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THE INFLUENCE OF PROGRESSIVE OR ABRUPT DECREASE OF SEX HORMONES ON LIPIDS IN HYPERTENSIVE WOMEN

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To evaluate the influence of sex hormones on lipid profile we studied 2000 medication-free hypertensive women. All patients were grouped in four groups according to their hormonal status: 455 women were premenopausal (41 ± 5 years) group A, 768 menopausal (50 ± 6 years) group B, 640 after menopause (68 ± 5 years) group C, and 137 women with hysterectomy (56± 8 years) group D.

Mean arterial blood pressure (161/105, 170/105, 176/100, 169/104 mm/Hg, p<0.0001), total cholesterol (222, 241, 245, 244 mg/dl p<0.0001) and triglycerides (117, 123, 128, 119 mg/dl p<0.0001) increased as estrogens fell. It was observed that 30% of the women studied developed hypertension within 5 years of menopause.

HDL cholesterol had lower values in group A (50, 53, 54, 54 mg/dl) and this was probably due to the higher incidence of smoking in young premenopausal hypertensive women, while LDL-C had lower values in group A (151, 169, 170, 171 mg/dl, p=0.008). Lp(a) increased in parallel with the decrease of estrogens (21, 27, 32, 23 mg/dl), as well as fibrinogen (287, 302, 329, 302 mg/dl, p=0.0002). Furthermore, fibrinogen depended on age, in all groups studied (r=0.25 p=0.0001).

It is concluded that the decrease of sex hormones in hypertensive women plays a major role in lipid profile and especially in Lp(a) and fibrinogen values.

Key Words: Serum lipids, fibrinogen, LP(a), menopause, estrogens, hypertensive women.

I23

SEX DIFFERENCES IN AGE-RELATED CORONARY RISK FACTORS IN A HYPERTENSIVE POPULATION.

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To assess the gender differences in risk factor incidence and severity, 1000 male and 1000 female hypertensives were studied, according to age decade. Females were grouped according to their hormonal status as well, in pre- and post- menopausal subjects and in those with oophorectomy (n=?89, 633, 78).

In men, total cholesterol was higher in the 5th and 7th decade (228 & 225 mg/dl p=.0005), triglycerides in the 5th (141 mg/dl p=.001) and LDL in the 5th and 7th (155 & 154 mg/dl p=.02), while fibrinogen was linearly related to age (p<.000001). The Lp(a) had higher values in late life (p=.01) while plasma renin activity (PRA) diminished with age (p=.004). In women, obecity peaked in early life (5th decade, 28.9 kg/m^2), while total cholesterol increased with age (p<.000001) more than in men in the 6th and 7th decades (234 & 244 mg/dl, p<.0001), and in post menopausal women (219 vs 238 mg/dl, p<.0001). HDL was higher in women than men in all age decades, irrespectivelly of hormonal status, while apolipoprotein A_1 decreased with age, with higher values than men in the early decades (p<.001). Fibrinogen increased with age (p<.0001), more than men in the 8th decade (342 vs 310 mg/dl p<.. 001). PRA decreased in middle ages (p<.0001), depending on hormonal status (1.8, 1.3, 0.9 ng/ml/h, p<.005).

It is concluded in hypertensives risk factors increase in severity with age, gradually in men and more abruptly in women, according to their hormonal levels.

Key Words: Risk factors, menopause, plasma renin activity, fibrinogen.

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TARGET ORGAN DAMAGE AND RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM IN ESSENTIAL HYPERTENSIVES WITHOUT AND WITH METABOLIC RISK FACTORS

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Hypertension, dyslipidemia and glucose intollerance are closely related and are actually considered the features of the metabolic syndrome.

Aim of our study was to evaluate target organ damage (TOD) in mild-moderate hypertension with different degree of metabolic risk factors.

41 patients (20 M, 21 F; age 39±1.6 years) not treated with hypotensive drugs (casual blood pressure>140/90 mmHg) without any evidence of cardiovascular disease or secondary hypertension underwent 24-hour blood pressure (BP) monitoring (Spacelabs 90207) and fasting cholesterol, apolipoprotein A-I and B, glucose and insulin levels after glucose oral intake were determined. Based on these parameters they were divided in 3 groups: 13 normotensives and two groups of 14 hypertensives with comparable BP values but different degree of metabolic risk factors. TOD was evaluated by fundoscopy, microalbuminuria and Sokolow Lyon index (SLI).

Plasma renin activity, renin, angiotensin II and aldosterone levels in basal condition and after walking were measured by radioimmunoassay.

The prevalence of microalbuminuria>30mg/24h, left ventricular hypertrophy (SLI) and hypertensive retinopathy (grade II) was not different in the two groups of hypertensive patients (35.7% vs 42.8%, 23% vs 23% and 21.4% vs 35.7%; NS). Renin and angiotensin levels were not related to BP values or TOD or presence of metabolic risk factors.

Apolipoprotein A-I levels were negatively correlated with nocturnal systolic BP [r=-0.321; p<0.05]. The multiple regression analysis showed that left ventricular hypertrophy (SLI) is independently linked to nocturnal systolic BP (NsBP), sex and basal aldosterone levels (bALD) [SLI=0.2 bALD+5.2 sex+0.3 NsBP-17.6].

We conclude that hypertension is the major factor in the development of TOD, nocturnal systolic BP values may be linked to apolipoprotein A-I, left ventricular hypertrophy could be related to basal serum aldosterone independently of arterial BP.

Key Words: target organ damage, ambulatory blood pressure, renin-angiotensin-aldosterone system.

I25

PRINCIPAL COMPONENT ANALYSIS (FACTOR ANALYSIS), A MORE ACCURATE METHOD TO BE USED IN EPIDEMIOLOGICAL STUDIES OF BLOOD PRESSURE IN CHILDREN.

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The aim of our study was to evaluate if the Principal Component Analysis could explain better the variance of systolic blood pressure (SBP) and diastolic blood pressure (DBP) than Regression Analysis, usually used to study a set of variables related to blood pressure (BP).

SBP, DBP, weight, height, BMI, triceps skinfold and sexual maturation was studied in 889 children 5-18 years old (389 boys and 500 girls).A SPSS package was used.

This method transforms any set of variables into a set of new variables (factors) which are uncorrelated with each other and are used to explain the variance of the independent variable - the blood pressure. With this method, the algorithm accepts all of the dependent variables, while the regression analysis rejects most of them. This method is able to explain the maximal variance of the sample, loosing as little information as possible. In our sample the total variance (communality) explained by the three principal components was 80.3% for SBP, 88.1% for DBP in males, 79.3% for SBP and 90.7% for DBP in females. For the same sample the regression analysis only explained 41.2% in males and 41.9% in females of SBP, 40.9% in males and 47.2% in females of DBP.

In conclusion: this method is much more accurate for epidemiological studies and it produces a better overall score than regression analysis, without loosing almost any information of the sample.

Key Words: blood pressure, principal components analysis, epidemiological studies.