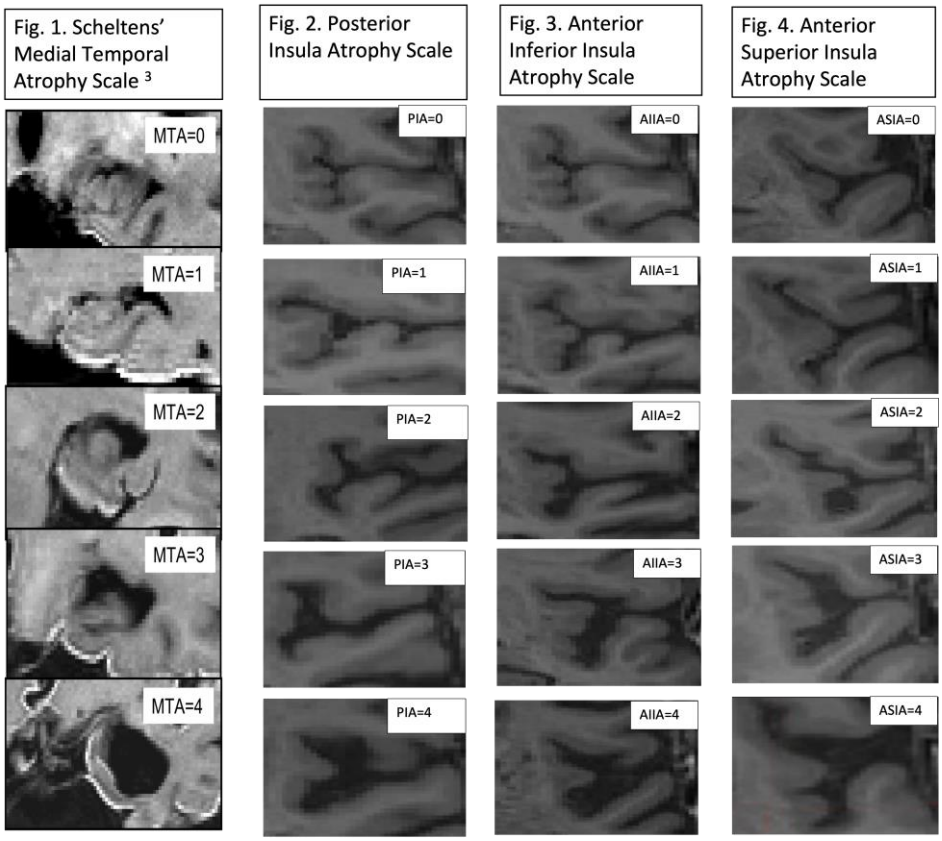

Fig 1. Atrophy rating scales

Conclusion

Volume of the insula differs visibly between dementia patients and healthy controls. Subtle changes in insular volume, as found in prodromal DLB and prodromal AD, are difficult to detect visually and likely require more than simple visual analysis to be of diagnostic use. The insula is most heavily atrophied in DLB compared to other dementia groups, and the hippocampus is relatively spared especially in the prodromal stage; this represents an important area of study in the pathophysiology of DLB.

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Conundrum of D-dimer and central venous thrombosis

Authors: Ayesha Shahzad,[A] Naureen Shahid,[A] Qazi Jamal,[A] Syed Akbar,[A] Abdul Aziz[A]

[A]University Hospitals of Leicester NHS Trust

Aim

To assess the role of D-dimer in the diagnosis of cerebral venous sinus thrombosis (CVST).

Methods

We retrospectively looked at a cohort of patients in Leicester Royal Infirmary who underwent computed tomography (CT) venogram for the diagnosis of acute non-traumatic presentation of venous sinus thrombosis from 1 November 2021 to 30 November 2022. We also noted if they had D-dimer test within 7 days of the CT venogram. Positive D-dimer cut-off value was ≥0.50.

Results

Table 1: Results summary

Investigation status	Confirmed VST but no D-dimer done	Negative D-dimer and no VST (CT venogram done)	Negative D-dimer but VST present	Positive D-dimer but no VST (CT venogram done)	Positive D-dimer and confirmed VST (CT venogram done)	CT normal and no D-dimer done	Total number of patients
Number of patients	28	16	0	17	2	308	371

- A total of 371 patients (men n= 111, 30%; women n=260, 70%)
- 341(92%) patients were negative for SVT
- 30 (8%) patients had VST
- 35 patients had D-dimers checked (9.5%)
- 16 patients had negative D-dimer and all of those patients had no VST on scan.

Conclusion

We found that central venous thrombosis was not present in patients with negative D-dimer.

The negative predictive value (NPV) holds 100% in our cohort of patient.

There is conflicting medical literature[1-2] when it comes to the negative predictive value of D-dimer in excluding cerebral venous sinus thrombosis (CVST).

We argue that D-dimer can be useful tool in assessing patients seen at front door, with suspected CVST and could in future, after further research and evidence, facilitate formulation of simple clinical pathways for diagnosis of central venous thrombosis. It could then help in rapid turnaround and flow of such patients.

Due to small sample size, unavailability of -D-dimer results in majority of the studied patients, definite conclusions cannot be drawn. We therefore propose to conduct further research and prospective studies to perform D-dimers for suspected CVST patients and then correlate the results with CT venogram reports to support (or negate) our findings. We aim to undertake one at our hospital.

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Investigating the perceptions of older adults on deprescribing: a systematic review and meta-analysis

Authors: Kafi Opeyemi,[A] Oluwadara Makinde,[B] Ayomikun Odekunle[C]

[A]George Eliot Hospital NHS Trust; [B]Longford Chemist; [C]East Lancashire Hospitals NHS Trust

Introduction

Deprescribing is a set of interventions to identify inappropriate or unnecessary medications and discontinue them to improve patient outcomes.[1] This systematic review aimed to provide an overview of older people's perspectives on deprescribing.

