

Metabolic syndrome in grown-up children of patients with premature coronary heart disease.

Relation to own and parental characteristics.

MV. Konnov, LM. Dobordzhginidze, AD. Deev, NA. Gratsiansky

Center for Atherosclerosis, Institute Of Physico-Chemical Medicine, Moscow, Russian Federation

Background It is especially important to elucidate possible contributors to early appearance of metabolic syndrome (MS) in children of patients with premature coronary heart disease (CHD).

Purpose: To elucidate associations between MS in children of patients with premature (onset <55 years) coronary heart disease (CHD) and their own and parental characteristics.

Parameters registered: alcohol consumption, tobacco smoking, education, oral contraceptive use, menses, height, body mass index, waist circumference, heart rate, systolic and diastolic blood pressure, total cholesterol (CH), low (LDL) and high (HDL) density lipoprotein CH, triglycerides, blood glucose, arterial hypertension (JNC 7 criteria), diabetes mellitus (WHO criteria), MS (IDF criteria).

***MS criteria in children*:**
central obesity† and/or obesity (BMI ≥ 30 kg/m²)

plus any two of the following four factors:

- raised triglycerides (≥ 1.70 mmol/L) or specific treatment for this lipid abnormality;
- reduced HDL-cholesterol (< 1.03 mmol/L [in males], < 1.29 mmol/L [in females]) or specific treatment for this lipid abnormality;
- raised blood pressure (systolic ≥ 130 mm Hg) or diastolic ≥ 85 mm Hg or treatment of previously diagnosed arterial hypertension
- raised fasting plasma glucose (FPG ≥ 5.60 mmol/L or previously diagnosed type 2 diabetes

*www.idf.org (International Diabetes Federation, 2005)

†defined as waist circumference ≥ 94 cm (in males) and ≥ 80 cm (in females)

Table 1. Results of univariate analysis

Factors related (with $p < 0.1$) to MS in children	OR	95% CI	P
<i>diabetes mellitus of proband</i>	2.79	1.09 to 7.09	0.032
<i>high density lipoprotein cholesterol of non-proband</i>	0.09	0.01 to 0.95	0.046
<i>low density lipoprotein cholesterol of non-proband</i>	2.05	0.97 to 4.36	0.062
<i>metabolic syndrome of non-proband</i>	3.42	0.92 to 12.7	0.066

Conclusion

- In this group of young adults with parental premature CHD:
- (1) MS was not related to any of studied own characteristics;
 - (2) diabetes mellitus of parent with premature CHD was the strongest predictor of MS;
 - (3) a characteristic of parent-nonproband notably HDL CH level was also associated with MS.

Material: 143 parents-probands with premature CHD aged 36-63 years (94 [65.7% men]), 98 their spouses aged 36-63 years (23 [23.5%] men) and 225 their own children aged 16-37 years (115 [51.1%] men)

Methods: Body mass index (BMI) was calculated as follows: body mass (kg)/height (m²). Low density lipoprotein cholesterol was calculated with Friedwald's formula. For diagnosis of diabetes mellitus was used oral glucose tolerance test (WHO-criteria). Before logistical regression for reduction of continuous coronary risk factors variability and to suppress possible outliers the symmetric censoring of 1% of their values was carried out. Predictors were selected by logistical regression analysis with adjustment for age and sex.

Results

Children

- with MS (13/26 [50% males])
 - 26/225 (11.6%)
- with central obesity only (10/25 [40% males])
 - 25/225 (11.1%)
- normal waist circumference (92/174 [52.9% males])
 - 174/225 (77.3%)

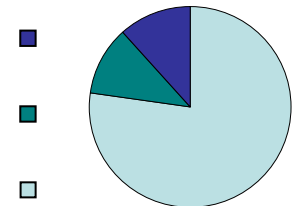


Table 2. Results of multivariate analysis

Independent predictors of MS in children	OR	95% CI	P
<i>diabetes mellitus of proband</i>	2.79	1.09 to 7.09	0.032
<i>high density lipoprotein cholesterol of non-proband</i>	0.09	0.01 to 0.95	0.046