

# Prevalence of Established Vertebral Fragility Fractures in Patients Admitted with Acute Hip Fracture

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## Background

Osteoporotic hip fracture carries significant mortality risk with 6.1% of patients dying within 30 days of fracture and 1/3 within 12 months<sup>1,2</sup>. Fracture liaison services (FLS) identify fragility fractures and intervene with appropriate assessment and treatment for further prevention of fragility fractures<sup>3,4</sup>. Only approximately 6% of vertebral fragility fractures are identified by FLS through routine case finding<sup>5</sup>. However, many diagnostic imaging tests include the spine which provides a valuable opportunity to identify patients at risk of fracture.

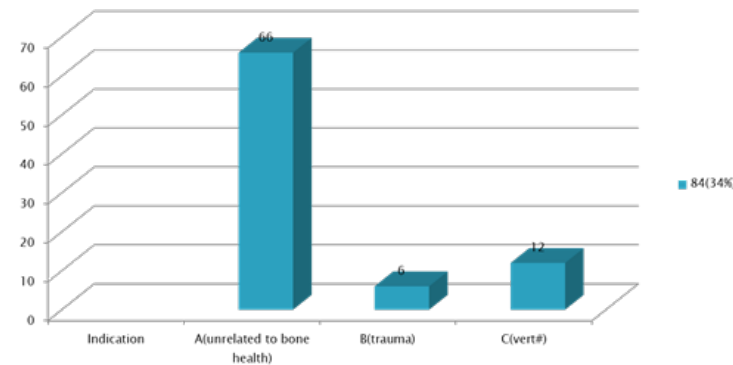
## Method

Nottingham University hospitals has a well-established Orthogeriatric service and we decided to use our local data on the National hip fracture database (NHFD) to identify the imaging history of 245 consecutive patients admitted with acute hip fracture between Dec 2019 to July 2020 to find out how many of these patients had evidence of established vertebral compression fractures (VCFs) on cross-sectional imaging in the preceding 5 years before admission. Indications for the investigation were noted as unrelated to bone health (including malignancy), trauma or vertebral fracture. Data was obtained about history of known osteoporosis, prior osteoporosis treatment, cross-sectional imaging in the preceding 5 years before hip fracture, the number and type of vertebral fractures detected etc. Using our hospital IT systems, information was obtained from their electronic discharge summary following hip fracture as well as reports of their cross sectional imaging (CT/MRI) and their indications in the preceding 5 years prior to hip fracture

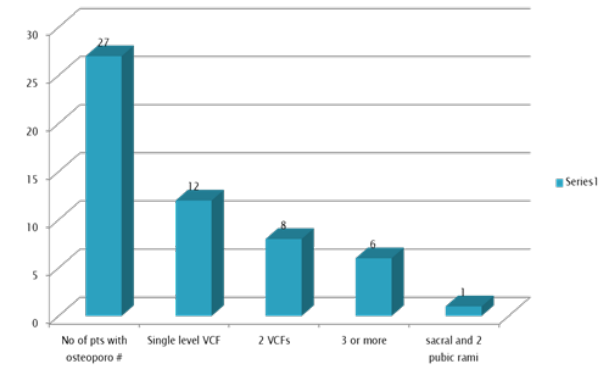
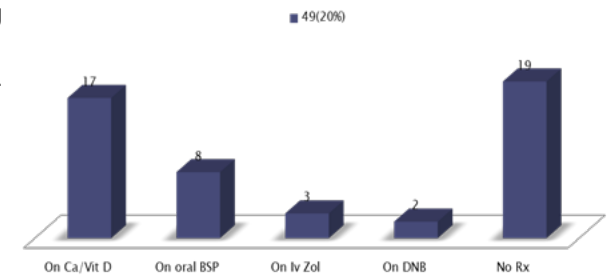
## Results

Median age was 84. 165/245 (67%) were females. 49/245(20%) had known osteoporosis. 84/245 (34%) underwent cross sectional imaging in the preceding 5 years out of which 27 (32.1%) were found to have osteoporotic vertebral fractures with 14 (52%) having 2 or more VCFs. Of the 27 patients with VCFs, 4 patients were on oral Bisphosphonate, 1 on Denosumab, 9 weren't on any treatment whilst 13 patients were on calcium and Vitamin D supplement alone. Interestingly 9 of these patients (33%) had evidence of symptomatic VCFs as per request for imaging carried out in the 5 years prior to hip fracture.

No of CT/ MRI in last 5 yrs= 84 (34%)



Known Osteoporosis 49 (20%)



## Conclusion

11% of hip fracture patients in this study had evidence of prior vertebral fragility fracture and a missed opportunity for secondary fracture prevention. They represent a subset of patients with a greater risk of future fractures<sup>6</sup>. The study didn't scrutinise the imaging to verify report findings or identify vertebral fractures that were unreported or missed and therefore results and prevalence might be an underestimate. There is a need for radiology alert of all incidental VCFs to the fracture liaison service which would help in prompt assessment and management of their osteoporosis and reduction of their future fracture risk.

## REFERENCES

1. Royal College of Physicians. National hip fracture database annual report. London: Royal College of Physicians, 2019.
2. Public Health England. NHS right care: falls and fragility fractures. London: Public Health England, 2017.
3. National Institute for Clinical Excellence. Osteoporosis quality standard QS149. London: National Institute for Clinical Excellence, 2017.
4. Royal Osteoporosis Society. Effective secondary fracture prevention of fragility fractures: clinical standards for fracture liaison services. Bath: Royal Osteoporosis Society, 2019.
5. Royal College of Physicians. Fracture Liaison service database commissioners report. Royal College of Physicians, 2019.
6. Chen P, Krege JH, Adachi JD, et al. Vertebral fracture status and the World Health Organization risk factors for predicting osteoporotic fracture risk. J Bone Miner Res. 2009;24(3):495-502. doi:10.1359/jbmr.081103