mic therapy. Autonomic dysfunction was present in 70% of the hypertensive diabetic group and 40.4% of the non-hypertensive group. In both groups observed combined parasympathetic and sympathetic damage, but the frequency of abnormal LF/HF, was greater in hypertensive group (68% versus 31.9%, p<0.05). A higher prevalence of increased of LF/HF was observed in patients with type 2 diabetes mellitus (59.5%). The patients with hypertension had a higher prevalence of ventricular extrasystoles (Lown grade III-V (VE) (44%) than those without hypertension (17%). VE correlated with the impaired sym-potavagal balance (r=0.6, p<0.05). The prevalence of QT prolongation was higher in hypertensive group than in non-hypertensive group (55.1% versus 35.9%, p<0.05). QT interval was significantly different between diabetic patients with and without hypertension (0.46±0.6±2.14 versus 0.44±4.2ms±1.19). QT prolongation correlated with VE and increased of LF/HF (r=0.42, r=0.46, p<0.05).

Hypertension had a negative influence on sympotavagal balance and length of QT, and is associated with high risk of ventricular tachyarrhythmias, especially common with type 2 diabetic patients.

P-193 LONG-TERM CHANGES IN HEART RATE VARIABILITY AND ITS CIRCADIAN RHYTHM IN VERY ELDERLY SUBJECTS


Objectives: We assessed the longitudinal age-related changes in heart rate variability (HRV) and its circadian rhythm (CR) in the very elderly.

Methods: In 15 healthy elderly subjects (mean age of 70±1±4, 64–80 y.o.; at 1st recording, female 10) in whom Holter monitors were conducted twice at an interval of 15 years, we assessed changes in HRV (meanNN, HF, LF, LF/HF) and its CR.

Results: (I) Changes in 15 years: 1) meanNN: Comparison of total values throughout 24 hours in 15 subjects: 1st vs 2nd recordings 0.99±0.10 sec vs 0.91±0.12 sec, p<0.003; Time of the day with significant changes between 1st and 2nd recordings: 0:00±4:00, 8:00±9:00, 10:00±13:00, 17:00±22:00, p<0.003. 2) LF/HF: 1.1±0.726 vs 0.94±0.452, p<0.003; 2:00±10:00, 3:00±15:00, 17:00±22:00, p<0.005. (II) Circadian patterns: Both meanNN and LF/HF at first and 2nd recordings and HF at 2nd recording showed increased tendency throughout 24 hours.

Conclusions: In healthy very elderly subjects, age-related changes in HRV as descriptors of cardiac autonomic input still appeared throughout 24 hours. The maximum changes within the CR of HRV appeared in the morning hours with increased age.

P-194 DETERMINANTS OF HEART RATE VARIABILITY IN CRONIC RENAL DISEASE PATIENTS

S.N. Psychari, L. Sinos, G. Liakos, E. Hamoudra, K. Filis, C. Iatrour, Th.S. Apostolou. 2nd Department of Cardiology, 3rd Department of Biochemistry, Department of Nephrology, Nikos General Hospital, Athens, Greece

Background: Patients with renal disease have a high prevalence of autonomic dysfunction due to uremic autonomic neuropathy, that is associated to inadequate blood pressure control, intolerance to dialysis and poor prognosis.

Aim: To evaluate clinical and laboratory determinants of autonomic function, using heart rate variability as a marker of autonomic tone.

Methods: Prospective study of 50 patients with chronic renal disease, who were on sinus rhythm and had no recent infection, or acute myocardial ischaemia. All patients had a 24 hour ECG recording for heart rate variability analysis, an echocardiogram and blood sample testing for lipids, C-reactive protein, CRP, interleukin-6 (IL-6), homocystein, homoglobin, urea and creatinine.

Conclusions: In patients with chronic renal failure, impaired autonomic function is not due to substrate abnormalities, and not by changes in autonomic cardiac regulation.

