

IMMINENT FRACTURE RISK AND MORTALITY DIFFER BY INDEX FRACTURE SITE AND BONE MINERAL DENSITY

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Objective

Data on imminent fracture risk and mortality after an index fracture are necessary to quantify the expected benefit from a fracture liaison service (FLS). This study describes the association between bone mineral density (BMD) measured after the index fracture and the risk of subsequent fractures and mortality.

Material and Methods

The study population comprised women aged 50+ with an index fragility fracture of the hip, clinical spine, or other sites recorded within 2 years of subsequent DXA testing in the Manitoba BMD Program. The 5-year risk of subsequent hip, spine, and other fractures as well as mortality were ascertained.

Results

The study identified 566 women with a sentinel hip (mean age 73.4 yrs), 779 with a vertebral (69.9 yrs), and 3,867 with other (66.4 yrs) fractures. The median time from fracture to DXA was under 0.5 yrs. The proportion of women with a lowest T-score ≤ -2.5 was 59%, 46%, and 35% for hip, spine, and other fracture sites, respectively. A significant interaction was observed between the index fracture site and minimum BMD category for subsequent hip fractures ($p=0.001$) but not spine ($p=0.09$) or other fracture sites ($p=0.95$) (Figure). The 5-year mortality was 21.4%, 14%, and 7.9% for hip, spine, and other fractures, respectively. Mortality was significantly higher in those with lowest minimum T-score after spine or other fractures ($p<0.001$), and uniformly high after hip fracture regardless of T-score ($p=0.55$). The 5-year fracture risk was generally higher for lower T-scores, ranging from 1.3 times for fractures of spine to spine (11.1% for T-score >-1.5 vs 14.1% for T-score ≤-3.5) to 30.8 times for other to hip (0.3% for T-score >-1.5 vs 8.7% for T-score ≤-3.5) (Figure).

Conclusion

The 5-year risk of subsequent fracture and mortality differs by BMD measured after the index fracture and also by index fracture site. These data support a more refined approach to predicting the potential benefits from secondary fracture prevention.

Figure: Relationship between index fracture site, minimum T-score and subsequent fracture risk





