Denosumab, an effective osteoporosis treatment option for men

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As osteoporosis is commonly considered a disease of women, osteoporosis in men is undertreated because of the low screening frequency. However, men at high fracture risk are not treated appropriately [1,2]. Consequently, although women have a significantly higher prevalence of osteoporosis, 40% of osteoporotic fractures happen in men [2,3]. In addition, the prognosis of osteoporotic fracture is worse in men than in women and their mortality after osteoporotic fractures is about twice the rate in women [2]. Therefore, appropriate, effective treatment in men at high fracture risk is clinically and economically important. Denosumab is one of the most potent antiresorptive agents for treating osteoporosis [4]. However, relatively few studies have examined its effects in men compared to women and no studies have examined men who used bisphosphonates before starting denosumab, which we frequently encounter in our practice.

In this issue of the Korean Journal of Internal Medicine, Jeong et al. [5] report that 12 months of denosumab treatment effectively increased the bone mineral density (BMD) in a retrospective cohort of osteoporotic men, both in those who were drug naïve and those who had initially used bisphosphonate. They showed that BMD was significantly increased from baseline by 5.2% in the lumbar spine, 2.3% in the femur neck, and 1.9% in the hip, in drug-naïve patients. The trabecular bone score (TBS) was increased by 0.5% in drug-naïve patients. Patients previously treated with bisphosphonates were analyzed separately in their study and their BMD increased by 4.8% in the lumbar spine, 1.4% in the femur neck, and 0.8% in the hip, but the increase was significant only in the lumbar spine. Thus, the study implied that 12 months of denosumab treatment effectively increased the lumbar spine BMD in Korean osteoporotic men regardless of prior bisphosphonate exposure, and increased femur neck and hip BMD in drug-naïve men with osteoporosis.

The study is clinically attractive for several reasons. First, Jeong et al. [5] analyzed the effect of denosumab in men only, one of the first such studies in an Asian population. Most major clinical studies have studied only postmenopausal women [4,6]; even the studies that included both sexes included only a few men [7-9]. Jeong et al. [5] reported a significant increase in BMD to a degree similar to that of previous reports [10]. In European and American men, denosumab treatment for 12 months resulted in significantly increased BMD, by 5.7% in the lumbar spine and 2.1% in the femur neck [10], which was similar to the results of Jeong et al. [5]. It was also comparable to the results in women, i.e., the lumbar spine and total hip BMD increased by 6.7% and
3.1%, respectively [4]. The study has clinical significance as it shows that denosumab is an effective option for osteoporosis in Asians, regardless of sex.

It is also interesting that, although statistically insignificant, the increase in BMD was more prominent in drug-naïve patients than in those who had previously used bisphosphonates. Jeong et al. [5] demonstrated that the additional BMD gain using denosumab was evident only in the lumbar spine, not in the hip area, in patients who had initially used bisphosphonates. This is consistent with the previous finding in women that the effect of denosumab in those with prior bisphosphonate use was blunted compared with that of drug-naïve women [11,12]. However, there could be differences in the effect of denosumab according to the duration of the prior bisphosphonate treatment and cessation time of bisphosphonate before the start of denosumab. Jeong et al. [5] did not present additional data on these concerns, which warrants caution when interpreting their results. They also demonstrated that the bone microarchitecture, reflected in the TBS, was increased after 12 months of denosumab in drug-naïve patients [5], implying that denosumab improved both the bone density and microarchitecture.

In conclusion, the article provides clinically meaningful information that the effect of denosumab in men is seen on both BMD and TBS. Of note, they provided quantitative data on how much BMD increased after denosumab use in men who had used bisphosphonate previously, a question that is frequently asked in clinical practice. Therefore, in men at high fracture risk who need active treatment, denosumab is an effective, potent treatment option for reducing the risk of fracture.

Conflict of interest
No potential conflict of interest relevant to this article was reported.

REFERENCES