

Underreporting of Vertebral Fractures with and without Edema on Spinal MRI in Adult Patients

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Objective

To emphasize the clinical importance, and quantify the degree of underreporting of vertebral fractures (VF) with and without edema on spinal magnetic resonance (MR) imaging.

Methods

All spinal MR images obtained for patients ≥ 45 years, hospitalized from 1/6/2014-31/12/2015 were reviewed. VFs and fracture severity were classified using Genant's method. Data regarding VFs diagnosis, BMD by DXA, and initiation of osteoporosis treatment were extracted from each patient's MR reports and medical records.

Table.1

	Case (VF)	DXA	Diagnosis	Therapy
Officially Reported VFs	89	20(23%)	49(55%)	28(31%)
VFs with Edema	28	6(21%)	14(50%)	14(50%)

Table.2

	Numbers of VFs	VFs with Edema
Officially Reported VFs	205	14
Underreported VFs	247	14

Results

- Images were reviewed from 1040 patients (567 women, 55%). Mean age was 61.3 years. 265 patients (25%) were shown to have VFs. VFs was officially reported for only 89 patients (34%). 28 patients with reported VFs had bone marrow edema on MR, however edema was documented for only half of the patients (14/28). (Table 1)
- Among 176 patients with unreported VFs, a total of 247 fractures were identified [mild: 224 (91%), moderate: 20 (8%), severe: 3(1%)]. (Table 2)
- Of the 89 patients with VF, only 20 (23%) were subsequently referred for DXA, and only 49 (55%) had VFs mentioned among their discharge diagnoses. Only 28 cases (31%) were prescribed pharmacologic when discharged. (Table 1)
- Of the 28 patients whose VFs were accompanied by bone marrow edema, only 6 had a subsequent DXA, and 14 were discharged on osteoporosis therapy. (Table 1)



Pic.1 Female, 52years The lateral thoracic MR images acquired in a patient shows T4 spine I° Vertebral fracture without edema, T9 spine I° VF with edema, T11 and L1 spine II° VF with edema.

Conclusion

VFs with or without edema are underreported for routine spinal MR imaging, especially mild VFs. For reported fractures, significant gaps exist in osteoporosis evaluation and treatment. Timely reporting of fractures, as well as recognition of appropriate next steps treatment should be emphasized to ensure the comprehensive care of fractured patients.