

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

Provenance and Peer Review: This abstract is included in “Abstracts from the 3rd Turkish National Congress on Bariatric and Metabolic Surgery, 21st-24th November 2019, Antalya-Turkey”, which is commissioned by the editorial office for the series “Bariatric and Metabolic Surgery” published in *Annals of Laparoscopic and Endoscopic Surgery*. This abstract did not undergo external peer review.

Conflicts of Interest: The authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/ales-2019-bms-28>). The series “Bariatric and Metabolic Surgery” was commissioned by the editorial office without any funding or sponsorship. MMÖ served as the unpaid Guest Editor of the series, and serves as an unpaid editorial board member of *Annals of Laparoscopic and Endoscopic Surgery* from Mar 2019 to Feb 2021. The authors have no other conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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doi: 10.21037/ales-2019-bms-28

Cite this abstract as: Özmen F, Ergen GÖ, Özmen MM. Are there any specific HLA alleles related to morbid obesity in Turkish population. *Ann Laparosc Endosc Surg* 2020;5:AB017.