

# 4<sup>th</sup> International Conference on Clinical & Experimental Cardiology

April 14-16, 2014 Hilton San Antonio Airport, TX, USA

## Frequency of T455C polymorphism of apolipoprotein C-III gene and its association with metabolic syndrome and insulin resistance in a Kyrgyz ethnic group

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**Goal:** to study a frequency of T455C polymorphism of apolipoprotein C-III gene and its association with metabolic syndrome (MS) and insulin resistance (IR) in a Kyrgyz ethnic group.

**Material and Methods:** 259 person of Kyrgyz ethnicity were included in the study (162 with MS and 97 sex and age matched controls without coronary artery disease (CAD), diabetes mellitus (DM) type 2 and MS). Measurement of blood pressure, anthropometric data (body mass index, waist circumference WC) blood glucose, lipid profile (total cholesterol, cholesterol of low and high density lipoprotein (LDL-C and HDL-C), and triglycerides (TG)) were conducted in all examined persons. Metabolic syndrome was diagnosed according to modified ATP III criteria. In 140 immunoreactive insulin blood concentration was determined. IR was considered if the HOMA index was  $\geq 2,77$ . DNA was extracted from blood cells. T455C polymorphism of apolipoprotein C-III gene was determined by PCR methods.

**Results:** Genotype's frequency in studied group was: TT genotype – 0,21, TC – 0,58, CC – 0,21, C allele frequency – 0,50. Prevalence of C allele in MS group was significantly higher than in controls ( $\chi^2 = 4,55$   $p=0,036$ ), odd ratio (OR) for MS in CC genotype was 2,57 (95% CI 1,15 – 5,72) compare with TT carriers. There was also a strong association between CC genotype and IR ( $\chi^2 = 10,2$   $p=0,006$ , OR 5,39 (95% CI 1,71 – 16,9). ANOVA analysis showed statistically significant differences in concentration of serum insulin (5,73 (3,34 – 10,3) vs 7,54 (4,59 – 12,2) vs 11,9 (7,04-16,3)  $\mu\text{IU/ml}$ ,  $p<0,01$ ), HOMA index (1,46 (0,8 – 2,6) vs 2,05 (1,12– 3,6) vs 3,14 (1,66 – 4,79),  $p<0,05$ ), elevated level of blood triglycerides ( $>1,7$  mmol/l) (47,7% vs 66,8 vs 69,1%  $p<0,05$ ), and abdominal obesity frequency (37,7% vs 38,8% vs 57,4%,  $p<0,05$ ) between TT-, TC- and CC genotype carriers.

**Conclusion:** In examined Kyrgyz ethnic population the most frequent was heterozygous TC genotype of T455C polymorphism of apo C-III. The association of 455C allele and C455C genotype with MS and IR was revealed.

### Biography

Erkin M. Mirrakhimov graduated Kyrgyz State Medical Academy in 1983. He has completed his Ph.D. at the age of 28 years from Russian Scientific Research Center in Moscow. He is the Head of Internal Disease department in Kyrgyz State Medical Academy and Kyrgyz national Center of Cardiology. He has published more than 30 papers in reputed journals.