

### Atypical femoral fractures and bisphosphonates

To the Editor

We read with interest the study by Alwahhabi and Alsuwain<sup>1</sup> on the long-term effects of the long-term use of bisphosphonates (BPs) in patients with osteoporosis. Although the study is retrospective and observational, it revisits atypical femoral fractures (AFFs), one of 2 rare but serious adverse effects of long-term use of BPs.<sup>2</sup> The authors do not provide any demographic data of the studied patients; a table that indicates the age, gender, duration of therapy with BPs, other therapies, comorbidities, time, type of fracture, post fracture therapy, and outcome. Several of the cases in the study do not satisfy the revised case definition of AFFs by the ASBMR Task Force 2013. The definition states that the fracture must be located along the femoral diaphysis from just the distal to the lesser trochanter to just proximal to the supracondylar flare that has a transverse orientation and non- or minimally comminuted morphologic features, show focal lateral cortical thickening (beaking or flaring), occurs with minimal trauma and may be bilateral. Exclusions include fractures of the femoral neck, intertrochanteric fractures with spiral subtrochanteric extension, periprosthetic, and pathological fractures. In Figure 1, cases B and F are periprosthetic fractures, cases H and K are comminuted fractures and case O is a spiral fracture. Therefore, by definition they are not AFFs. The case depicted in Figure 4 is a 70-year-old woman with rheumatoid arthritis and a diaphyseal fracture has already sustained a proximal femoral fracture 4 years previously. This is again periprosthetic and more likely to be pathological due to osteoporosis rather than the result of overtreatment with zoledronic acid in spite of the presence of cortical thickening.

It is important that we inform patients on long term BPs to report any persistent groin or thigh pain as 70% of patients with AFFs have a history of prodromal pain.<sup>2</sup>

Using BPs for up to 5 years in women with osteoporosis is associated with a highly favorable benefit-to-risk ratio, with less than one event caused per 100 fractures prevented.<sup>3</sup>

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### Reply from the Author

Regarding the demographic data. We rapped the data in the results. We provided age range (46-89), gender distribution (one male, 33 females). The relevant factors are history of steroid use, and the history of proton pump inhibitor (PPI) used is also provided (all patients were on PPI).

As we mentioned, all steroid users belong to group 2 (fracture group). We also described the type of fracture with x-rays. All patients were offered teriparatide therapy. The outcome is also reported. Sixteen fracture patients completed the teriparatide course (18-24 months), 11 (68.75%) patients showed complete healing of the fracture at the end of the course (Figure 6), 5 patients (31.25%) remained with nonunion of fracture (3 tibiae, 2 femoral shaft), and 7 patients (33.3%) were lost to follow up. Group 3 patients reported marked improvement in pain and the ability to walk, but remained with mild pain 3 years after completing teriparatide.

Regarding the AFF definition by ASBMR. We stated that depending on our local experience, we think that the definition may need to be expanded to include non-classical fractures. AFF involving femoral shaft although the most common type does not exclude the possibility of risk of fracture in other sites.

The patient with RA who sustained fracture after 4 years of aclassa has high risk of osteoporosis fracture and AFF. Probably these patients need to be treated with cyclical therapy of teriparatide/BPs/teriparatide to avoid even the remote possibility of AFF. This is just a hypothetical view.

We cannot deny that considering the rarity of AFF, the overall general experience is not very long, which means that the platform is open for further research.

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### References

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