

## I26

## PREVALENCE OF ARTERIAL HYPERTENSION IN CHILDREN AND ADOLESCENTS. INFLUENCE OF OBESITY.

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Obesity is associated with elevated blood pressure (BP) mainly in adults. It has been suggested that body fat patterning plays a role in the etiology of hypertension. This relationship also exists in children, however it is less known.

The aim of this study was to evaluate the prevalence of hypertension in children and adolescents. The influence of obesity on this hypertensive population was investigated as well as the familial aggregation. 889 children 5-18 years old of both sexes (389 boys and 500 girls) from the North of Portugal and their parents have been studied. Systolic blood pressure (SBP), diastolic blood pressure (DBP), weight, height, triceps skinfold, body mass index (BMI) and sexual maturation were measured. The criterion of hypertension was defined as the BP being higher than the 95 percentile. All variables were converted to age and sex in specific Z-scores. A SPSS package was used.

We have found 47 (5.2%) hypertensive people of both sexes. The children of this group were compared with the normotensive group. The hypertensive children are heavier ( $P < 0.005$ ) and more obese ( $P < 0.0001$ ) than the others. No difference was found for sexual maturation and height. The parents of hypertensive group had higher SBP ( $p < 0.001$ ), and DBP ( $p < 0.01$ ), were heavier ( $p < 0.001$ ) and more obese ( $p < 0.01$ ) than the parents of normotensive group. In conclusion: obesity is an important factor in children hypertension. Hypertensive children are more likely to come from families with histories of hypertension or obesity.

Key Words: children, hypertension, obesity, familial aggregation.

## I28

## DOES DYSLIPIDEMIA AND INSULIN (INS) RESISTANCE RELATE TO BLOOD PRESSURE (BP), AGING AND BMI?

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To evaluate the relationships between dyslipidemia, INS resistance, BP, aging, and BMI, we measured BP, fasting blood glucose (BG), plasma INS, total cholesterol (T-ch), HDL, VLDL, LDL-ch, and triglyceride (TG) after overnight fasting and area under the curve (AUC) of BG and INS after 75g glucose ingestion in 1023 Japanese, non-obese, non-diabetic males (age range: 18-103 yrs; BMI range: mean BP correlated significantly with fasting INS ( $R=0.16$ ,  $P=0.0007$ ), AUC of INS ( $R=0.17$ ,  $P=0.004$ ), T-ch ( $R=0.15$ ,  $P=0.0018$ ), VLDL-ch ( $R=0.19$ ,  $P=0.0001$ ), LDL ( $R=0.15$ ,  $P=0.0015$ ), TG ( $R=0.13$ ,  $P=0.0056$ ), and BMI ( $R=0.36$ ,  $P=0.0001$ ), and BMI correlated significantly with fasting INS ( $R=0.28$ ,  $P=0.0001$ ), T-ch ( $R=0.26$ ,  $P=0.0001$ ), VLDL ( $R=0.38$ ,  $P=0.0001$ ), and TG ( $R=0.31$ ,  $P=0.0001$ ). Furthermore, age correlated significantly with T-ch ( $R=0.19$ ,  $P=0.0001$ ) and TG ( $R=0.36$ ,  $P=0.0001$ ). These results suggest that in Japanese non-obese, non-diabetic males, abnormality in lipid metabolism, reduced INS sensitivity and obesity play important roles in the onset and maintenance of hypertension.

Key Words: dyslipidemia, insulin resistance, blood pressure, aging, BMI

## I27

## IS THE EFFECT OF ETHANOL ON BLOOD PRESSURE INDUCED BY AN INCREASED WAIST/HIP RATIO?

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Abdominal accumulation of fat is associated with an unfavorable cardiovascular risk factor profile including hypertension. Moderate ethanol consumption (EC) is associated with elevated systolic and diastolic blood pressure (sys/dia BP). EC frequency and other life style factors (i.e. diet, exercise, stress perception, smoking) were evaluated in 1291 subjects (937 men, 354 women) by a questionnaire. The fat distribution pattern was assessed by measurement of the waist/hip (W/H) ratio. BP was measured twice with a semiautomatic oscillometric measurement device. The W/H ratio and sys/dia BP according to EC frequency are summarized in table 1:

Ethanol consumption	n	W/H-ratio	sys BP (mmHg)	dia BP (mmHg)
< 1 day/week	442	0.87	123	76
1-2 days/week	473	0.90	123	77
3-4 days/week	201	0.93	127	79
daily	175	0.93	128	80

A multiple regression model showed that after sex, age and absolute body weight ethanol consumption was the major determinant of the W/H ratio and BP. Our data suggest that ethanol consumption is associated with increased abdominal fat deposition which leads to a higher blood pressure.

Key Words: ethanol, alcohol, hypertension, fat distribution

## I29

## DYSLIPIDEMIA, INSULIN RESISTANCE AND BLOOD PRESSURE STATUS IN NON-OBESSE, JAPANESE POPULATIONS: COMPARISONS BETWEEN YOUNG AND ELDERLY SUBJECTS.

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To evaluate the relationships among dyslipidemia, reduced insulin sensitivity or insulin resistance, and blood pressure in young and elderly, non-obese, Japanese males who are living in Osaka, Japan, we undertook this study. In 862 males, consisting of 454 young (22-65 yrs,  $45 \pm 5$  (SD) yrs) and 408 elderly (66-93 yrs,  $78 \pm 3$  yrs) subjects, blood pressure, fasting blood glucose (BG), fasting plasma insulin (INS) and norepinephrine (NE), total cholesterol (T-ch), triglyceride (TG), HDL-ch, VLDL-ch, LDL-ch were measured after more than 12 hrs fasting in supine position. None had extreme obesity, diabetes nor family history of diabetes. Young and elderly subjects were matched in body mass index ( $22.8 \pm 1.0$  vs  $22.7 \pm 0.8$  kg/m<sup>2</sup>) and BP status (number of NT:BHT:EHT, 226:120:108 vs 200:119:89). BG and INS were also measured every 30 min for 2 hrs after 75g glucose ingestion to calculate area under the curve (AUC) for BG and INS. Fasting BG, T-ch, VLDL, TG and AUC for INS were significantly greater in elderly subjects than those in young subjects, but AUC for BG was similar to each other. In young subjects, only T-ch and fasting INS correlated significantly with mean BP ( $R=0.39$ ,  $P=0.02$ ,  $R=0.56$ ,  $P=0.012$ ), on the other hand, in elderly subjects, TG and VLDL-ch correlated significantly with mean BP ( $R=0.38$ ,  $P=0.029$ ,  $R=0.49$ ,  $P=0.025$ ), but T-ch did not. In all subjects, regardless of BP status and age, TG, VLDL-ch and fasting INS correlated with mean BP, systolic BP and diastolic BP, and TG and fasting INS correlated with BMI. These results suggest INS resistance and dyslipidemia appears to be responsible for BP levels in non-obese Japanese male.

Key Words: insulin resistance, dyslipidemia, blood pressure, aging