Prevalence of cardio-metabolic risk factors in a nationally representative sample of Iranian adolescents: The CASPIAN-III Study

Kelishadi, Roya; Heshmat, Ramin; Farzadfar, Farshad

Introduction: The aim of the present study is to explore the prevalence and mean of cardio-metabolic risk factors and liver enzymes of Iranian adolescents living in regions with different socioeconomic status (SES). To the best of our knowledge this is the first study reporting these data at sub-national level in Iran.

Methods: This multi-centric study was performed in 2009-2010 on a stratified multi-stage probability sample of 5940 students aged 10-18 years, living in urban and rural areas of 27 provinces of Iran. Trained healthcare professionals measured anthropometric indices, systolic and diastolic blood pressures (SBP, DBP) according to standard protocols. Fasting venous blood was examined for fasting blood sugar (FBS), lipid profile and liver enzymes including alanine aminotransferase (ALT) and aspartate aminotransferase (AST). We classified the country into four sub-national regions based on criteria of the combination of geography and SES. Mean and frequency of risk factors were compared across these regions.

Results: The mean of body mass index had linear rise with increase in the regions' SES (P for trend < 0.001). The mean levels of DBP, total cholesterol (TC), high-density lipoproteincholesterol (HDL-C), triglycerides (TG), FBS, ALT, and AST had linear association with regions' SES in the whole population and in both genders (P for trend < 0.05), whereas the corresponding figure was statistically significant for the mean SBP only in girls (P for trend: 0.03) and for the mean of LDL-C in the whole population and in boys (P for trend < 0.001). In total and in both genders, there was an escalating trend in the prevalence of elevated FBS, TC and liver enzymes, low HDL-C, and metabolic syndrome by increase in the SES of the region(P for trend < 0.01).

Conclusion: This study proposes that in addition to national health policies on preventing cardiometabolic risk factors, specific interventions should be considered according to the regional SES level.

Keywords: cardio-metabolic, risk factors, nationally