Method

We conducted a systematic search using the EBSCOhost platform and Google Scholar from 2013 to July 2023. Studies were included if they concerned older people (≥65 years), with polypharmacy, and their perspectives on deprescribing. The Mixed Methods Assessment Tool was used to assess the quality of the studies. A meta-analysis of proportions (random-effects model) was conducted using MedCalc software. The primary outcomes encompassed the following proportions of patients according to the Revised Patients Attitude towards Deprescribing (rPATD) questionnaire:

1. Those open to deprescribing following a physician's suggestion

2. Those worried about missing out on future benefits post-deprescribing

3. Those desiring active involvement in the decision-making process.

The secondary outcome involved the identification of common themes in older patients' perceptions.

Results

We included 23 studies (n=5,813 patients). There were 13 quantitative, eight qualitative and two mixed studies . rPATD was the most common quantitative tool used.

83% (95% CI 72%–91%) were willing to deprescribe if recommended by their doctor, although 59 % (95% CI 44%–73%) were worried about missing out on future benefits if medications were deprescribed. Furthermore, 75% (95% CI 63%–86%) preferred a shared decision-making process about their medicines.

In addition, four main themes were identified as factors influencing patients' perspectives: shared decision-making, appropriateness of cessation, trust in clinicians, and quality of life.

Conclusion

These findings collectively shed light on the complex interplay of factors influencing older adults' attitudes toward deprescribing. Most patients are open to deprescribing if their concerns are duly addressed. There is a need for deprescribing interventions to be more patient-oriented.

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Glasgow prognostic score in lung cancer patients over 70 years

Authors: Gabriel Lydia,[A] Xiaorong Wu,[A] Charlotte Milner-Watts,[A] Jaishree Bosle,[A] Michael Davidson,[A] Anna Minchom,[A] Mary O'Brien[A]

[A]Royal Marsden Hospital, Sutton

Introduction

The Glasgow Prognostic Score (GPS) is an established inflammatory prognostic index in cancer patients. It is calculated using serum C-reactive protein (CRP) level and serum albumin.[1] Elevated CRP and low albumin give a score associated with worse prognosis in lung cancer patients.[2] Overall survival (OS) is worse with high GPS.[1] It is also associated with a poor response to treatment with chemotherapy in advanced disease.[1]

Table 1: GPS calculation

CRP	Albumin	GPS
≤10	≥35	0
≤10	<35	1
>10	≥35	1
>10	<35	2

Our aim was to determine if there is a connection between GPS, age and outcome among advanced lung cancer patients over 70 years.

Methods

This was an observational study using retrospective and prospective data of adult patients >70 years referred for advanced lung cancer or mesothelioma treatment at the Royal Marsden Hospital in Sutton from 1 March 2015 – 31 July 2018. Patient characteristics were collected. Clinical outcomes including relative dose intensity, treatment changes, toxicity, complications and OS were recorded for every patient.

The GPS was calculated from blood results within a 2-month window of diagnosis of lung cancer.

Results

The sample size was 201 patients. Median age was 77 years with 36.3% of patients aged over 80 years. 116 patients were men (57.7%) and 85 women (42.3%). NSCLC-adenocarcinoma was the most common histology (47.3%) followed by squamous cell carcinoma (23.4%), mesothelioma (12.9%), and SCLC (10.4%). Most patients were smokers (21.9% current smokers and 74.3% ex-smokers, 3.8% not known).

71% (144) patients had the Glasgow Prognostic Score (GPS) calculated. Most patients had GPS 2 41% (n=59), GPS 1 20% (n=29), GPS 0 39% (n=56).

The GPS 1 and 2 patients had an average age of 78 years. There were more men than women (54 vs 34). The mode PS within this group was 1 (59%, n=52), with 34% (n=30) with PS of 2 or 3. Only five patients had PS 0. OS in this group, from diagnosis was 15.4 months. The average number of chemotherapy cycles received was two.

In comparison, the GPS 0 group had a higher OS at 21.5 months. 80% of these patients had PS of 0 or 1. The average age was also 78 and there was an almost equal number of men and women (26 and 30).

Table 2. Results

GPS	**0**	**1/2**
Number/%	56/39%	86/61%
Average age (years)	78	78
Men:women ratio (no.)	26:30	54:34
Performance status (mode)	0	1
Overall survival (months)	21.5	15.4
Average cycles chemotherapy	3	2

Conclusion

This is similar to previous data demonstrating that higher GPS confers a worse prognosis.[2] Higher GPS also may be linked to poorer performance status, reflecting systemic inflammation that impacts symptoms and activity level. It also appears to be reproducible within the >70 population.

It is a simple test, available in most healthcare settings; it may help clinicians determine the suitability of patients >70 years for systemic anti-cancer treatment and should be prospectively validated and compared to current tools for assessing older adults with cancer.

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A systematic review and meta-analysis comparing the effectiveness of dual therapy to either corticosteroid monotherapy or pentoxifylline monotherapy in severe alcoholic hepatitis

Author: Blessing Okoli[A]

[A]Oxford University Hospitals

Background

Alcoholic hepatitis results from heavy alcohol abuse and this can lead to derangement in liver function.[1] The presence of rapid worsening of jaundice, bleeding problems, and complications of liver disease indicates severe alcoholic hepatitis (SAH),[2] which has a poor prognosis.[3] Corticosteroid is the drug of choice in the treatment of SAH, however, if sepsis is coexisting with SAH, pentoxifylline is the preferred drug.[4-5] Dual therapy is the combination of both drugs, and it can be used in the treatment of this condition.

Aim

To compare the survival benefits and risk of infection of dual therapy to corticosteroid monotherapy or pentoxifylline monotherapy in people with severe alcoholic hepatitis.

Method

An exhaustive search of the following electronic databases was carried out: BioMedCentral Open Access, BMJ Journals, Free medical journal, Gale Academic OneFile, Medline, CINAHL Plus with Full Text, Cochrane library, Elsevier Open Access Journals, Oxford University Press Journals All Titles (1996-Current), PubMed Central, Sage premier Journal collection, SAGE: Jisc Collections: The Royal Society of Medicine:2019, ScienceDirect Journals, Springer Online Journals Complete, and Wiley Online Library All Journals.

