C009
PECULIARITIES OF HEART RATE REACTION TO PASSIVE HEAD-UP TILT AND CAROTID BARORECEPTOR REFLEX ACTIVATION IN PATIENTS WITH ESSENTIAL HYPERTENSION

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The objective of this study was to characterize peculiarities of autonomic effects of two opposite interventions - head-up tilt and carotid baroreceptor reflex (BR) activation in essential hypertensive (EH) patients. We compare effect of passive head-up tilt to 70° and carotid BR activation by neck suction (-40 mm Hg for 5 s) on 11 EH pts (WHO stage II, mean age 51 ± 3 (mean ± SE) years, mean arterial pressure (MAP) on brachial artery in supine position 155 ± 5 mm Hg) without antihypertensive therapy and 13 normotensive patients. The (GC) included 51.1 year. MAP 101 ± 2 mm Hg. Finger MAP and pulse interval (Pi) were monitored beat-to-beat in supine position before and during neck suction as well as in upright position after passive tilt applying the tilt-table. In supine position as baseline Pi was less in EH pts than in C group (88 ± 38 ms vs. 977 ± 32 ms; p < 0.001) as well as less was bradycardic reaction to carotid BR activation (50 ± 9 ms vs. 76 ± 8 ms; p < 0.05). Bradycardic reaction to carotid BR activation was related (r = 0.84; p < 0.01 and r = 0.57; p < 0.05) to baseline Pi in EH pts as well as in C, respectively. Tachycardic reaction to tilt in EH pts was less than C (105 ± 21 ms vs. 184 ± 22 ms; p < 0.01) and was not subjected to baseline heart rate.

Thereby, sympathetic vagal discharge balance on sinus node may modify chronicotropic reaction amplitude of both opposite interventions - BR activation and head-up tilt. Changes in balance are one of the factors, reducing reaction in EH pts.

Key Words: hypertension, baroreceptor reflex, sympathetic vagal balance

C010
HYPERTHYROIDISM SINUS TACHYCARDIA. SYMPATHETIC STIMULATION OR VAGAL INHIBITION?

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Sinus tachycardia observed in patients with hyperthyroidism is treated with beta-blockers with efficacy Nevertheless, the urinary secretion of catecholamines is low. The aim of our study was the evaluation of the possible mechanisms that are implicated in sinus tachycardia observed in hyperthyroidism. We studied 10 non-treated hyperthyroid patients with recent diagnosis (mean ± SD) 34 ± 9 years in supine position and after orthostasis by head-up tilt. We compare them with 14 aged matched healthy volunteers (9F, 5M).

The hemodynamic parameters were calculated with the non-invasive "modelling" method. We used spectral analysis (FFT) of HR interval and systolic blood pressure variability and the index of baroreceptor gain to assess autonomic profile.

Key Words: hyperthyroidism, HRV, baroreceptor reflex gain; vagal: sympathetic

C000
STIMULATION OR VAGAL INHIBITION?

C011
CHANGES IN BLOOD PRESSURE AND HEART RATE VARIABILITY DURING DENTAL SURGERY IN ESSENTIAL HYPERTENSIVES

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We have determined the changes in blood pressure, pulse rate, and heart rate variability during dental surgery in hypertensive patients. Intraoperative changes included 18 untreated hypertensives and age and sex matched 18 normotensive controls who underwent tooth extraction at our hospital. Holter ECG monitoring was used to determine the power spectrum of R-R variability before and during dental surgery. The low frequency (LF): 0.041 to 0.140 Hz, high frequency (HF): 0.140 to 0.500 Hz, and total spectral power (TF): 0.000 to 4.000 Hz were calculated, and the ratio of LF to HF and the coefficient of HF relative to TF (%HF: HF/TF%) were used as indexes of sympathetic and parasympathetic activities, respectively. The baseline blood pressure for hypertensive patients (149 ± 4/512 ± 2 mmHg) was significantly higher than that for normotensive patients (119/37 ± 2 mmHg). Blood pressure increased during tooth extraction in both groups; however, the changes in blood pressure did not differ between two groups (changes in systolic blood pressure in normotensive vs. hypertensive; 174 ± 4 vs. 154 ± 5 mmHg). Administration of local anesthetic significantly decreased the %HF in normotensive patients (120% ± 48 ± 1% before: anesthesia; 22% ± 22% ± 7% ± 0.05). In contrast, the LF/ HF significantly decreased during the local anesthesia and tooth extraction in hypertensive patients. These results suggest that the presor response induced by tooth extraction did not differ between normotensive and hypertensive patients. Attenuated inhibition of parasympathetic nervous system during dental surgery might suppress the exaggerated presor response in hypertensive patients.

Key Words: dental surgery, hypertension, heart rate variability, autonomic nervous system.

C012

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A few studies have investigated the possible correlation between 24-h ambulatory blood pressure and the neurotransmitters involved in the sympathetic nervous system activity. Moreover, it is of interest to evaluate the possible relationship between microvascular damage (expressed as microalbuminuria) and the values of epinephrine (E), norepinephrine (NE) and dopamine (D). Twenty consecutive untreated hypertensive subjects (12M, 481±11 years) performed a 24-h ambulatory blood pressure monitoring. Urinary (24-h) E, NE, and D (HPLC) and microalbuminuria were evaluated the day before ambulatory monitoring. The 24-h systolic blood pressure was 144±15/88±12 mm Hg. Urinary E and NE were 13±546±17 and 4±14±210±. Microalbuminuria was 1±2±25 mg/dl. Urinary NE was significantly correlated with 24-h systolic blood pressure (r = -0.68, p = 0.01). Diurnal and nocturnal systolic pressures (r = 0.67, p = 0.001 and r = 0.63, p = 0.002, respectively). E and D and microalbuminuria were not correlated with 24-h blood pressures or heart rates. The nocturnal blood pressure reduction was not associated with urinary catecholamines or microalbuminuria. Microalbuminuria was not significantly associated with urinary catecholamines. In a multiple regression analysis (urinary catecholamines, microalbuminuria), NE was the only variable associated with 24-h systolic pressure.

In conclusion, in the patient population of hypertensives studied, NE and 24-h systolic pressures were significantly correlated, suggesting that the activation of the sympathetic nervous system, as expressed by urinary (24-h) NE, is associated with sustained levels of blood pressure. Urinary catecholamines do not seem to be associated with microvascular damage expressed by microalbuminuria.

Key Words: catecholamines, ambulatory blood pressure monitoring, microalbuminuria.