ABSTRACT

Inan-Erdogan, I. Effects of estrogen and vitamin D polymorphisms on bone density in adolescent anorexia nervosa patients. Hacettepe University Medical Faculty Department of Pediatrics, Ankara, 2017. One of the most serious complications of anorexia nervosa, which is an important cause of physical and physiological morbidity in the adolescent age group, is its effect on bone density. Osteopenia or low bone mineral density (BMD) is the precursor of osteoporosis and it is found in at least one bone area in about fifty percent of anorexia nervosa patients. Since serious bone density deficit can be observed early after the initiation of the disease, determination of the correlation between BMD and genetic polymorphisms in anorexia nervosa cases, can provide an opportunity for early identification of cases under greater risk and also earlier implications of necessary precautions for osteopenia.

This study was performed at Hacettepe University İhsan Doğramacı Children Hospital Adolescents Medicine Clinic between April 2015-March 2017. 45 adolescents diagnosed with anorexia nervosa between years 2009-2016, in accordance with the DSM-IV-5 criteria, within the age of 10 to 18 comprised the case group, and 46 age and sex matched healthy adolescents the control group. Vitamin D (VDRBsml ve VDRFokl) and estrogen receptor (ESR1Xbal, ESR1Pvull) polymorphisms were studied for each group. BMD values of the case group were classified as low and normal, and polymprphisms were compared between these two groups. No statistically significant result could be found between polymorphisms and femur and lumbal bone density (g/cm2) and Z scores in the anorexia nervosa group. However, in female patients, a positive effect of bb genotype of VDRBsmI polymorphism on femur Z scores (p=0,103) and Ff genotype of VDRFokI polymorphism on vertebra Z scores (p=0,097) was observed. Similarly, in female patients, the existence of bb genotype of VDRBsmI polymorphism was found to have a positive effect on femur bone density when measured in terms of g/cm^2 although it could not be shown statistically, (p=0.073). Different than the analysis performed with Z score, a positive effect of Ff genotype of VDRFokI polymorphism could not be found on the vertebra bone density on female patients. However, in male patients, a positive effect of Ff genotype on vertebra bone density in terms of g/cm2 was observed (p=0.061). The effects of body mass index (BMI), duration of disease and amenorrhea on BMD were studied and an opposite relation between vertebra BMD and duration of illness and amenorrhea, and a positive relation between femur BMD and BMI was found to be statistically significant in female cases.

In conclusion, vitamin D receptor gene polimorphisms BsmI bb genotype have positive effects on femur bone density, whereas FokI Fff genotype have positive effects on vertebra bone density. Statistically significant results of the effect of polymorphisms may be obtained when a larger case group is involved.

Key Words: Anorexia nervosa, bone mineral density, vitamin D and estrogen receptor gene polymorphisms