

Factors associated with mortality among older patients with osteoporotic vertebral fracture (J-BOLD study): A nested case-control study using large-scale claim database

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Introduction

With the advent of a super-aged society, the number of patients with osteoporotic vertebral fractures is increasing. However, nationwide studies on mortality and factors associated with mortality in patients with osteoporotic vertebral fractures remain limited. The purpose of this study was to investigate mortality-related factors in patients with osteoporotic vertebral fractures using large-scale claims data of older population aged ≥ 75 years.

Materials and Methods

A nested case-control study was conducted using an insurer database provided by DeSC Healthcare, which includes claims data for older population between April 2014 and June 2022. We identified patients aged 75 years or older with newly onset of vertebral fractures and evaluated factors associated with mortality within 5 years after fracture. Conditional logistic regression models were used to calculate odds ratios for explanatory variables such as sex, age, osteoporosis medications, and so on.

Results

Of the 440,342 older adults with osteoporotic fractures, 225,568 patients with vertebral fractures were identified. The mean age was 84.2 years, and 73.0% were women. Factors associated with mortality included men ($p < 0.001$), older age ($p < 0.001$), non-use of osteoporosis medication after fracture ($p < 0.001$), a history of fragility fractures (hip fracture: $p < 0.001$, non-hip non-vertebral fracture: $p = 0.013$), and Parkinson's disease ($p < 0.001$). The occurrence of a secondary vertebral or hip fracture within 2 years of the initial fracture was significantly associated with mortality among patients who died between one and five years after the initial vertebral fracture ($p < 0.001$).

Conclusion

Factors associated with mortality included men, older age, non-use of osteoporosis medication after fracture, history of fragility fractures, and Parkinson's disease in older adults in Japan.