

BACKGROUND

- Diabetes-related Ketoacidosis (DKA) is a commonly-encountered acute endocrine emergency that requires prompt recognition and treatment.
- Most often, DKA is triggered by risk factors that are preventable.
- There are limited studies evaluating the precipitating causes of DKA and depicting their trends over the years.
- The latter is important in the prevention of DKA by ensuring appropriate education and interventions

AIM

To study the trends of aetiologies that precipitate DKA over the years

METHODS

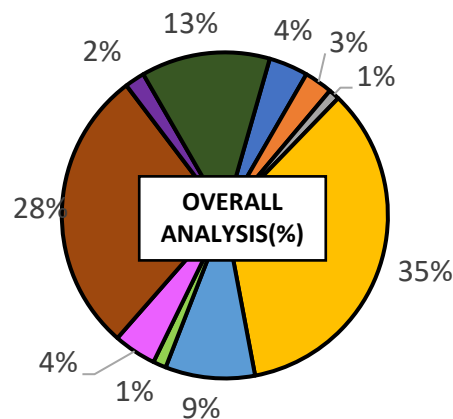
- Retrospective analysis of all DKA related admissions across 6 regional hospitals in the UK was done between April 2014 to November 2021.
- DKA was diagnosed as serum glucose ≥ 11 mmol/L, ketones ≥ 3 mmol/L and pH ≤ 7.3 or bicarbonate ≤ 15 mmol/L.
- Precipitating factors were classified as:
 - Alcohol-related,
 - COVID-19, Drug-induced,
 - Intercurrent illness,
 - New Diagnosis of type-1 diabetes,
 - SGLT-2 inhibitor-associated,
 - Sepsis,
 - Suboptimal compliance to treatment
 - Trauma.
- Statistical analysis was done using SPSS version 27. Results are expressed in percentage and proportion.

RESULTS

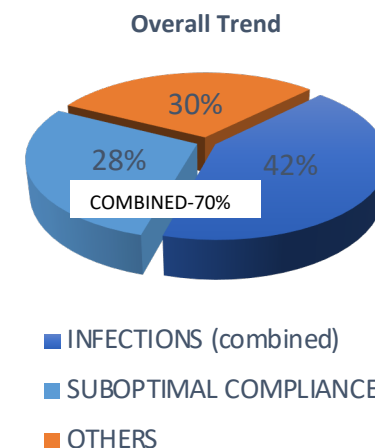
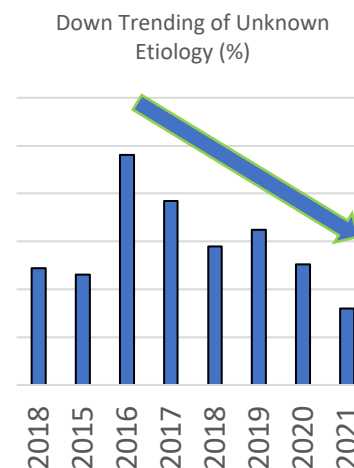
- A total of 1463 DKA episodes were included in the analysis. Intercurrent illness (34.8%, n=509) and Suboptimal compliance to treatment (28.2%, n=413) were the most common factors identified.
- Other notable causes of DKA were: New diagnosis of type 1 diabetes (8.9%, n=130), Sepsis (4.2%, n=62), Alcohol-related (3.9%, n=57). The proportion of these aetiologies has remained consistent over the years. Newer varieties of precipitating causes such as SGLT2 inhibitor-associated (1.3%, n=19) and other Drug-induced (1.1%, n=16) had an increasing trend since 2019. COVID-19 accounted for about 5% of the total episodes in 2020-2021(n=41).
- Precipitating aetiology was unclear in 8%(n=187) of the DKA admissions. However, the proportion of unclear causes as precipitating aetiology for DKA has been steadily down trending since 2016 (24.0% in 2016, 19.2% in 2017, 14.5% in 2018, 16.2% in 2019, 12.6% in 2020 and 8.0% in 2021).

YEARWISE DATA FROM APRIL 2014 TO NOVEMBER 2021

	2014		2015		2016		2017		2018		2019		2020		2021		TOTAL
ALCOHOL	5	6.8%	2	1.9%	1	1.0%	6	5.8%	3	2.4%	4	2.8%	20	5.7%	16	3.4%	57
COVID	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9	2.6%	32	6.9%	41
DRUG INDUCED	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	2.1%	4	1.1%	9	1.9%	16
INTER-CURRENT ILLNESS	21	28.4%	28	26.9%	31	31.0%	36	34.6%	55	44.4%	58	40.8%	107	30.6%	173	37.2%	509
NEW DIAGNOSIS OF T1D	8	10.8%	8	7.7%	10	10.0%	11	10.6%	9	7.3%	8	5.6%	34	9.7%	42	9.0%	130
SGLT2 RELATED	0	0.0%	0	0.0%	0	0.0%	2	1.9%	3	2.4%	2	1.4%	3	0.9%	9	1.9%	19
SEPSIS	6	8.1%	6	5.8%	6	6.0%	0	0.0%	7	5.6%	8	5.6%	8	2.3%	21	4.5%	62
SUBOPTIMAL COMPLIANCE	20	27.0%	43	41.3%	25	25.0%	26	25.0%	28	22.6%	32	22.5%	115	32.9%	124	26.7%	413
TRAUMA	5	6.8%	5	4.8%	3	3.0%	3	2.9%	1	0.8%	4	2.8%	6	1.7%	2	0.4%	29
UNKNOWN	9	12.2%	12	11.5%	24	24.0%	20	19.2%	18	14.5%	23	16.2%	44	12.6%	37	8.0%	187
TOTAL	74		104		100		104		124		142		350		465		1463



- Alcohol
- COVID
- Drug induced
- Inter-current illness
- New T1D diagnosis
- SGLT2 related
- Sepsis
- Suboptimal Rx compliance
- Trauma
- Unknown



CONCLUSION

- Infections and Suboptimal compliance to treatment** accounted for a majority of about 70% of the DKA cases, suggesting more work needs to be done to minimize these preventable causes.
- A rise in **medication-induced DKA** prompts the need to educate patients and clinicians regarding the role of these contributory medications.
- Down trending seen in **Unclear Causes of DKA** is a welcome result as this can help in preventing recurrences in patients by educating them regarding the known or established precipitating factors so that they could be vigilant in regards to these in future.