Results

A total of 1,184 patients from four studies were included in this review. The intervention group had dual therapy while the control group had either corticosteroid monotherapy or pentoxifylline alone for 28 days. The meta-analysis showed no added survival benefit for dual therapy at 28 days (RR= 0.81, 95% CI 0.59, 1.13, p= 0.21) and at 6 months (RR= 1.02, 95% CI 0.74, 1.22, p= 0.70). The analysis also shows that dual therapy did not increase the risk of infection (RR= 1.02, 95% CI 0.79, 1.30, p= 0.90). A sensitivity analysis was performed on the risk of infection, and it was consistent with the primary analysis (RR= 0.98, 95% CI 0.76, 1.26, p= 0.84).

Conclusion

Dual therapy was not superior to either corticosteroid or pentoxifylline monotherapy in the reduction of 28-day and 6-month mortality. However, dual therapy did not increase the risk of infection. Therefore, it can be considered if patients with SAH are at risk of developing sepsis.

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Manifestations, management and outcomes of interstitial lung disease associated with antisynthetase syndrome: a systematic literature review

Authors: Kouranloo Koushan,[A] Mrinalini Dey,[B] Helen Elwell,[C] Veronica Yio,[D] Lisa Spencer,[D] Caroline Cotton[A]

[A]Liverpool University NHS Foundation Trust; [B]Queen Elizabeth Hospital; [C]British Medical Association Library; [D]Liverpool Regional Interstitial Lung Disease Service

Introduction

Anti-synthetase syndrome (ASS) is a chronic autoimmune inflammatory condition, characterised by myositis, interstitial lung disease (ILD), arthritis, Raynaud's phenomenon and mechanic's hands.[1]

This systematic review (SR) aims to summarise the manifestations, management and outcomes of ILD associated with ASS (ASSILD).

Materials and methods

The protocol was registered on Prospero (CRD42023416414). Articles discussing management and outcomes of ASS-ILD, published from 1946 until April 2023, were included. Medline, Embase and Cochrane Databases were searched. Case reports, case series of <10, reviews and conference abstracts were excluded.

Articles meeting inclusion criteria were examined by two authors. Data on demographics, treatment, antibody serology, physiological and radiological findings at baseline and 1 year were extracted.

Results and discussion

Initially, 451 articles were retrieved with 10 included (nine cohort, one case series; Fig 1). Risk of bias assessment established studies were of variable quality. A total of 514 patients were included, 67.8% women, mean age 52.4 (SD 4.6) years at ILD induction therapy. Cohorts were from: Europe (n=5); North America (n=3); China (n=2).

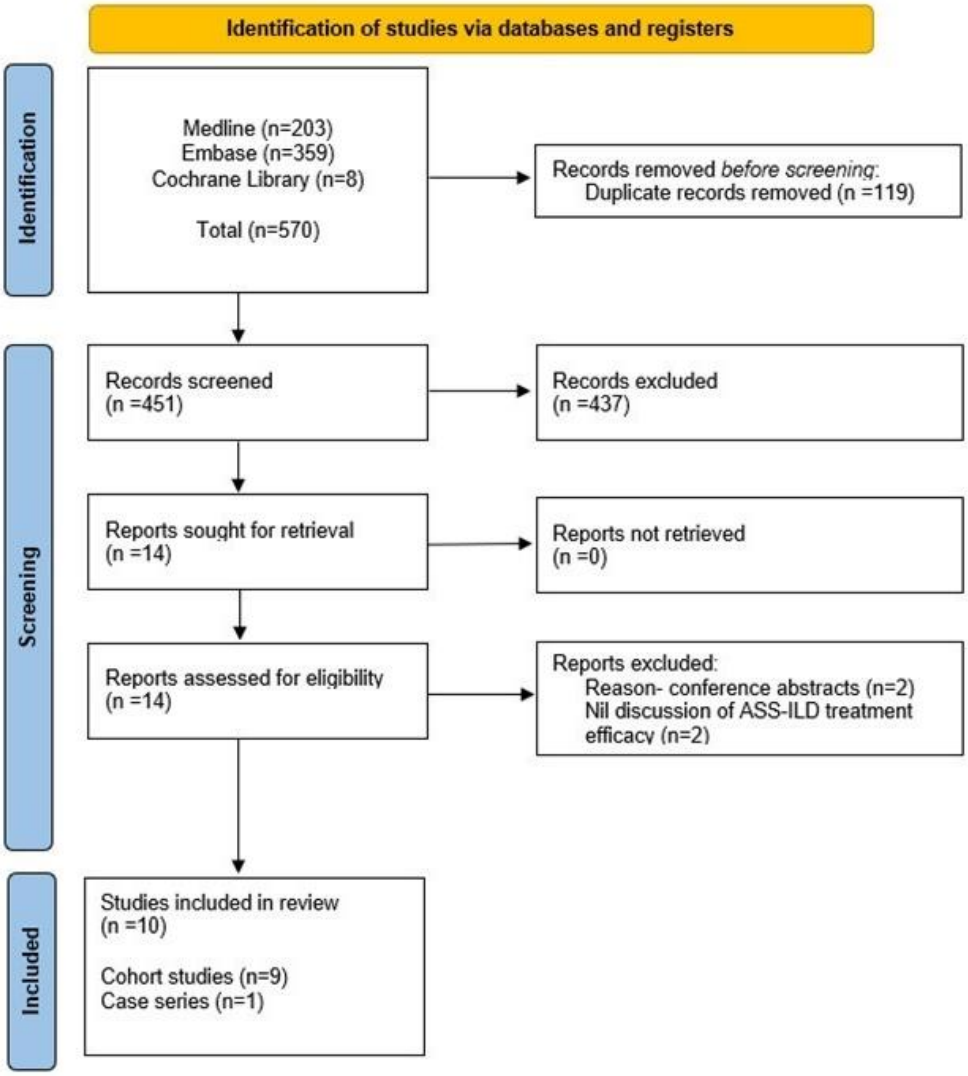

Fig 1. Identification of studies via databases and registers

Patients had the following myositis-associated autoantibodies: Jo-1 (48%); PL7 (15.1%); PL12 (29.2%), EJ (15.9%); OJ (3.3%). In addition, 143 patients had anti-Ro52 positivity. Baseline high-resolution computed tomography (where available) showed: non-specific interstitial pneumonia (NSIP) (n=220; 42.8%); organising pneumonia (OP) (n=142; 27.6%); NSIP/OP overlap (n=51; 9.9%); nonspecific interstitial pneumonia (n=34; 6.6%). Of these, NSIP subtype was reported in 12 patients (six fibrotic, six cellular). Pulmonary hypertension was discussed in two cohorts, with six patients having a confirmed diagnosis.

