4. Increased peripheral venous plasma catecholamine levels in borderline hypertensives are mainly accounted for by lean subjects. Plasma epinephrine levels are lower in overweight than in lean borderline hypertensives, at rest and during mental stress, while smoking seems to lower plasma norepinephrine as well as epinephrine levels.

Key Words: Borderline Hypertension, Plasma catecholamines, Overweight

P-508
ASSOCIATION BETWEEN SUPINE HYPERTENSION AND ORTHOSTATIC HYPOTENSION IN CHRONIC AUTONOMIC FAILURE
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Background: Supine hypertension occurs commonly in primary chronic autonomic failure. This study explored whether supine hypertension in this setting is associated with orthostatic hypotension (OH) and, if so, what mechanisms underlie this association.

Methods: Supine and upright blood pressure, hemodynamic responses to the Valsalva maneuver, and plasma norepinephrine levels were measured in pure autonomic failure (PAF), multiple system atrophy (MSA) with or without OH, and Parkinson’s disease (PD) with or without OH. Controls included age-matched normal volunteers and patients with essential hypertension (EH) or referred for dysautonomia.

Results: PAF, MSA+OH, and PD+OH all featured supine hypertension equivalent in severity to that in EH, regardless of fludrocortisone treatment for OH. Patients with MSA or PD lacking OH did not have supine hypertension. Individual values for supine mean arterial pressure correlated negatively with orthostatic changes in mean arterial pressure (r = -0.40, p < 0.0001). Baroreflex-cardiovagal gain and orthostatic increments in plasma norepinephrine levels were markedly decreased in all groups with OH. In both MSA and PD, norepinephrine levels during supine rest were lower in the subgroups than with supine hypertension.

Conclusions: In chronic primary autonomic failure, supine hypertension accompanies OH. Decreased baroreflex-cardiovagal gain correlates with and therefore might play a pathophysiologic role in both abnormalities of blood pressure regulation. Increased delivery of norepinephrine to its receptors does not adequately explain supine hypertension in patients with primary chronic autonomic failure and OH, suggesting a hypertensive mechanism independent of the sympathetic nervous system.

Key Words: Sympathetic nervous system, Baroreflex, Orthostatic hypotension

P-509
EFFECT OF ET-A RECEPTOR ANTAGONISM ON SYSTEMIC SYMPATHETIC NERVOUS ACTIVITY IN HYPERTENSIVE PATIENTS
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It is well documented that essential hypertension is characterized by an increased ET-1 vasoconstrictor tone. Since experimental evidence indicates that endothelin-1 (ET-1) exerts a potentiating activity on central and peripheral control of sympathetic nervous system (SNS), an effect exerted by the activity of ET-A receptor subtype in the present study we assessed the possible role of endogenous ET-1 in modulating SNS activity.

In 9 patients with essential hypertension (EH) (age: 47±3.9 years BP: 151.7±13.1/95.8±5.8 mmHg) we evaluated the modification of systolic (S) and diastolic (D) blood pressure (BP; measured by Finapress), heart rate (HR, EKG) and muscle sympathetic nervous activity (MSNA; measured by microneurography) induced by 20-min infusion of BQ123 (0.1 mg/Kg/h), a selective ET-A receptors antagonist, or sodium nitroprusside (SNP 2.4 μg/Kg/h). Drugs were infused for 20 minutes and the infusion sequence was randomised.

BP was similarly reduced by BQ123 (SBP = -2.9±0.6% and DBP = -3.8±0.9% vs baseline) and SNP (SBP = -2.9±0.9 mmHg; DBP = -3.6±0.7 mmHg vs baseline). Under SNP, HR increased up to a maximum of 14.5±3.7% above baseline in 10 minutes while BQ123 induced a slower increase in HR reaching a maximum of 14.7±1.4% after 20 minutes. Moreover, BQ123 induced MSNA increase (21.3 to 30.2 burst/min, 43.4% vs baseline) resulted significantly lower than SNP induced MSNA increase (19.4 to 29.4 burst/min; 54.5% vs baseline). Results do not change when MSNA is expressed as bursts/100 HR beats or burst area under the curve (data not shown). The results seems to confirm that in essential hypertension endogenous ET-1 potentiates SNS activity.

Key Words: sympathetic nervous system, endothelin, essential hypertension

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CAROTID SINUS STIMULATION RESPONSES ARE ASSOCIATED WITH CIRCADIAN BLOOD PRESSURE VARIATIONS IN UNTREATED ESSENTIAL HYPERTENSIVE SUBJECTS
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This study was undertaken in order to define the possible relation between the absence of the nocturnal blood pressure (BP) fall and the degree of carotid sinus stimulation responses (CSSR) in essential hypertensive subjects. Towards this end, carotid sinus stimulation (with simultaneous recordings of the ECG and the BP sphygmomanometrically at the brachial artery) was performed in 90 untreated, newly diagnosed patients (pts) with stage I to II essential hypertension (aged 56 years, office BP 155/97 mmHg; without a history of any cardiac or vascular disease or syncope). Cardionhibitory type CSSR was evaluated by calculating CSSR index, which is defined as the ratio of the longest R-R interval on the ECG recording during stimulation to R-R interval at rest. The patients were classified into dippers (defined by a reduction in the night mean systolic and diastolic BP >10% from day) and non-dippers. In the entire study population, LVMi was 94 g/m², RWT was 0.48, rest R-R interval was 0.80 sec, max RR interval was 1.39 sec (ranged 0.64 to 4.91) and CSSR index was 1.79. Non-dippers (40 pts) and dippers, (51 pts) were both matched for age, BSA, smoking status and plasma cholesterol level. Non-dippers compared to dippers had significantly increased office systolic and diastolic BP (160 vs 151 and 100 vs 92 mmHg respectively), 24h systolic BP (141 vs 132 mmHg), 24h ambulatory pressure (55 vs 48 mmHg), 24h systolic load (48% vs 28%), LVMi (102 vs 91 g/m²), RWT (0.50 vs 0.46), maxRR interval (1.50 vs 1.29) and CSSR index (1.80 vs 1.60). In all studied patients, only the 24h systolic load was identified, by a multivariate model including ambulatory BP parameters, as a significant determinant of CSSR index. In conclusion, the absence of normal nocturnal BP fall is associated with an impairment of CSSR, in the setting of moderate essential hypertension. CSSR index is augmented in hypertensive patients with abnormal circadian BP variability, implying a possible disorder of the sympathetic system activation in the previous mentioned patients. These findings may partly account for the worse cardiovascular outcomes associated with the non-dipping status in essential hypertensive subjects.

Key Words: Circadian blood pressure variations