Bisphosphonate Use and Atypical Fractures of the Femoral Shaft

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BACKGROUND

Studies show conflicting results regarding the possible excess risk of atypical fractures of the femoral shaft associated with bisphosphonate use.

METHODS

In Sweden, 12,777 women 55 years of age or older sustained a fracture of the femur in 2008. We reviewed radiographs of 1234 of the 12,771 women who had a subtrochanteric or shaft fracture and identified 59 patients with atypical fractures. Data on medications and coexisting conditions were obtained from national registries. The relative and absolute risk of atypical fractures associated with bisphosphonate use was estimated by means of a nationwide cohort analysis. The 59 case patients were also compared with 263 control patients who had ordinary subtrochanteric or shaft fractures.

RESULTS

The age-adjusted relative risk of atypical fracture was 47.3 (95% confidence interval [CI], 25.6 to 87.3) in the cohort analysis. The increase in absolute risk was 5 cases per 10,000 patient-years (95% CI, 4 to 7). A total of 78% of the case patients and 10% of the controls had received bisphosphonates, corresponding to a multivariable-adjusted odds ratio of 33.3 (95% CI, 14.3 to 77.8). The risk was independent of coexisting conditions and of concurrent use of other drugs with known effects on bone. The duration of use influenced the risk (odds ratio per 100 daily doses, 1.3; 95% CI, 1.1 to 1.6). After drug withdrawal, the risk diminished by 70% per year since the last use (odds ratio, 0.28; 95% CI, 0.21 to 0.38).

CONCLUSIONS

These population-based nationwide analyses may be reassuring for patients who receive bisphosphonates. Although there was a high prevalence of current bisphosphonate use among patients with atypical fractures, the absolute risk was small.