

ARTICLE LINKS:

[Fulltext](#) | [PDF \(219 K\)](#)

Low-Energy Femoral Shaft Fractures Associated With Alendronate Use.

Original Article

Journal of Orthopaedic Trauma. 22(5):346-350, May/June 2008.

Neviaser, Andrew S MD; Lane, Joseph M MD; Lenart, Brett A BS; Edobor-Osula, Folorunsho MD, MPH; Lorich, Dean G MD

Abstract:

Objective: Increasing evidence suggests long-term alendronate use may overly suppress bone metabolism, limiting repair of microdamage and creating risk for insufficiency fractures. The purpose of this study is to demonstrate an association between alendronate use and a specific pattern of low-energy femoral shaft fracture.

Design, Setting, and Patients: A retrospective review was performed of patients with femoral shaft fractures admitted to a Level 1 trauma center between January 2002 and March 2007. Seventy low-energy fractures were identified.

Main Outcome Measure: The medical records were reviewed, and the incidence and duration of alendronate use were recorded. The incidence of a specific femoral shaft fracture in those patients taking alendronate compared with those not being treated was determined.

Results: There were 59 females and 11 males. The average age was 74.7 years. Twenty-five (36%) were being treated with alendronate. None of the patients had used or were using other bisphosphonates. Nineteen (76%) of these 25 patients demonstrated a simple, transverse fracture with a unicortical beak in an area of cortical hypertrophy. This fracture pattern was seen in only 1 patient (2%) not being treated with alendronate. Alendronate use was a significant risk factor for the fracture pattern (odds ratio [OR] 139.33, 95% CI [19.0-939.4], $P < 0.0001$). This pattern was 98% specific to alendronate users. The average duration of alendronate use in those with the pattern was significantly longer than those who did not exhibit the pattern but were taking alendronate, 6.9 years versus 2.5 years of use, respectively ($P = 0.002$). Only 1 patient with the fracture pattern had been taking alendronate for less than 4 years.

Conclusions: Low-energy fractures of the femoral shaft with a simple, transverse


pattern and hypertrophy of the diaphyseal cortex are associated with alendronate use. This may result from propagation of a stress fracture whose repair is retarded by diminished osteoclast activity and impaired microdamage repair resulting from its prolonged use.

(C) 2008 Lippincott Williams & Wilkins, Inc.

Copyright © 2008, Lippincott Williams & Wilkins. All rights reserved.

Published by Lippincott Williams & Wilkins.

[Copyright/Disclaimer Notice](#) • [Privacy Policy](#)

 [Subscribe to our RSS feed](#)

txrdc-pt01.tx.ovid.com

Release 4.7.0