

Interactions Between Effects of Estrogen Receptor Gene Polymorphisms on BMD and Experiences of the First Spermorrhea in Chinese Han Boys¹

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Objective To study the interaction between polymorphisms of estrogen receptor (ER) gene and puberty on bone mineral density (BMD). **Methods** One hundred and forty-six boys aged 13-17 years were divided into two groups according to their first spermorrhea. DNA was analyzed for Xba I and Pvu II genotypes by PCR-RFLP. BMD of the total body, forearm and lumbar spine was measured by dual-energy X-ray absorptiometry (DXA). The relationship between polymorphisms of ER gene and BMD in these two groups was analyzed. **Results** The BMD at all sites in the spermorrhea group was significantly higher than that in the un-spermorrhea group. The independent contribution of ER genotypes to BMD at two pubertal stages was analyzed after adjusting co-variables. In the un-spermorrhea group, the BMD at distal 1/10 and 1/3 forearm of those carrying pp genotype was significantly higher than that of the non-carriers, whereas in the spermorrhea group BMD in those carrying the same genotype was significantly lower than that in the non-carriers. Similar results were obtained by haplotype analysis. Multiple stepwise regression analysis showed that body weight, age and the first spermorrhea were the dominant determinants for BMD. BMD at forearm might be influenced by interaction between ER genotype and the first spermorrhea. **Conclusion** The polymorphisms of ER gene play a different role in BMD influenced by the first spermorrhea. Chinese boys carrying p or x allele should pay more attention to their bone mass.

Key words: BMD; Puberty; Hormones and receptors; Polymorphism; Boys

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