Identification of vertebral fractures in Fracture Liaison Services (FLS) in the UK

Jo Sayer
National Osteoporosis Society

Background

The Fracture Liaison Service (FLS) model enables secondary fracture prevention through identification of fragility fractures using dedicated case finding, with assessment and treatment of osteoporosis where necessary. Studies show that half of hip fractures occur in patients with a prior fragility fracture.[1,2,3] It is estimated that 25% of hip fractures could be prevented with identification and treatment of osteoporosis.[4,5] Fracture prevention is therefore both clinically and cost effective.

Vertebral fractures are the most common osteoporotic fracture, and are highly predictive of further fragility fractures.[6-8] However, currently up to 70% of vertebral fractures are undiagnosed.[9,10]

Clinical Standards for FLS were published by the National Osteoporosis Society (NOS) in 2015 against which service quality can be measured.[11] The Standards follow a '5IQ' approach which describes the key objectives of an FLS: Identification, Investigation, Information, Intervention, Integration and Quality (Figure 1).

Figure 1: The 5 IQ approach

Standard one states that: *All patients aged 50 years and over with a newly reported vertebral fracture will be systematically and proactively identified.*

Methods

As part of its Service Development support package, the NOS offers a gap analysis to services to establish an objective assessment of the quality of service provision in relation to clinical standards. This gap analysis tool was used to measure service provision against Standard one of the NOS Clinical Standards, relating to the systematic and proactive identification of vertebral fractures. Data was collected at 110 sites in the UK between 2014 and 2018.

Results

- 77% (85) of sites had no systematic process in place to identify vertebral fractures.
- 8% (9) sites identified all newly reported vertebral fractures.

- 15% (16) had procedures in place to identify some vertebral fractures, i.e. those within certain cohorts (Figure 2).
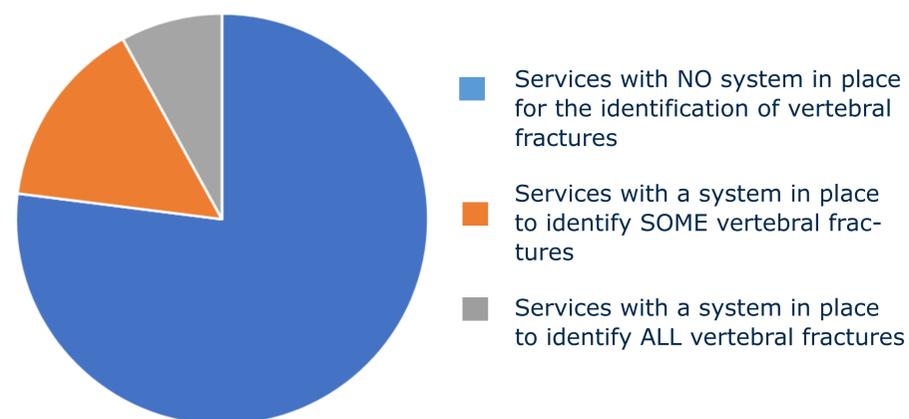

Services with NO system in place for the identification of vertebral fractures

Services with a system in place to identify SOME vertebral fractures

Services with a system in place to identify ALL vertebral fractures

Figure 2: Systems for identification of vertebral fractures

There was considerable disparity across the UK. Sites in Scotland were significantly more likely to have comprehensive processes in place (38%, 6/16) than in the rest of the UK (3%, 2/62).

Discussion

Systematic identification of vertebral fractures poses a particular challenge to services due to a number of factors. Vertebral fractures are difficult to identify as these patients tend not to present or be admitted in acute settings where FLS are primarily based. These fractures often arise in absence of trauma and patients present to primary care, where their symptoms are treated with analgesics and without further investigation, in accordance with NICE guidance on back pain.

Those patients whose vertebral fracture has been identified will fall across numerous departments (Rheumatology, Orthopaedic, Fracture Clinic, Emergency Department, Spinal services) making systematic identification even more challenging. In the FLS Database Facilities Audit (May 2016), the most frequently cited barrier to the identification of vertebral fractures was lack of a patient pathway.[12]

The best prospect for improvement in the short term in the systematic identification of vertebral fractures relates to their opportunistic identification by Radiology. This requires support from Radiology staff, including a commitment to inspect sagittal images on *all* MRI and CT scans. Radiologists also need to avoid ambiguous terminology when reporting vertebral fractures.

In 2017, the NOS published Clinical Guidance on the Effective Identification of Vertebral Fractures (NOS 2017).[13] This guidance will assist radiologists in vertebral fracture identification and reporting. In 2018, the Royal College of Radiologists and the National Osteoporosis Society are working together on an audit of vertebral fracture identification based on this guidance.

Clinical Guidance for the Effective Identification of Vertebral Fractures

Scan this QR code with your smartphone for a copy of the guidance.

Conclusion

Gap analysis shows a lack of systematic identification of VFX. Responsibility for VFX identification in secondary care falls across a range of departments, which poses a challenge to clinicians. The NOS published clinical guidance in 2017 that recommends that Diagnostic Imaging departments identify VFX, report them unambiguously, and alert referring clinicians to the need for onward management or referral to FLS.

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