Patients received the following drugs for induction (with glucocorticoids [GC]): cyclophosphamide (CYC) (n=136; 26.5%); rituximab (RTX) (n=88; 17.1%); calcineurin inhibitors (n=84; 16.3%); other disease modifying anti-rheumatic drugs (n=183; 35.6%); intravenous immunoglobulin (IVIG; n=17; 3.3%); GC only (n=20; 3.9%).

Overall median forced vital capacity (FVC) pre-treatment was 52.7% and 68.5% at 1 year. Overall, median diffusion capacity of lungs for carbon monoxide (DLCO) pre-treatment was 44.5% and 49.1% at 1 year. Due to heterogeneity of methodology and cohorts, direct comparison was not possible for most drugs. Patients treated with RTX had an overall median 12.2% improvement in FVC and 2.9% increase in DLCO at 1 year. Patients treated with CYC had a 17% and 6.3% increase in FVC and DLCO respectively after 1 year. In patients receiving IVIG, 7/17 had >10% increase in FVC at 1 year.

5.4% (n=28) were reported to have died post-treatment due to: infection (n=8) including pneumocystis [n=2, both post-rituximab]; malignancy (n=3); multi-organ failure (n=2). 15 patients had no reported cause of death.

Conclusion

This is the first SR summarising the management and outcomes of ASS-ILD. No significant difference was found between the effectiveness of treatments with regards to physiological respiratory function. More robust trials are required to reduce the morbidity and mortality resulting from ASS-ILD.

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A systematic review of the use of diuretics in cardiorenal syndrome

Authors: Mohammed Shah,[A] Ayub Waqar,[B] Prithwish Banerjee[C]

[A]Warwick Medical School; [B]Department of Nephrology, University Hospitals Coventry and Warwickshire, Coventry, UK; [C]Department of Cardiology, University Hospitals Coventry and Warwick, Coventry, UK

Background

Cardiorenal syndrome (CRS) is an umbrella term for disorders involving both the heart and kidneys in which acute or chronic dysfunction in one organ may induce dysfunction in the other. Diuretics are one of the mainstay treatments of CRS, however, at present there are no current guidelines for CRS and there is often hesitancy to prescribe diuretics due to fears of worsening kidney function. This review aims to identify if use of diuretics in CRS reduces all-cause mortality. Secondary objectives include assessing if diuretics reduce hospitalisations, preserve renal function, or increase serious adverse events.

Methods

Only studies on adults with CRS treated with diuretics, published in the English language and with a minimum population of 50 were included. A systematic search with specific terms was conducted via Medline, Embase and Cochrane databases. Over 1,622 studies were identified. After screening and full text analysis, 12 studies were included within this review.

Results

Diuretics were found to be safe and effective if dosed appropriately and specific diuretics were used. Loop diuretics at high doses were found to increase renal decline and risk of hospitalisation. However, the mineralocorticoid receptor antagonists and finerenone, when dosed appropriately, were found in some studies to significantly reduce all-cause mortality and hospitalisation. Finerenone was also shown to significantly reduce renal decline in some studies. Ultrafiltration did not show any benefits over use of diuretics in CRS.

Discussion

Diuretics are a safe and effective option in the management of CRS if managed appropriately with close monitoring. Currently, diuretics are one of the mainstays of treatment within CRS and will remain so, as alternative therapies such as ultrafiltration have not been shown to be as effective. Further research needs to be done within CRS, such as diuretics in combination with sodium glucose co-transporter 2 inhibitors, and also in educating clinicians how to manage this complex syndrome.

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Pulmonary manifestations, treatments and outcomes of IgG4-related disease – a systematic literature review

Authors: Cristina Dragos,[A] Joseph Clerin,[A] Helen Elwell,[B] Mrinalini Dey,[C] Koushan Kouranloo[A]

[A]Liverpool University NHS Foundation Trust; [B]British Medical Association library, BMA House; [C]Queen Elizabeth Hospital London

Introduction

Immunoglobulin G4–related disease (IgG4-RD) is a multisystem fibroinflammatory condition that can present with lesions in virtually any organ in the body in a chronological or metachronous fashion.1 Pulmonary involvement may be the sole manifestation or can be present in association with other organs.2 This systematic literature review (SLR) aims to summarise the pulmonary manifestations of IgG4-RD, their treatment and outcomes.

Materials and methods

Articles discussing pulmonary involvement in IgG4-RD, published until April 2023, were screened, searching Medline, Embase and Cochrane Databases. The research question was: What are the pulmonary manifestations in patients with IgG4-RD? All article types in English language were deemed eligible except case reports, case series of less than five, opinion articles and reviews. In addition to basic demographics, information was extracted on type and prevalence of pulmonary manifestations, treatment and prognosis.

Results and discussion

A total of 2,877 articles were retrieved after the initial search with 18 ultimately included (14 retrospective cohort studies, two cohort studies and two case series). (Fig 1)

