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SHOULD PULSE PRESSURE BECOME PART OF THE FRAMINGHAM RISK SCORE?
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Background: An increased pulse pressure suggests aortic stiffening. New evidence also suggests that pulse pressure is a more sensitive measure of risk than other indexes of blood pressure in middle-aged and older persons. We related pulse pressure to the risk of cardiovascular events in the general population and to assessed whether pulse pressure could improve the Framingham risk prediction.

Methods: In a population based cohort study, 378 men and 391 women over the age of 50 (mean 62.7 years) were followed. Sex-specific Framingham cardiovascular risk scores were derived from age, systolic pressure, diastolic pressure, total and HDL cholesterol, smoking status and the presence or absence of diabetes mellitus. The cut-off points used to develop a pulse pressure score were calculated by determining the percentile points corresponding to the blood pressure categories in the Framingham risk score. We calculated relative hazard rates by multiple Cox regression.

Results: After a median follow-up of 7.2 years (range: 11 months -15 years) a total of 148 cardiovascular events occurred. In Cox regression analysis a 10 mmHg higher pulse pressure was associated with 31% (P<0.0001) increase in the risk for cardiovascular events (fatal and non-fatal) after adjustment for sex, age, total and HDL cholesterol, smoking and the presence of diabetes mellitus. After adjustment for the same risk factors, a one point increment in the blood pressure score and pulse pressure score was associated with a 40% and 48% (both P<0.0001) increase in the risk of fatal and non-fatal cardiovascular events, respectively. When both the blood pressure and pulse pressure scores were forced into a Cox model, only the pulse pressure score remained statistically significant (P<0.0001) with a relative hazard rate of 1.37 (CI:1.16-1.69).

Conclusion: These prospective data suggest that pulse pressure may improve the Framingham risk prediction among middle-aged and older individuals. Further studies, especially in the Framingham cohort are warranted.

Key Words: Pulse pressure, Framingham, Aging

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BLOOD PRESSURE CHANGES BEFORE DURING AND AFTER CIGARETTE SMOKING IN NORMAL SUBJECTS
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Cigarette smoking is an important risk factor for cardiovascular disease. Some studies have shown that smoking produces a acutely increase in Blood Pressure (BP), while other studies related the chronic effect of smoking with lower BP in smokers compared with nonsmokers. In Mexico don’t exist studies that demonstrate the acute effect of smoking in young adults with normal BP.

Determine Systolic Blood Pressure (SBP), Diastolic blood Pressure (DBP), Heart Rate (HR), and Pulse Pressure (PP), in smoking subjects before during and after cigarette smoking by Ambulatory Blood Pressure Monitoring (ABPM).

We included 56 smokers’ subjects and they were carried out an ABPM. The BP recording was made by 55 minutes, blood pressure readings were performed every five minutes; three blood pressure readings before smoking, one reading while they were smoking (they smoked by 5 minutes) and seven readings after smoking. The basal SBP, DBP, HR and PP refer to the previous registration to the beginning of smoking the cigarette (minute 0).

The mean age was 21.5 years (16-44 years). The most prevalent cardiovascular risk family history were Diabetes Mellitus (53%) and Hypertension (52%). Cigarette smoking was related to alcoholism in 64%. Five minutes after smoking SBP increased 8.5 mmHg (maximum peak) (7.5%), 10 minutes after smoking DBP increased 4.5 mmHg (maximum peak) (6%). Ten minutes after smoking HR increased 7.7 beats per minutes (bpm) (maximum peak, 9.8%). Basal PP was 39 mmHg, five minutes after smoking PP increased 4.5 mmHg (11.5%). The previous results were gotten in correlation with basal BP, HR and PP.

Cigarette smoking acutely increases BP, SBP is slightly higher than DBP this results in a increased PP. In the present study DBP and HR arisen after smoking was more gradual than SBP increase.

Key Words: risk factor, smoking, blood pressure measurement

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CREATININE CLEARANCE AND EARLY SIGNS OF TARGET ORGAN DAMAGE IN PRIMARY HYPERTENSION
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The presence of a mild renal dysfunction is associated with higher cardiovascular morbidity and mortality in primary hypertension.

The aim of the present study is to investigate the relationship between creatinine clearance and subclinical organ damage, namely left ventricular hypertrophy (LVH) and retinal vascular changes, in a large cohort of unsellected middle aged hypertensive patients.

A group of 957 untreated patients with primary hypertension (555 men, 402 women, mean age 49.5±10.6 years ) was studied. Renal function was estimated by the serum creatinine level using the Cockcroft-Gault formula; LVH was determined according to electrocardiographic criteria in all patients and by ultrasound evaluation in a subgroup of 358 patients (218 men, 140 women, mean age 47.6±9.4); retinal vascular changes were evaluated by direct ophthalmoscopy.

Mean creatinine clearance was 83±21 ml/min. The overall prevalence of ECG-detected LVH and retinopathy were 13 and 49%, respectively. Creatinine clearance was inversely correlated with duration of disease, systolic blood pressure, serum glucose, total cholesterol, LDL-cholesterol, and to early signs of target organ damage, namely retinal vascular changes, and ECG-detected LVH. Patients in the upper quintile of creatinine clearance showed lower prevalence of ECG-detected LVH (P=0.04) as well as retinal vascular changes (P=0.02). Creatinine clearance was also inversely correlated with echo-detetermined left ventricular mass (LVMI) (r=-0.165, P=0.004). Moreover, patients with concentric LVH showed lower creatinine clearance than those with normal cardiac geometry (P=0.008). Multiple regression analysis showed that creatinine clearance is independently related to LVMI (F=28.871, r²=0.26, P<0.0001). Patients with ECG-determined LVH and retinal vascular changes showed lower creatinine clearance as compared with those with lesser degrees of target organ involvement (P=0.01).

Even a mild reduction in creatinine clearance is associated with pre-clinical end-organ damage in patients with primary hypertension. These data may contribute to explain the observed increase in cardiovascular mortality reported in patients with mild renal dysfunction. The evaluation of creatinine clearance could be useful for identifying those at higher cardiovascular risk.

Key Words: creatinine clearance, primary hypertension, target organ damage