

AB017. OP17 Are there any specific HLA alleles related to morbid obesity in Turkish population

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Background: Morbid obesity is a multifactorial disease and associated with genetic and environmental factors. Adipose tissue remodeling is created with adiposity hypertrophy and activation of immune cells. Human Leukocyte Antigen (HLA) loci are also related to some inflammatory and autoimmune diseases. HLA molecules present peptides to T cells and trigger the inflammation. The present study aims to analyze the association HLA class I and class II alleles with morbid obesity disease.

Methods: HLA class I and class II alleles frequency was investigated in 80 (10 M) morbidly obese patients with 51 (40–68) kg/m² BMI who underwent obesity surgery. The control population was created from 100 healthy donors. HLA genotyping was performed using the PCR-SSO method at the low-resolution level. Chi-square and Fisher's exact test were used for statistical evaluation.

Results: When evaluated HLA class I alleles, eighteen HLA-A, twenty five HLA-B and twelve HLA-C different alleles were detected in two groups. We found that alleles frequency were very similar for all HLA class I loci in obese and control groups, although HLA-B*45 (8%) (P=0.001) and HLA*C*15 (10%) (P=0.04) alleles frequency in the patient population were significantly higher than the control group. Eighteen different HLA class II alleles were identified in this study. The certain HLA alleles frequencies in the patient population including HLA-

DRB1*03 (13.13%), -DRB1*04 (22.5%), -DRB1*08 (5.63%), -DRB1*09 (1.25%), -DRB1*12 (1.88%), -DRB1*14 (6.25%), -DRB1*16 (6.88%) were higher than the controls, only -DRB1*03 and -DRB1*04 frequencies reached statistical significance (respectively, P=0.05 and P=0.012). HLA-DRB1*01 (5%, P=0.029), HLA-DRB1*13 (5%, P=0.001) and HLA-DQB1*06 (8.75%, P=0.006) alleles were lower frequency alleles in patients and differed significantly from the healthy controls.

Conclusions: Present study demonstrates that certain HLA alleles were found to be higher in the patient population. HLA class I and class II molecules present the foreign peptides to CD8⁺ T cells and CD4⁺ T cells, respectively and promote to activation of the adaptive immune system. We conclude that as these alleles might be important for triggering the inflammation in adipose tissue, they might be associated with morbid obesity. Although presenting peptides are important as much as HLA alleles in morbid obesity. However, new researches including HLA molecule-peptide-T Cell Receptor and larger patient population are needed.

Keywords: Morbid obesity; Human Leukocyte Antigen (HLA); obesity in Turkish population

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