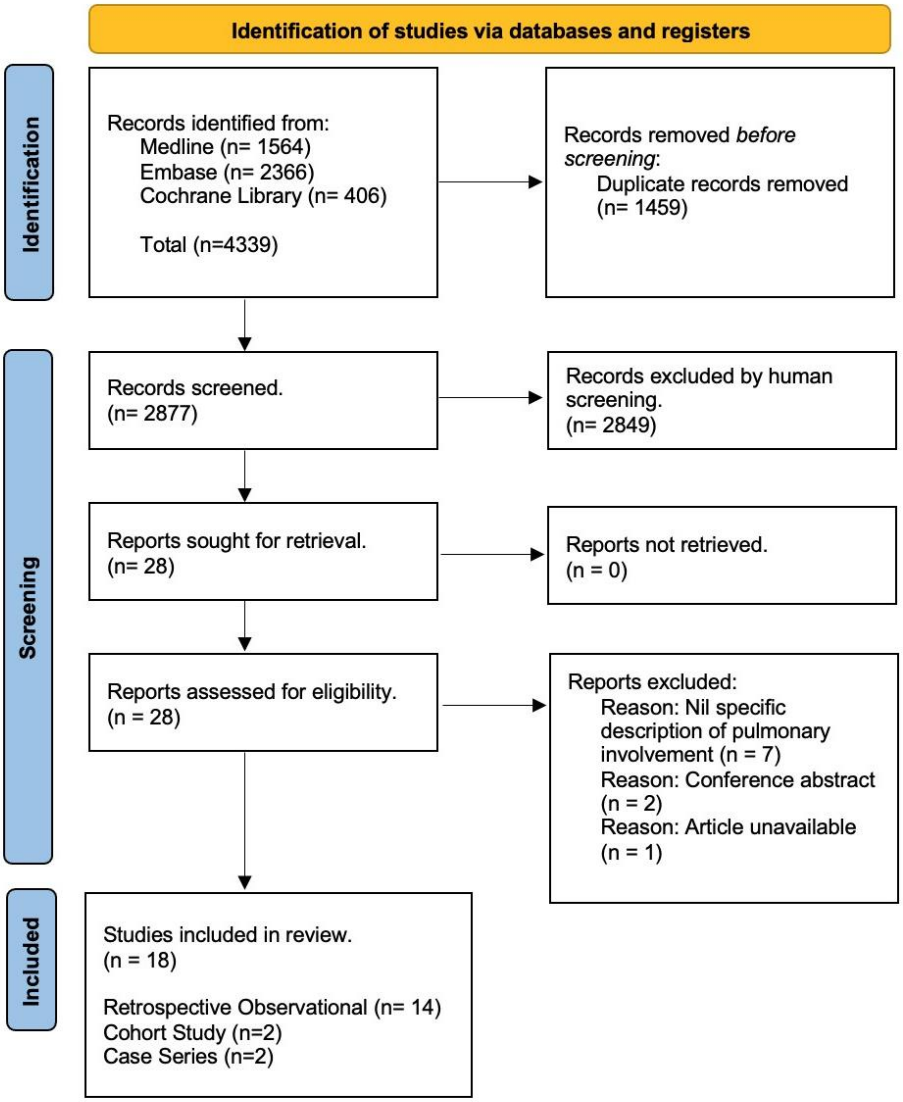

Fig 1. Flow diagram of stages of systematic literature review. Cochrane Library encompasses library of systematic review protocols; controlled clinical trials.

A pooled total of 724 patients with IgG4-related pulmonary disease were included, 68.6% men, mean age 59.4 years (SD 5.8 at disease onset). The geographic distribution was: Asia (85.2%), Europe (14%) and North America (0.8%). 52.6% (n=381) had pulmonary involvement of tissue proven IgG4 disease. The most frequently described pulmonary manifestation was mediastinal lymphadenopathy (n=186, 48.8%), followed by pulmonary nodules (n=151, 39.6%) and broncho-vascular thickening (n=85, 22.3%). Other pulmonary manifestations were: ground glass changes on imaging (n=89, 23.4%); pulmonary fibrosis, including interstitial lung disease (n=36, 9.4%); pleural thickening (n=35, 9.2%); pulmonary consolidation (n=26, 6.5%); pleural effusion (n=18, 4.7%); bronchial wall thickening (n=14 patients, 3.7%); bronchiectasis (n=14, 2.9%); alveolar interstitial (n=11, 2.6%); septal thickening (n=9, 2.4%); pleural disease (n=4, 1%) and alveolar haemorrhage (n=1, 0.3%)

Where reported, 226 patients received treatment. 93.4% of patients received glucocorticoids. Other immunosuppression was used in 93 patients (44.1%): cyclophosphamide (n=31), azathioprine (n=18), mycophenolate mofetil (n=6), rituximab (n=6), methotrexate (n=5) and unspecified immunotherapy in 50 cases. Twenty patients had surgical resection of the pulmonary nodule and one patient had a liver transplant. Clinical outcomes were reported in 263 patients: 196 patients had remission of their disease, 20

had relapse after initial remission, 35 had stable disease, four had progression and eight patients died from complications of IgG4-related lung disease.

Conclusion

To our knowledge, this is the first SLR summarising pulmonary manifestations, treatments, and outcomes in patients with IgG4-RD. Pulmonary involvement in IgG4-RD are relatively common in this patient cohort, leading to morbidity and mortality. With increasing number of respiratory conditions considered as a leading cause of hospitalisation in the UK resulting in subsequent pressures on the NHS, our results highlight the importance of considering a wide array of differential diagnosis, such as IgG4-RD, to help with prompt investigations, accurate diagnosis and optimal management of patients.[3] Glucocorticoids remain the mainstay of treatment but future larger trials are needed to further characterise and optimise the management of these patients.

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Clinical characteristics, disease trajectories and management of vacuoles, E1 enzyme, X-linked, autoinflammatory, somatic syndrome (VEXAS syndrome): a systematic review and meta-analysis

Authors: Jude Almutawa,[A] Koushan Kouranloo,[A] Nikki Myall,[B] Mrinalini Dey,[B] Arvind, Nune[C]

[A]Liverpool University NHS Foundation Trust; [B]Queen Elizabeth Hospital, London; [C]Southport and Ormskirk Hospital NHS Trust

Background

VEXAS (vacuoles, E1 enzyme, X-linked, autoinflammatory, somatic) syndrome is a newly identified disorder characterised by somatic mutation of the ubiquitin-like modifier activating enzyme 1 (UBA1) gene, causing severe adult-onset autoinflammatory condition and associated haematological features.[1] To our knowledge, no systematic literature review (SLR) has been done to summarise multiorgan involvement, genotypes, and management of VEXAS. This SLR aims to describe the multisystem manifestations, genotypes and treatment of VEXAS.

Methods

Articles published until March 2023 discussing adults (≥18 years old) with a clinician-confirmed diagnosis of VEXAS were included.

Medline, Embase and Cochrane databases were searched.

All study types were included except editorials and literature reviews. Articles not in English and conference articles were excluded. Two researchers independently reviewed abstracts and articles that met inclusion criteria. Data recorded included demographics, organ involvement, investigation results, genotype, and treatment. Data were presented as descriptive statistics, with meta-analysis conducted for serological test values.

