



Article in Press

The association of race/ethnicity and risk of atypical femur fracture among older women receiving oral bisphosphonate therapy

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DOI: <http://dx.doi.org/10.1016/j.bone.2016.01.002>



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Abstract

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Highlights

- Among a large cohort of women initiating bisphosphonate therapy, the rate of atypical femur fracture was 64.2 per 100,000 person years among Asian women compared to 7.6 per 100,000 person years among white women.
- Adjusting for differences in age and bisphosphonate exposure, the relative risk of atypical femur fracture was more than 6-fold higher among Asian compared to white women.
- These findings underscore the need to further examine the association of bisphosphonate duration and atypical femur fracture risk in women of Asian race, as well as differences by Asian subgroup.

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Abstract

Purpose

Several epidemiologic studies suggest that compared to white women, Asians have a greater propensity to suffer an atypical femur fracture (AFF) while taking bisphosphonate therapy. This study examines the relative risk of AFF following BP initiation for Asian compared to white women.

Methods

Using data from a large integrated northern California healthcare delivery system, we examined diaphyseal femur fracture outcomes among women age ≥ 50 years old who initiated oral bisphosphonate therapy during 2002–2007. An AFF was defined by the 2013 American Society of Bone and Mineral Research Task Force criteria. The risk of radiographically-confirmed AFF was examined for Asian compared to white women, adjusting for differences in bisphosphonate exposure and other potential risk factors.

Results

Among 48,390 women (65.3% white, 17.1% Asian) who newly initiated bisphosphonate therapy and were followed for a median of 7.7 years, 68 women experienced an AFF. The rate of AFF was 18.7 per 100,000 person-years overall and eight-fold higher among Asian compared to white women (64.2 versus 7.6 per 100,000 person-years). Asians were also more likely to have longer bisphosphonate treatment duration compared to whites (median 3.8 versus 2.7 years). The age-adjusted relative hazard for AFF was 8.5 (95% confidence interval 4.9–14.9) comparing Asian to white women, and was only modestly reduced to 6.6 (3.7–11.5) after adjusting for BP duration and current use.

Conclusions

Our study confirms marked racial disparity in AFF risk that should be further investigated, particularly the mechanisms accounting for this difference. These findings also underscore the need to further examine the association of bisphosphonate duration and AFF in women of Asian race, as well as differential risk across Asian subgroups. In the interim, counseling of Asian women about osteoporosis drug continuation should include consideration of their potentially higher AFF risk.

Abbreviations:

BP ([Bisphosphonate](#)), AFF ([Atypical femur fracture](#)), KPNC ([Kaiser Permanente Northern California](#)), ICD-9 ([International Classification of Diseases, Ninth Revision](#))

Keywords:

[Femur fracture](#), [Subtrochanter](#), [Femoral shaft](#), [Atypical fracture](#), [Bisphosphonates](#)

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