Biphosphonate Therapy, Risk of Fracture, and Sites of Bone Mineral Density Assessments in Kidney Transplantation

We read with great interest “A randomized trial of zoledronic acid to prevent bone loss in the first year after kidney transplantation” by Marques et al.¹ This study suggests that bisphosphonates are safe and probably beneficial in preventing the risk of fractures in kidney transplant recipients. This is all the more important, because this population, as outlined by the authors, rarely benefits from these drugs despite their proven efficiency in preventing fracture incidence, especially in patients receiving corticosteroid therapy. Therefore, this article highlights that the fear of adynamic bone disease should not lead clinicians to treat patients with kidney transplants different from the general population.

Noteworthy, the increase in bone mineral density observed in both groups in this study is in line with the results of a recent observational study conducted in 355 kidney transplant recipients that showed an improvement in hip and vertebral bone mineral density assessed by dual energy x-ray absorptiometry (DXA) at 2 years post-transplantation, improvement that was significantly higher in patients receiving bisphosphonates (n=95; 26% of patients). Broader clinical trials are thus warranted to determine whether the findings of Marques et al.¹ can be extrapolated to patients at higher risk of bone mineral disorder. Indeed, as acknowledged by the authors, patients were young, had a relatively short time on dialysis before living donor transplantation, and had a prevalence of osteoporosis of 20%, less than that found in the study by Segaud et al.² (40.9% osteoporosis and 42.8% osteopenia).

The authors showed interesting results of peripheral bone assessment by high-resolution peripheral quantitative computed tomography (HR-pQCT) and emphasized the importance of peripheral bone changes. Although this clinical research tool enables microarchitectural evaluation, it is not routinely available. It would have been of major interest to compare HR-pQCT with forearm bone mineral density assessed by DXA. Indeed, Iyer et al.³ showed a radial bone mineral density decrease at 12 months by DXA as well as by HR-pQCT along with microarchitectural changes, but they showed no significant changes in other sites. In the same line, in a large Danish cohort, Hansen et al.⁴ showed an increased prevalence of forearm fractures in patients with kidney transplants compared with the general population and compared with patients on dialysis. Whether HR-pQCT is superior to DXA for evaluation of bone strength and prediction of fractures remains to be evaluated. Taken together, these considerations stress the need for peripheral bone mineral density evaluation in kidney transplant recipients to guide appropriate treatment and follow-up.

DISCLOSURES
None.

REFERENCES

See related Letter to the Editor, “Authors’ Reply,” on page 906.