Elevated blood pressure in children of patients with premature coronary heart disease
Relation to own and parental risk factors

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Background It is especially important to elucidate possible contributors to early appearance of additional cardiovascular risk factors e.g. elevated blood pressure (BP) in children of patients with premature coronary heart disease (CHD).

Objectives: To elucidate associations between elevated BP in children of patients with premature CHD (onset before 55 years) and their own and parental risk factors.

Material: 88 patients with overt premature CHD aged 32-55 years (75 [85.2%0] men) and 116 their own children aged 5-17 years (73 [62.9%] men)

Methods: Body mass index was calculated as follows: body mass (kg)/height (m^2). Low density lipoprotein cholesterol was calculated with Friedwald's formula. For diagnosis of impaired glucose tolerance and 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.

Parameters registered: height, weight, waist circumference, heart rate, systolic and diastolic BP, total cholesterol, high density lipoprotein cholesterol, triglycerides, blood glucose, impaired fasting glucose and glucose tolerance and diabetes mellitus (WHO-criteria), and (for adult) alcohol, tobacco smoking, education, arterial hypertension (JNC-7 criteria), metabolic syndrome (IDF-criteria)

***Elevated BP criteria in children:**
- arterial prehypertension
(BP ≥90-<95 percentile or ≥120/80 mm Hg);
- arterial hypertension (BP ≥95 percentile)

*NHLBI 4-th report on diagnosis, evaluation, and treatment of high blood pressure (BP) in children and adolescents, USA, 2004 (BP values were adjusted for 3 categories of height: ≤25, >25 and <75, ≥75 percentile)

Results

Children with elevated BP

Normal BP – 94/116 (81.0%)
Prehypertension – 17/116 (14.7%)
Hypertension – 5/116 (4.3%)

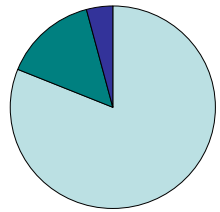

Table 1. Results of univariate analysis

Factors related (with p<0.1) to **elevated BP** in children	OR	95% CI	P
own body mass index	1.51	1.22 to 1.87	0.000
own waist circumference	1.11	1.05 to 1.18	0.001
own fasting glucose	4.11	1.44 to 11.69	0.008
own triglycerides	3.31	1.10 to 9.94	0.033
own heart rate	1.05	0.99 to 1.11	0.060
smoking of proband	1.67	1.01 to 2.79	0.048

Table 2. Results of multivariate analysis

Independent predictors of **elevated BP** in children	OR	95% CI	P
own body mass index	1.56	1.24 to 1.97	0.000
own heart rate	1.07	1.01 to 1.14	0.035

Conclusion

In this group of children with parental premature CHD:
(1) elevated BP was not related to any of studied characteristics of proband;
(2) children's body mass index was the characteristic independently and strongly associated with elevated BP.

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