

## Use of Denosumab in a Patient with Chronic Anorexia Nervosa and Osteoporosis



To the Editor:

We read with interest the review of medical complication of patients with anorexia nervosa and bulimia by Westmoreland et al in *The American Journal of Medicine*.<sup>1</sup> The experiences listed are similar to those encountered in our inpatient unit, which combines medical and psychiatric management in a single site.

The complications of osteoporosis and fragility fractures are a continuing source of concern for patients with anorexia nervosa and their clinicians, and the absence of clinical trial data makes treatment choices difficult. As Westmoreland et al<sup>1</sup> point out, there are currently no treatments specifically approved for the osteoporosis in anorexia nervosa. They mention in their review that there are, as yet, no data on the use of the receptor activator of nuclear factor  $\kappa$ -B ligand activator denosumab. We have used this treatment in a patient with anorexia nervosa with promising effects.

A 29-year-old woman with a 17-year history of severe anorexia nervosa was admitted to our unit. Osteoporosis was diagnosed at age 24 years, and she had developed a left calcaneal fracture after minimal trauma 3 weeks before this presentation. Her body mass index was low at 15.1 kg/m<sup>2</sup>. Her bone mineral density at this time confirmed the

presence of osteoporosis at the lumbar spine and total hip (T-scores  $-3.3$  and  $-2.9$ , respectively). Previous available measures of lumbar spine bone mineral density were  $-2.6$  in 2006,  $-2.7$  in 2011, and  $-3.3$  in 2012. At the hip, these T-scores were  $-2.6$ ,  $-2.6$ , and  $-2.8$ . She had previously declined therapy with estrogen and bisphosphonates and was not keen to undertake daily injections, which precluded use of parathyroid hormone derivatives. A decision was made with the patient to commence therapy with denosumab 60 mg by subcutaneous injection every 6 months, with monitoring of serum calcium and co-administration of calcium and vitamin D. She was amenorrheic before, and had no menses or weight gain during the treatment. The patient did not experience any adverse effects related to the use of denosumab. There was no evidence of hypocalcemia, nor were there further fractures.

A further measurement of bone mineral density was made 2 months after completing 3 years of therapy with denosumab. Bone mineral density increased at the left total hip site by 1.4% and increased substantially at the lumbar spine, by 14.8% from pretreatment. The measurement at the left femoral neck showed a reduction of 5.7% from its pretreatment value.

Such changes are in keeping with the effects of denosumab on trabecular bone after 3 years therapy in postmenopausal women.<sup>2</sup> Given denosumab's ease of administration and its predictable effect on bone resorption, it deserves further evaluation in a properly conducted clinical trial.

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<http://dx.doi.org/10.1016/j.amjmed.2015.07.040>

**Funding:** None.

**Conflict of Interest:** We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

**Authorship:** We confirm that the manuscript has been read and approved by all named authors, who had full access to all of the relevant information, and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing we confirm that we have followed the regulations of our institutions concerning intellectual property.

## References

1. Westmoreland P, Krantz MJ, Mehler PS. Medical complications of anorexia nervosa and bulimia. *Am J Med.* 2016;129:30-37.
2. Cummings SR, San Martin J, McClung MR, et al. Denosumab for prevention of fractures in postmenopausal women with osteoporosis. *N Engl J Med.* 2009;361(8):756-765.