

seventeenth

European Meeting on Hypertension



European Society of Hypertension

Milan
June 15-19, 2007

Abstracts S171

P16.46 THE 24 HOURS RELATION BETWEEN R-R INTERVAL AND DIASTOLIC BLOOD PRESSURE CHANGES MEASURED BY AMBULATORY BLOOD PRESSURE MONITORING

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Background: The day and night circadian rhythm is accompanied by reciprocal changes in vagal and sympathetic dominance which may be quantified by measuring the R-R interval (R-R) and diastolic blood pressure (DBP) changes relation with ambulatory blood pressure monitoring (ABPM).

Methods: ABPM was performed using Spacelabs monitors in 60 healthy young subjects (30 females and 30 males aged 21.8 ± 1.0) with readings every 15 min (day) and 20 min (night). The collected variables were copied to a software program (Diadem, National Instruments) and R-R values obtained by dividing 60,000 by heart rate in beats/min. The following measurements were made: 1) night and day means \pm SD; 2) night less day R-R (Δy , msec) and DBP (Δx , mmHg) differences and $\Delta y/\Delta x$ ratios (ms/mmHg); 3) percent Δy , Δx changes over day mean values and their ratio and 4) slope (b_{24h}) and r coefficient (r_{24h}) of the regression of R-R over DBP 24 hours values.

Results: With respect to day, night was characterized by lengthening of R-R and lowering of DBP values in all subjects. The R-R and DBP day and night means \pm SD, the night less day differences and the $\Delta y/\Delta x$ ratios, both actual and percent, and the b_{24h} were different and characteristic for each subject. The r_{24h} reached statistical significance in all subjects. Subjects were classified according to their proportionality ratios between R-R and DBP changes: two subjects had a $\Delta y/\Delta x$ ratio below -5, 18 between -5 and -10, 28 between -10 and -20 and 12 above -20 ms/mmHg (range: -41.1 to -4.6, mean -14.6 ms/mmHg). The percent $\Delta y/\Delta x$ ratio ranged from -3.2 to -0.5, mean -1.3 and the slope, b_{24h} , ranged from -14.28 to -3.14, mean -9.12 ms/mmHg.

Conclusions: Results indicate that the ABPM may allow to quantify the individual's day-night autonomic reciprocity and that the subjects with steeper proportionality ratios have a higher 24h period vagal tone. This novel approach may thus be helpful to study the autonomic balance in several patients groups and the individual effects of different pharmacological treatments.

ABSTRACT BOOK