EM-09 High blood pressure is related to obesity in Hong Kong

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Introduction: Obesity predisposes to the development of hypertension. We have previously found that blood pressure correlated with indices of obesity in Hong Kong Chinese. We sought to confirm this association in subjects randomly chosen from the general population.
Method: 813 subjects (393 men, 420 women; age 51±12 yrs) recruited for the Hong Kong Cardiovascular Risk Factor Prevalence Survey-2 (CRISPS2) were studied. 214 of them were hypertensive (systolic blood pressure ≥ 140mmHg or diastolic blood pressure ≥ 90 mmHg or taking antihypertensive medication) and the other 599 were normotensive. The medical history was obtained and the subjects were examined with special attention to blood pressure and indices of obesity. Body fat was assessed using bioelectrical impedence.
Results: Diastolic blood pressure (DBP) was related to age ($r=0.16$, $p<0.001$) and indices of obesity including body mass index ($r=0.35$, $p<0.001$), body fat ($r=0.12$, $p=0.004$), waist circumference (WC) ($r=0.40$, $p<0.001$) and waist-to-hip ratio ($r=0.35$, $p<0.001$). Systolic blood pressure (SBP) was also related to age ($r=0.50$, $p<0.001$), WC ($r=0.37$, $p<0.001$) and the other indices of obesity. Multiple regression analysis suggested that WC (ß=0.40, $p<0.001$) was the only independent predictor of DBP, whereas age (ß=0.45, $p<0.001$) and WC (ß=0.23, $p<0.001$) were independent predictors of SBP ($R^2=0.30$, $p<0.001$). DBP correlated with WC in both men ($r=0.32$, $p<0.001$) and women ($r=0.37$, $p<0.001$). Similarly, SBP correlated with WC in both men ($r=0.20$, $p<0.001$) and women ($r=0.40$, $p<0.001$).
Conclusions: Our results confirm that blood pressure is related to obesity. WC is a simple measurement and a good predictor of blood pressure, especially in women. As the relationship between blood pressure and obesity is continuous, tackling obesity in the community as well as in hypertensive individuals may reduce the incidence and prevalence of hypertension and other cardiovascular risk factors.

EM-10 Correlation between plasma phospholipid transfer protein activity and low density lipoprotein subfractions pattern in subjects with type 2 diabetes mellitus

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Introduction: Phospholipid transfer protein (PLTP) plays an important role in the remodelling of high density lipoprotein (HDL) by facilitating the transfer of phospholipids between lipoproteins. It may also enhance cholesteryl ester transfer mediated by cholesteryl ester transfer protein (CETP). Since the formation of small dense low density lipoprotein (LDL) also involves lipid exchange between LDL particles and triglyceride-rich lipoproteins, we have investigated the relationship between plasma PLTP activity and LDL subfractions pattern in patients with type 2 diabetes mellitus (DM).
Methods: 240 subjects with type 2 DM and 136 controls were recruited. All subjects were non-smokers and non-drinkers. Plasma PLTP activity was evaluated by measuring the transfer of radiolabelled phosphatidyl-choline from liposomes containing radiolabelled phosphatidylcholine to plasma HDL. LDL subfractions were determined by density gradient ultracentrifugation.
Results: The diabetic subjects had higher plasma triglyceride ($p<0.001$) and lower HDL ($p<0.001$) than the non-diabetic controls. They also had significantly higher concentration of small dense LDL-III (118.7 mg/dl ± 52.8 vs 88.0 ± 45.3, $p<0.001$). Plasma PLTP activity was increased in the diabetic patients (2.09 umol/ml/h ± 0.54 vs 1.60 ± 0.41, $p<0.001$) and the difference remained significant after adjusting for age, sex, body mass index. There was an association between plasma PLTP activity and HbA1c ($r = 0.17$, $p<0.01$) but no correlations were found between plasma PLTP activity, triglyceride or HDL. However, plasma PLTP activity correlated with small dense LDL-III concentration ($r = 0.29$, $p<0.001$).
Conclusions: The diabetic subjects have higher concentration of small dense LDL-III and plasma PLTP activity. The positive correlation between these two parameters in subjects with type 2 DM suggested that PLTP might be involved in the formation of small dense LDL particles by facilitating lipid exchange.