Association between single nucleotide polymorphisms of the osteoprotegerin gene and postmenopausal osteoporosis in Chinese women

J.F. Song, Z.Z. Jing, W. Hu and Y.X. Su

Department of Orthopaedics, Shanxi Provincial People’s Hospital, Taiyuan, Shanxi Province, China

Corresponding author: J.F. Song
E-mail: jiefu_song@sina.com

Received January 25, 2013
Accepted March 16, 2013
Published September 3, 2013
DOI http://dx.doi.org/10.4238/2013.September.3.4

ABSTRACT. Osteoporosis is an important and common complex health problem, particularly in postmenopausal women. It is characterized by a reduction in bone mineral density (BMD) and a deterioration of bone microarchitecture with a consequent increase of fracture risk. The osteoprotegerin (OPG) gene is considered to play an important role in the pathogenesis of osteoporosis. We analyzed SNPs of the OPG gene and associations between these polymorphisms and BMD in 399 Chinese postmenopausal women. BMD was quantified at the lumbar spine (L2-4), femoral neck, and total hip. The g.2264T>C and g.27676A>C SNPs were detected by PCR-RFLP and DNA sequencing methods. A significant association with spine BMD was found for g.27676A>C. The spine BMD value for subjects with genotype AA was significantly higher than those with genotypes GA and AA. No significant association was detected between any of the SNP marker genotypes and the other traits. We conclude that g.27676A>C in the OPG gene affects spine BMD and
that the C allele is associated with increased risk for osteoporosis in Chinese postmenopausal women.

**Key words:** Association analysis; Bone mineral density; Osteoporosis; Single nucleotide polymorphisms; Postmenopausal women; Osteoprotegerin gene