Results

From the 139 articles, 64 were selected for inclusion, comprising 45 case reports, 17 case series and two cohort studies. Study cohorts were from: Europe (n=25); North America (n=18); Asia (n=16); Australasia (n=4); and South America (n=1). A total of 273 adults with VEXAS were included, 96.3% were male. The mean age at diagnosis of VEXAS was 67.2 years old (SD 6.8).

118 patients were diagnosed with at least one autoimmune or haematological condition prior to VEXAS, with 16 being diagnosed with more than one. Common prior diagnoses were relapsing polychondritis (n=48), Sweet's syndrome (n=24), polyarteritis nodosa (n=11) and myelodysplastic syndrome (n=10).

The most frequent systemic organ involvements were pulmonary (n=231; 84.6%), haematological (n=228; 83.5%), dermatological (n=217; 79.5%) and musculoskeletal (n=138; 50.5%). Organ system involvement is described in Table 1. Additional common systemic features were fever (n=195; 71.4%) and weight loss (n=69; 25.3%). Meta-analysis was conducted for reported serological results. Pooled estimates were: erythrocyte sedimentation rate 101.3 mm/hr (SE 4.8; n=246); C-reactive protein 144.2 mg/L (SE 14.1; n=258); haemoglobin 91.0 g/L (SE 3.2; n=265); mean cell volume 107.3 fL (SE 2.3; n=265).

Table 1. Percentage of patients with VEXAS organ-system involvement

Organ-system involvement	n	%
Pulmonary	231	84.6
Haematological (excluding anaemias)	228	83.5
Dermatological	217	79.5
Musculoskeletal	138	50.5
Neurological and ophthalmological	87	31.9
Thrombo-embolic events	76	27.8
Renal	66	24.2
Gastrointestinal	29	10.6
Cardiac	25	9.2

The most commonly identified genetic mutations were "c.122T >C pMET41Thr" (n=71), "c.121A >G pMET41Val" (n=35) and "c.121A >C pMet41Leu" (n=33).

The most common treatments administered were glucocorticoids (n=133, 48.7%), methotrexate (n=55, 20.1%) and IL-6 inhibitions (n=47, 17.2%). One patient had a splenectomy and six had bone marrow transplants. Treatments are summarised in Table 2. 44 (16.1%) patients died due to VEXAS complications. Factors associated with mortality, where described, included mediastinal lymphadenopathy, gastrointestinal involvement, and lung infiltrates.2

Table 2. Number of patients receiving treatments for VEXAS in included studies

Treatment	n	%
Glucocorticoids	133	48.7
Methotrexate	55	20.1
Interleukin 6 inhibition	47	17.2
Anakinra	37	13.6
Tumour necrosis factor inhibition	36	13.2
Janus kinase inhibition	33	12.1
Azathioprine	26	9.5
Colchicine	25	9.2
Mycophenolate mofetil	23	8.4
Rituximab	19	7
Canakinumab	15	5.5
Cyclophosphamide	11	4
Intravenous immunoglobulins	8	2.9
Secukinumab	6	2.2
Ruxolitinib	5	1.8
Abatacept	5	1.8
Ustekinumab	4	1.5

Other disease modifying anti-rheumatic drugs	56	20.5

Conclusion

Our SLR is the first to capture clinical manifestations, genetics and treatment of cases reported to date, in a large, pooled cohort of patients. Diagnosis remains a clinical challenge, as evidenced by the multiple diagnoses received prior to VEXAS, commonly relapsing polychondritis and Sweet's syndrome. Most patients present with haematological disorders, fever, pulmonary and dermatological involvements. Further studies are needed to better understand genotype-phenotype correlations, and optimise treatment.

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Inhaler sustainability awareness

Authors: Dhinagaren Narayanan,[A] Rebecca Jenkins,[A] Ludger Barthelmes,[A] Ella Wheeley[A] Rebecca, Curtis[A]

[A]North Cumbria Integrated Care NHS Foundation Trust

Introduction

A total of 25% of all NHS emissions are produced by medication, with 3% of this being attributable to inhalers alone.[1]

There are two types of inhalers: metered dose inhalers (MDIs) and dry powder inhalers (DPIs) MDIs contain hydrofluorocarbon gases, known to be thousands of times more potent as greenhouse gases than carbon dioxide gas. In contrast, dry powder Inhalers (DPIs) can have a carbon footprint up to 28 times less than a typical UK MDI inhaler.[2]

Within the UK, 61.1 million inhalers are prescribed every year, and 70% of these are MDIs.[1] In all other European countries, however, MDIs make up less than half of all inhaler prescriptions.[3] In Sweden, this figure is only 13%.[4] If the NHS is to achieve its target to become the world's first healthcare system to achieve carbon net zero, it is vital that inhaler prescriptions within the UK move to lower carbon inhalers, such as DPIs, as set out in the *Delivering a 'Net Zero' NHS* report.[1]

Given the impact of inhalers on emissions and the poor track record of MDI prescriptions in the UK, doing nothing was not an option.

We therefore set out to establish the level of awareness of the environmental impact of inhalers among fellow junior doctors.

Method

We designed a presentation covering the key facts about the environmental impacts of inhalers as well as the key similarities and differences of MDI and DPIs.

We developed a pre- and post-presentation questionnaire. The pre-presentation questionnaire enquired about interest in sustainability and baseline knowledge of inhaler environmental impacts. This helped us to understand to which extent inhaler and sustainability awareness was being successfully taught at undergraduate level. The post-presentation questionnaire was designed to find out whether any new knowledge imparted during the presentation was recalled after the presentation.

Results

There were five different themes that we collectively tested in the questionnaire. Notably, 70% of junior doctors had no prior awareness of the carbon footprint of different inhaler types. Our presentation increased awareness and knowledge of the damaging inhaler types from 62% to 90% for MDIs and less damaging effects of DPIs by 17%. With this increased knowledge, even from a small cohort, in the future, inhaler prescriptions may be completed in a more 'sustainably-minded' way to help increase the proportion of DPI prescriptions in comparison to MDIs, where appropriate. Our results show the limited teaching that medical graduates working in England receive with regard to inhaler sustainability and the different types of inhalers. We have also shown how a very short, less than 15-minute, presentation can greatly increase awareness for foundation doctors.

