CARDIOVASCULAR RISK MARKERS IN METABOLICALLY HEALTHY AND METABOLICALLY UNHEALTHY OBESE ADOLESCENTS

T.Chaychenko

Kharkiv National Medical University, Ukraine

Background: The theory of "Metabolically healthy obese individuals" is become very popular in researchers across the world. Nevertheless, obese persons are at increased risk for adverse long-term outcomes compared with metabolically healthy normal-weight individuals.

Objective: to determine the obesity-related cardiovascular comorbidities in metabolically healthy obese adolescents comparatively to lean and metabolically unhealthy ones.

Methods: 208 obese adolescents aged 10 to 17 were examined with an analysis of body composition, lipid and carb parameters, evaluation left ventricular (LV) geometry and function, 24-hours BP monitoring, carotid intima-media thickness (CIMT). IDF criteria were used for grouping for metabolically healthy (MH) and metabolically unhealthy (MUH). Control group - 27 lean healthy (LH) subjects. Standard statistical methods were used for the data analysis.

Results: BMI in MUH group was greater than in MH (p=0,019) due to fat mass (p= 0,020), despite of the same values of waist to height ratio (p= 0,071) and lean mass (p=0,124). Interestingly the upper arm circumference to lean mass ratio was greater in MUH vs. MH (p=0,031). Clearly lipid parameters (TC,TG, HDL, FFA) were higher in MUH vs. MH (p<0,001 for all) and in MH vs. LH (p<0,001 for all). Fasting insulin levels and HOMA-IR were similar (p=0,431; p=0,364), but greater vs. LH.

LV mass indexed was increased in all obese subjects: LH vs. MH and MUH (p=0,013; 0,002), but without difference MH vs. MUH (p=0,469). CIMT higher in obese (p<0,001) and no distinction MH vs. MUH (p=0,199). SBP gradually growing from lean to MUH (LH vs. MH p<0,001; MH vs. MUH p=0,014). DPB didn't reveal any difference with a lean group.

Conclusion: Our data suggests the presence of independent cardiovascular risk markers such as myocardial hypertrophy, thickening carotid vessels and systolic hypertension in both metabolically healthy and unhealthy individuals. Considered the lipid flux between fat and lean body compartments at the insulin resistance background plays the key role in risk development.