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Prevalence of obesity and cardiovascular risk factors in the population of low, moderate and high altitude regions of Kyrgyzstan (preliminary results).

Erkin Mirrakhimov

National Center of Cardiology and Internal Medicine, Kyrgyzstan

Abstract

Materials and mehods: Study for assessment prevalence of cardiovascular (CVD) risk factors among population of three different regions (low altitude (LA) (760-1500 m above see level), modereate altitude (MA) (1500 – 2500 m) and high altitude (HA) (2500-4200 m)) of Kyrgyzstan was conducted in 2008, 2009 and 2012. 1276 persons (340 – LA, 726 – MA and 210 HA regions) (853 women, 423 men) 35-80 years old (mead age 52,7±12,2), after sign of informed consent were included in the analysis. All included persons were examined by cardiologist with assessment of CVD risk and risk for diabetes mellitus (DM) type 2 using questionnaire of Finish Diabetes Association (FINDRISK). Measurement of blood pressure, anthropometric data (weight, height, body mass index (BMI), waist (WC) and hip circumference). Fasting capillary blood glucose also was measured in 1156 people. Data was stratified according the age (35-44 y, 45-54 y, 55-64 y and ≥65) and was analyzed separately in men and women.

Results: Persons ≥65 y old in the HA regions were rare, so that for this age strata analysis was conducted only for moderate - and lowlanders. Frequency of obesity (BMI≥30 kg/m^2) was higher in LA conditions both in men and women (LA-28%, MA-12,9%, HA- 19,1% p<0,01 in men; and 41%, 30,5, 30,5% p< 0,05 in women), and was significantly higher in women versus men in all regions. The same tendency was also seen for the abdominal obesity (AO) (WC in men ≥102 см, in women ≥88 см) (35,5%, 18,7%, 21,6% p<0,001 in men; 73,7%, 56,3%, 57% p<0,001 in women). These differences between regions were observed mostly in groups younger 55 y old. In men the highest frequency of obesity and AO in LA regions was in the group of 35-44 y and then was going down from 45-54 to ≥65 groups. In MA and HA conditions the highest % of obesity was in subgroup of 55-64 y. In women the highest frequency of obesity and AO also were noted in subgroup of 55-64 y independently of the region. Arterial hypertension (AH) also was more prevalent in lowlanders (57,9%, 31%, 21% p -<0,001 in men; 48,7%, 31,9%, 17,1% p<0,001 in women) mainly for population from 45 to 64 y. Low frequency of AH in highlanders especially in groups older than 55 y was partly due to changes of the place of residence after development of the disease. The frequency of AH was raised with the age in men and women in all three regions. Difference for the DM type 2 between LA, MA and HA was not significant in men and women, but the FINDRISK score was higher in LA men, mostly in group younger 45 y old due to higher BMI, WC and use of antihypertensive drugs. In women risk for DM type 2 did not differ significantly, but analysis in age strata showed the increasing of FINDRISK score in MA and HA age subgroups older 55 y, mostly due to lower physical activity and consumption of fruit and vegetables. Smoking frequency in women was low and did not differ significantly between regions. In men prevalence of smoking was higher in HA region (43,9%, 31,4%, 60% p<0,005) mostly in younger age subgroup where the number of smokers was surprisingly high (76,5%).

Conclusion: Prevalence of obesity and AH were higher in low altitude regions of Kyrgyzstan, especially in young, able-bodied subgroups. Larger epidemiological studies are needed.

Biography

Erkin M. Mirrakhimov, MD, PhD, professor. Graduated Kyrgyz State Medical Institute in 1983. In 1983-1989 and 1991-1995 worked at Scientific Research Cardiological Center in Moscow, Russia. From 1995 till now works as head of Internal Chair at Kyrgyz State Medical Academy, Bishkek, Kyrgyzstan, Head of Atherosclerosis and Coronary Heart Disease department at National Center of Cardiology and Internal disease, Bishkek, Kyrgyzstan, professor of Internal Chair ant Kyrgyz-Russian (Slavic) University. The main field of scientific interest is markers of cardiovascular disease and metabolic syndrome including people living at high altitude. Results of scientific work published in different peer-reviewed journals. He is a President of Kyrgyz Society of Cardiology.