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Induction programme for new international medical graduates at University Hospitals Sussex

Authors: Rayanna, Pereira,[A] Bronwyn Middleton,[A] Sarah Beckley,[A] Joseph Laffan[A] Aanchal Choudhary,[A] Noor Alhashimi,[A] Saria Ahmed,[A] Chioma, Nweze[B] and Mathias Wusu[A]

[A]University Hospitals Sussex NHS Foundation Trust; [B]Sussex Partnership NHS Trust

Introduction

One in three new doctors joining the NHS graduated abroad. This could increase to two in three by 2030.[1] On relocation, these doctors face a myriad of problems and have a higher rate of GMC referrals due to inadequate induction.[2,3] Adequate support in their transition to work in the UK directly impacts their wellbeing, career progression and their overall function within the NHS. National guidelines for IMG induction[4,5] have been released in 2022, but these still rely on local effort to be established.

Materials and methods

The aim was to establish at University Hospitals Sussex NHS Foundation Trust an induction programme tailored to the needs of IMGs and in accordance with national minimum standards. Local trainee doctors acted as IMG champions with administrator and consultant support.

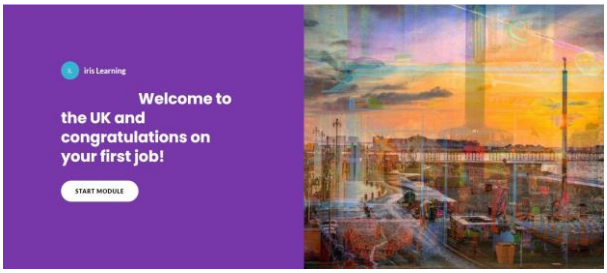
A Whatsapp group for IMGs was created in July 2022 and six IMG trainees starting at the east side of the trust were invited to participate and were offered an IMG buddy. Through the interactions they were given:

- reassurance about the move whilst still abroad
- support with finding accommodation, local restaurants, supermarkets
- suggestion of courses to support their medical skills and use of portfolio
- contact details of other IMGs in the area
- advice on administrative issues like leaves
- information about participation in industrial action eg their rights and responsibilities.

The group was expanded throughout the year and counted 24 participants from FY1 to ST7 level - trainees and fellows - in various specialties (medicine, intensive care, paediatrics, obstetrics and gynaecology, ophthalmology, general practice and rehabilitation medicine).

On the west side, a handbook was written with advice about life and work in the UK. Efforts were unified across the trust with the creation of an online induction module on the local platform which was made available to all new doctors upon employment.[6]

In August 2023, an IMG reception was held at induction day and a further 25 IMGs joined the Whatsapp group and were offered access to the online page. They were also given printed checklists to guide their initial educational supervisor meeting. During induction, a map highlighting the origin countries of the IMGs was created and is now displayed at the doctor`s mess to promote the diversity of the local medical workforce.



IMG Handbook - Table of Content		IMG IRIS Induction Page
Survey Visa and immigration University Hospitals Sussex Public transport and driving Finances and discounts School placements Supermarkets Working at an NHS hospital Training and portfolio Exciting Brighton Leafy and lovely Haywards Heath Wonderful Worthing	Beautiful and calm Chichester Exploring Sussex and the UK Faith and spirituality Health and wellbeing A word for the job hunting spouse Facebook groups, BMA material, blogs and other links Training and career progression Appraisals and revalidations Learning resources, CPDs IMG checklist	NHS e-portfolio Horus portfolio SBAR handover DNACPR discussion Exploring a mistake Datix guide Breaking bad news Death verification How to take bloods

Results and discussion

Feedback for the project has been overwhelmingly positive and considerable progress has been made since it's inception. The Whatsapp group has been an important step in the creation of a local network system for IMGs where they can ask questions, interact with peers and plan events. The induction material is a source of accurate information for IMGs and their clinical and educational supervisors.

Moving forward, the material created will be adapted and used for other internationally recruited health care professionals and funding has been obtained to support social and learning events for IMGs.

Conclusion

Providing IMG-specific induction process has allowed an easier adjustment into the NHS for new IMGs. It is hoped that it can be replicated across the UK to improve wellbeing and workforce development.

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Addressing burnout in junior doctors with acute medicine

Authors: Felicity Hoskins[A] and Niaz Hamzah[B]

[A]Southmead Hospital, North Bristol Trust; [B]Southmead Hospital

Background

At Southmead Hospital in Bristol, six continuous weeks of acute medicine consisting of on-call shifts form a mandatory part of the rota for postgraduate doctors (PGDs) rotating through medical specialties. This so called 'acute block' allows for training opportunities and service provision. Anecdotal feedback from PGDs over the years has highlighted dissatisfaction and burnout.

Objective

To explore the levels of burnout during the acute block and the factors that contribute to this, with an aim to make changes to the acute block in order reduce burnout.

Method

Qualitative feedback was collected from 11 PGDs: 7 responded to a PGD-led qualitative survey, and 3 were met with in meetings with divisional leads. The PGDs included doctors of grades: foundation year 2, clinical fellow, internal medicine trainees and acute care common stem trainees. Subsequent feedback was also collected and shared through the monthly postgraduate doctor forums in addition to weekly newsletter emails. In collaboration with non-clinical rota staff, alternative acute blocks were devised.

Results

Results emphasised high levels of burnout relating to intensity of rota shift patterns, bed pressures in acute areas, inability to take annual or study leave and feelings of isolation. The data was distributed amongst the acute medical divisional leads, the guardian of safe working, clinical directors, rota staff and trainee/BMA representatives. Feedback on the alternative rotas demonstrated that the 3 x 2 week block (rather than the current 1 x 6 week block) was favoured with almost all PGDs, potentially reducing outcomes of burnout.

Conclusions

The project concluded that the acute block accounted for significant burnout and that implementing change to trainee rotas was much favoured. Feedback will continued to be collected to determine outcomes and impact on burnout of the alternative acute block.

