Consolidation in Femoral Fractures: A Cohort Study in Patients Exposed and Not Exposed to Bisphosphonates

Francisco Jose Nally, MD; Guido Sebastian Carabelli, MD; Carlos F. Sancineto, MD;
Jorge D. Barla, MD
Hospital Italiano de Buenos Aires, Olivos, Buenos Aires, ARGENTINA

Purpose: Atypical fractures associated to prolonged consumption of bisphosphonates (BF) have characteristic radiographic patterns. For these fractures epidemiological studies found a 26% delayed or nonunion rate. The aim of our study was to compare the time to union in patients consuming BF and a control group of patients with similar demographic characteristics.

Methods: Two groups were conformed: Group 1, 34 patients with 41 fractures associated with BF consumption and Group 2, not exposed to BF, 67 patients with similar demographic characteristics. Both were treated surgically for midshaft and proximal femoral fractures. In both groups, radiographic consolidation time was evaluated. A statistical analysis of age, sex, and time to the consolidation was performed.

Results: Group 1 had an average age of 77 years and an average BF consumption of 7.5 years. The average time to consolidation was 22 weeks, requiring in 3 cases the dynamization of the implant to achieve consolidation. In Group 2, 67 patients, mean age was 79 years (P = 0.89). The mean time of consolidation was 27 weeks. No statistically significant differences between groups was found (P = 0.77). The power of the study was 0.54. The complications in this group were 3 cases of rupture of locking screws, 1 deep infection requiring a revision, and 3 cases of nail change due to delayed consolidation.

Figure 1 - Radiographic evaluation of pre and post operative BF consumption associated femoral fracture . Note the radiographic typical characteristics associated to BF consumption and the healing of the fracture with an anterograde femoral nail.

Conclusion: Our study did not show significant differences in the time of consolidation between groups. Higher rates of delayed or nonunion, as described, were not seen.