P-195 LINEAR AND NON-LINEAR INDICES OF HEART RATE VARIABILITY PRECEDING NON SUSTAINED VENTRICULAR TACHYCARDIA IN PATIENTS WITH CORONARY ARTERY DISEASE AND DEPRESSED LEFT VENTRICULAR FUNCTION

G. Goranitou, A. Chariasis, B. Benenatos, N. Kouris, D. Babalis. Cardiology Department, West Attiki General Hospital, General Secretariat of Research and Technology, Athens, Greece

We examined whether linear and non-linear indices of heart rate variability (HRV) could reveal changes in neural cardiac activity, which might predispose to the incidence of non-sustained ventricular tachycardia (non-SVT) in coronary artery disease patients (CADpts) without depressed left ventricular function.

Methods: A total of 24 episodes of non-SVT (more than four impulses duration<300ms) with mean cycle length<3.8±0.8ms were examined in 17 CAD pts with LVEF<30% on Holter recordings. 50% of the patients were in b-blocker and 50% were in amiodarone therapy. HRV analysis was performed on windows of 15-minutes duration, for one hour preceding the incidence of non-SVT episodes and on windows of 1 hour-duration for two hours prior to them. We measured the standard indices of HRV of mean RR, SDNN, LF/HF, HF and LF, VLF, and the non-linear indices of DFA a1 exponent, and lyapunov exponents. ANOVA for repeated measures and paired samples t-test were used for statistical analysis.

Results: HRV did not demonstrate any statistically significant differences among the 15-minute windows, throughout one hour before the onset of non-SVT and also between the one-hour windows analyzed for two hours prior to the onset of non-SVT. Antiarrhythmic drugs did not affect HRV indices with any statistical significance.

Conclusion: The above results suggest that the incidence of non-SVT in CAD pts with depressed left ventricular function is triggered by anatomic substrates abnormalities, and not by changes in autonomic cardiac regulation.

P-196 HEART RATE VARIABILITY INDICES IN CORONARY HEART DISEASE PATIENTS WITH INDUCIBLE SUSTAINED VENTRICULAR TACHYCARDIA

G. Goranitou, A. Chariasis, S. Benenatos, D. Babalis. Cardiology Department, West Attiki General Hospital, General Secretariat of Research and Technology, Athens, Greece

We examined whether standard and non-linear indices of heart rate variability (HRV) could predict sustained monomorphic ventricular tachycardia (smVT) inducible with electrophysiologic study (EPS) in coronary heart disease patients (CHDpts).

Methods: Standard measures of HRV (SDNN, LnLF, LnHF, LnULF, LnVLF) and non linear indices of HRV (DFA exponents a1 and a2, lyapunov exponent, approximate entropy and power law exponent β) of the power spectra between 0.0001 to 0.1 Hz) were measured from 24 hour electrocardiographic recordings, in the following three groups: Group A consisted of 17 CHDpts, mean LVEF=21±6%, who developed inducible smVT with EPS, Group B consisted of 26 CHDpts, mean LVEF=30.7±8.6%, with spontaneous or inducible smVT and Group C consisted of 20 age-matched healthy subjects. HRV indices were calculated in segments of 12000 R-R intervals and then averaged for the entire 24-hour period.

Results: Groups A and B showed statistically significant lower values compared with Group C in the following HRV indices: DFA exponent a1 (p<0.004), lyapunov exponent (p<0.005), SDNN (p<0.0001), LnULF (p<0.01), LnVLF (p<0.001), Ln LF (p<0.0001) and Ln HF (p<0.03). Between groups A and B, only exponent a1 and lyapunov exponent differed significantly (exponent a1: group A=0.84±0.12, groups B=0.9±0.27, p<0.05, lyapunov exponent: group A=0.58±0.01, group B=0.63±0.004 p<0.03). The cut off point values of DFA exponent a1 <0.83 and of lyapunov exponent <0.058 were found to have sensitivity 78% and specificity 66% and 78% respectively, in differentiating groups A, B DFA exponent a1 showed moderate correlation with

B112 Europace Supplements, Vol. 4, December 2003