Confidence of emergency department staff in managing acute ophthalmological conditions in LNWH NHS Trust

Authors: Mark McKeague,[A] Chris Nordstrom[A] and Atrey Kritika[A]

[A]London North West University Healthcare NHS Trust

Introduction

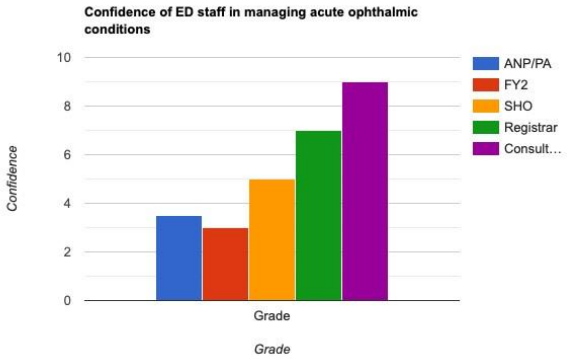
It is estimated that ophthalmological conditions constitute between 3.2 to 6% of attendances at general Emergency Departments (ED) in the UK. [1] Whilst many of these cases are considered minor and dealt with by urgent care staff, they are still likely to represent a considerable proportion of the average ED clinician's caseload. Multiple studies have previously been conducted, demonstrating a lack of confidence by ED junior doctor's in managing ophthalmological conditions. The aim of this study was to expand on previous literature by assessing the confidence of all ED clinicians, including physician associates (PAs) and advanced nursing practitioners (ANPs), in managing these conditions in one North London NHS Trust.

Materials and methods

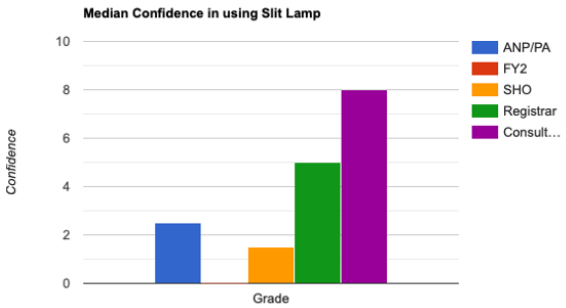
A prospective regional online survey was conducted via Microsoft Forms with a 21-item questionnaire sent to all doctors and ANPs/PAs working in the emergency departments at Northwick Park Hospital and Ealing General Hospital. Items in the questionnaire were adapted from previously published questionnaires.[1,2]. Our questionnaire consisted of 5 rating-scale questions, 14 pre-set answer questions and 3 open text questions. Data was collected over 3 weeks from 16/05/23 until 6/06/23 and was analysed using Microsoft Excel. This was conducted as part of an ongoing audit.

Results and discussion

35 responses were received with all levels of staff seniority represented. Overall confidence in managing ophthalmological conditions was low, with a median score of 4/10. The most cited reason for lack of confidence was lack of support from local eye doctors N=20.



Median opinion score on ease of referral to ophthalmology was highest in the ANP/PA group (6/10 compared to 3/10 for SHOs). Availability of working equipment is an issue with 20/35 respondants reporting limited availability or poor condition of ophthalmoscopes. Skills in using slit-lamps are lacking, as noted in image 2.



Conclusion

Confidence in managing ophthalmological conditions remains low in the general ED department, a problem that is compounded by lack of availability of, and training in relevant equipment. Greater cooperation is needed between ophthalmologists and their local A&E departments to help improve this and to facilitate a smoother referral process. Further education and training for all levels of clinical seniority is required and would be welcomed by all ED clinicians in our survey.

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What is wellbeing? Laying the groundwork for improving the wellbeing of stage 1 internal medicine trainees in North West London

Authors: Emery Alexander[A] and Emma Rowlandson[A]

[A]Chelsea and Westminster Hospital NHS Foundation Trust

Introduction

Wellbeing as a concept has been around for decades, but research into this has accelerated rapidly over the last few years. Programs aiming to improve the wellbeing of individuals both at work and in wider society [1] are commonplace and attempts to measure and introduce this to healthcare settings are becoming more prevalent.[2]

However, despite its recognition as a concept, there is no standardised definition of wellbeing, an issue that has been recognised for some time.[2] The lack of a firm agreed definition of wellbeing makes it challenging to measure and improve, not least because the components and determinants of wellbeing are often individual and seemingly abstract.

Materials and methods

Qualitative literature and resource review.

Discussion

The World Health Organization in its founding constitution linked wellbeing with health when it defined health as 'A state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity.'[3] More recently, it has attempted to define wellbeing as its own individual concept and agreed on the Geneva Charter for Wellbeing in 2021,[4] where wellbeing was defined as 'A positive state experienced by individuals and societies. Like health, it is a resource for daily life and is determined by social, economic, and environmental conditions'.

Other organisations, while not making an active attempt to define wellbeing, reveal what they perceive contributes to wellbeing in how they choose to measure and/or tackle it. The United Kingdom Office for National Statistics' Personal Wellbeing in the UK report(s)[1] consists of four rated questions that attempt to measure an individual's wellbeing, including 'overall, how anxious did you feel yesterday?'. This risks conflating wellbeing with pathological mental health conditions, which should be treated as such. Organisations often use health, particularly mental health, as a proxy for wellbeing. NHS England for example have developed a Health and Wellbeing framework[5] and the Medical Defense Union discuss wellbeing in conjunction with health[6]; The British Medical Association have developed a Mental Wellbeing Charter[7], which talks of 'measures to build a culture that supports mental health and wellbeing', while the Royal College of Physicians link their mental health and wellbeing resources into one page on their website.[8] Other organisations have collated bodies of evidence highlighting the scale of the wellbeing problem.[9] These invariably use proxy measurements of other things like mental health conditions up to and including suicide rates, as well as alcohol and drug use, sick days from work and other work-related stressors; while the General Medical Council's annual National Training Survey uses a version of the Copenhagen Burnout Inventory[10] to create an overall burnout score, which it uses to discuss the wellbeing of doctors in training.

Conclusion

Taking the above into account and with reference to medical trainees, a working definition of wellbeing is proposed: 'Wellbeing is an active state experienced by individuals, influenced by physical, psychological and

social factors, as well as one's own physical and mental health, that allows them to function at their full potential'.

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