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**ABSTRACTS FROM THE 4TH INTERNATIONAL  
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AMERICAN HEART ASSOCIATION

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**“EXTENDING THE BENEFITS  
OF PREVENTION TO ALL”**

PULSUS



## 0276

### TREND OF ELEVATED BLOOD PRESSURE FROM CHILDHOOD TO ADULTHOOD OVER A 17-YEAR PERIOD. CAN ESSENTIAL HYPERTENSION BE PREDICTED?

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Objectives: To establish the trend of elevated blood pressure over time. Hypertension (HT) is a major risk factor for cardiovascular disease. We aimed to establish the prevalence of elevated blood pressure in a sample of participants in a prospective study.

Design and Methods: A longitudinal study of 1000 subjects (500 women and 500 men) aged 11 years at the start of the study and 28 years at the end. Two questionnaires (prevalence and incidence) were used and the prevalence of the condition at the end of the study was compared with participants who remain in the study and who do not have HT at the end of the study.

Results: Prevalence of HT was 10.0% in the adult population. There was a clear trend of elevated blood levels (10.0% to 10.9%) for systolic BP and 10.0% to 10.1% for diastolic BP, varying by age group. A greater number of subjects (46.1%) for systolic BP and 47.7% for diastolic BP, whose levels were in the higher tertile at the end of the study had their HT levels in the higher tertile at the end of the study. The prevalence of HT was higher in women. Our findings suggest that people at highest risk of hypertension are those with HT in young age.

## 0277

### BLOOD PRESSURE INCREASES IN CHILDHOOD ARE RELATED TO INCREASED LEFT VENTRICULAR MASS IN ADOLESCENCE

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Left ventricular mass (LVM) is a determinant factor for left ventricular hypertrophy. In the cardiovascular system, left ventricular hypertrophy is directly related to blood pressure levels. The Dunedin Multigeneration Study is a developmental study with longitudinal follow-up of one selected birth cohort (N=1037) from New Zealand, young adulthood (1976-82) and old adulthood (1994-2002) samples of 22 females and 210 males assessed at age 11, 26 and 32 years old, and contains the distribution of LVM and left ventricular hypertrophy and left ventricular mass measured at repeated intervals across many ages and sexes. LVM (mean  $\pm$  SD) was higher in boys (117 $\pm$ 28g) than in girls (107 $\pm$ 24g) (p<0.01), with significant percent differences by weight when LVM was indexed by body mass index, height or height<sup>2.7</sup>. Among boys and girls, LVM (indexed for height<sup>2.7</sup>) was independently (p<0.001, p<0.01) associated with body mass index, weight, and increases in systolic blood pressure (average 7.1) and inversely related to exercise heart rate (mean 148/min) and blood pressure (age).

These results suggest important risk factors for variations with LVM in an early life that have relevance for prevention strategies in young.

## 0278

### IS THE ESSENTIAL HYPERTENSION A METABOLIC DISEASE?

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Objective: To assess the prevalence of metabolic risk factors in subjects with essential hypertension.

Methods: 555 men and 610 women aged 15-70 years (mean 47.6 years) of the Czech population and examined by standard procedure in 1986-97. The whole cohort was divided into the hypertension group (n=303) and 252 normotensive subjects of 115 (27 years) and 137 (57 years) and mean values were 132 $\pm$ 14/82 and 140/92 and negative history of HT. Analysis of covariance (ANCOVA) and Fisher's method were used for the calculation.

Results: Males with essential HT had higher values of BMI, FPG, HDL and high-density lipoprotein cholesterol (HDL-C) and lower values of waist circumference, triglycerides, fasting insulin, HDL-C and HDL-C/HDL-C ratio.

Conclusion: Essential hypertension in the adult population is associated with and have more other metabolic risk factors. Younger men and older women are related to the different metabolic factors between treated and untreated hypertension, women. The HT symptoms are likely to be linked to risk factors of hypertension in subjects by age and sex.

Factors	Females (n=148)		Males (n=211)	
	<45 y	>45 y	<45 y	>45 y
BMI >27	5.89***	2.62***	2.58***	1.69***
FPG >150 mg/dl	0.04 NS	0.57*	0.38*	1.12 NS
TC >165 mg/dl	2.75**	1.65*	2.23**	1.19 NS
TG >160 mg/dl	2.65**	1.25 NS	1.38 NS	0.86 NS
Gly >5.6 mmol/l	1.28 NS	1.61 NS	1.15 NS	0.67 NS

Conclusion: Subjects with HT in the adult population are associated with and have more other metabolic risk factors. Younger men and older women are related to the different metabolic factors between treated and untreated hypertension, women. The HT symptoms are likely to be linked to risk factors of hypertension in subjects by age and sex.

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## 0279

### OXIDATIVE STRESS AND URINARY ALBUMIN EXCRETION IN ESSENTIAL HYPERTENSION

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 Increased homocysteine and oxidized LDL (oxLDL) suggest early atherosclerotic vascular dysfunction. This has been related to cardiovascular risk. Furthermore, the level of oxidative stress (OS) in the development of vascular disease has been related to differences between urinary AEB and CVD in essential hypertension. Objective: To evaluate the relationship between urinary AEB and OS in essential hypertension.

Methods: Serum homocysteine, oxLDL, homocysteine, and oxidized LDL were measured in 100 essential hypertension patients (50 M/50 F). OxLDL were measured with auto-oxidation of serum homocysteine in the presence of CuCl<sub>2</sub>. EMB (antioxidant) and OS (as oxLDL) were measured in 100 essential hypertension patients (50 M/50 F) and in 100 normotensive controls (50 M/50 F). OxLDL and homocysteine were measured according to AEB (no microalbuminuria) (M) and microalbuminuria (M) (M) and in 100 normotensive controls (50 M/50 F). OxLDL and homocysteine were measured in 100 essential hypertension patients (50 M/50 F) and in 100 normotensive controls (50 M/50 F).

Results: The patients with MIA showed significantly elevated serum homocysteine, oxLDL, and oxidized LDL compared to normotensive patients. OxLDL and homocysteine were significantly higher in MIA patients than in normotensive controls. Urinary AEB was correlated with serum homocysteine (p<0.001, p<0.001) and oxidized LDL (p<0.001, p<0.001) indicating possible association between AEB and OS markers.

	MA patients	NA patients	Control
oxLDL (nmol/L)	45.4 $\pm$ 3.1*	38.4 $\pm$ 2.5	37.8 $\pm$ 2.0
TBARS (nmol/L)	0.88 $\pm$ 0.03*	0.77 $\pm$ 0.05*	0.48 $\pm$ 0.05
Fe-TBARS (pmol/L)	1.49 $\pm$ 0.06*	1.29 $\pm$ 0.04*	1.07 $\pm$ 0.05
AOC <sub>12h</sub> (h)	39.4 $\pm$ 0.6**	34.0 $\pm$ 0.6*	39.4 $\pm$ 0.5
GSII (mg/dl/100d)	55.2 $\pm$ 4.2*	57.5 $\pm$ 3.4	54.1 $\pm$ 2.7

\*p<0.05, \*\*p<0.001, \*\*\*p<0.0001 vs. NA group

Conclusion: The results suggest that increased levels of AEB are associated with higher concentrations of OS markers in patients with HT. This relationship may be a potential biomarker for the development of cardiovascular complications in HT patients.