

Association of ApoB, CETP and GALNT2 Genetic Variants with Type 2 Diabetes-Related Traits in Population from Bosnia and Herzegovina

Authors : Anida Causevic-Ramosevac, Sabina Semiz

Abstract : The aim of this study was to investigate the association of four single nucleotide polymorphisms (SNPs) - rs673548, rs693 in ApoB gene, rs1800775 in CETP gene and rs4846914 in GALNT2 gene with parameters of type 2 diabetes (T2D) and diabetic dyslipidemia in the population of Bosnia and Herzegovina (BH). Materials and methods: Our study involved 352 patients with T2D and 156 healthy subjects. Biochemical and anthropometric parameters were measured in all participants. DNA was extracted from the peripheral blood for the purpose of genetic testing. Polymorphisms in ApoB (rs673548, rs693), CETP (rs1800775) and GALNT2 (rs4846914) genes were analyzed by using Sequenom IPLEX platform. Results: Our results demonstrated significant associations for rs180075 polymorphism in CETP gene with levels of fasting insulin ($p = 0.020$; $p = 0.027$; $p = 0.044$), triglycerides ($p = 0.046$) and ALT ($p = 0.031$) activity in control group. In group of diabetic patients, results showed a significant association of rs673548 in ApoB gene with levels of fasting insulin ($p = 0.008$), HOMA-IR ($p = 0.013$), VLDL-C ($p = 0.037$) and CRP ($p = 0.029$) and rs693 in ApoB gene with BMI ($p = 0.025$), systolic blood pressure ($p = 0.027$), fasting insulin ($p = 0.037$) and HOMA-IR ($p = 0.023$) levels. Significant associations were also observed for rs1800775 in CETP gene with triglyceride ($p = 0.023$) levels and rs4846914 in GALNT2 gene with HbA1C ($p = 0.013$) and triglyceride ($p = 0.043$) levels. Conclusion: In conclusion, this is the first study that examined the impact of variations of candidate genes on a wide range of metabolic parameters in BH population. Our results suggest an association of variations of ApoB, CETP and GALNT2 genes with specific markers of T2D and dyslipidemia. Further studies would be needed in order to confirm these genetic effects in other ethnic groups as well.

Keywords : ApoB, CETP, dyslipidemia, GALNT2, type 2 diabetes

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