months period. Standard deviation (SD) and coefficient of variability (CoV) (SD/individual mean SBP*100) were used as measures of visit-to-visit BPV.

Results: Visit-to-visit BPV was higher in hypertensives (SD:5.5 ± 3.6 vs.4.1 ± 2.7; CoV:3.7 ± 2.4 vs.3.4 ± 2.1; for both $p < 0.0001$) diabetics (SD:6.1 ± 4.4 vs.4.5 ± 3.1;CoV:4.11 ± 3.8 vs.3.4 ± 2.2; for both $p < 0.001$) and obese subjects (SD:5.4 ± 3.7 vs.4.1 ± 2.7;CoV:3.7 ± 2.5 vs.3.3 ± 2.1; for both $p < 0.0001$) regardless we used SD or CoV. There were no gender differences but BPV increases with aging. It was higher in subjects with high normal vs. those with optimal BP ($p = 0.003$) as well as it was higher in stage 2 than stage 1 hypertension ($p = 0.005$). Higher BPV was observed in uncontrolled hypertensives than in non-treated and controlled ones ($p < 0.001$). All-cause mortality was associated with higher BPV (4.95 ± 3.5 vs.4.66 ± 3.2; $p = 0.003$), but we failed to find differences in BPV between subjects who died of CV disease or cancer. In multivariate linear regression model (age, gender SBP, SD, CoV) BPV was not found to be an independent predictor (R 2 = 0.221; B 0.22 SE 0.013; beta = 0.178;p = 0.08; CoV B 0.31 SE 0.018 beta = 0.173; p = 0.09).

Conclusions: BPV was higher in hypertensive, diabetic, older and obese subjects. In normotensives it was significantly higher in prehypertensives than those with optimal and normal BP. In hypertensive subjects the highest BPV was found in uncontrolled group (compared to untreated and controlled), We failed to find positive predictive value of BPV for mortality probably the visit-to-visit period (2 months) was too short.

BLOOD PRESSURE VARIABILITY IS ASSOCIATED WITH HEART RATE IN A LARGE OUTPATIENT POPULATION

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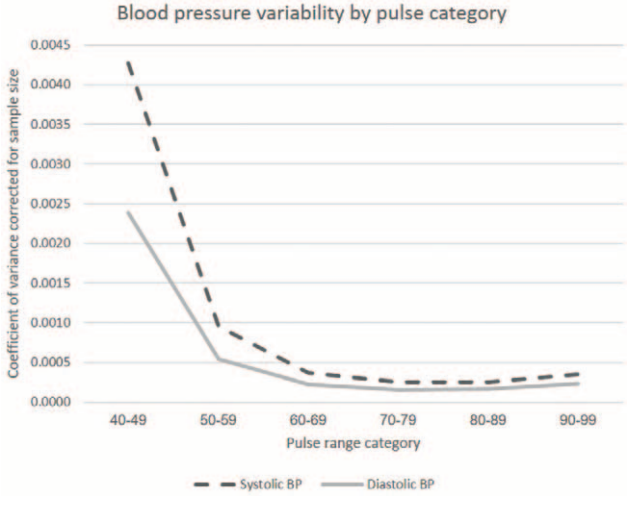
Objective: Historically, guidelines for blood pressure measurement recommended adjusting the cuff deflation rate to the patient's heart rate (2–3 mmHg per heartbeat). Current guidelines recommend a fixed cuff deflation rate of 2 mmHg/sec. This translates to that, on average, the number of Korotkoff sounds (or oscillometric pulse waves) on which blood pressure measurement is based is larger in patients with higher compared with lower pulse rate. It follows that the precision (and accuracy) of blood pressure may be compromised in patients with lower heart rate, leading to higher intra-individual blood pressure variability. In this study, we assess the association between heart rate and blood pressure variability.

Design and method: Retrospective analysis of blood pressure measurements of patients in a large health maintenance organization database. All blood pressure measurements in adult patients with corresponding heart rate documentation were reviewed. For each heart rate category (6 categories between 40 and 99 beats per minute), all patients with at least 3 blood pressure readings within that category were included. In each category, systolic and diastolic blood pressure coefficient of variance (corrected for sample size) was plotted against the pulse Category.



Results: There were 551,595 unique patients with at least 3 blood pressure measurements within a heart rate category (a total of 4,760,000 measurements) and 860,522 groups of 3 measurements or more per patient within a heart rate category. Blood pressure normalized coefficient of variance was inversely related to heart rate (Figure), ranging 0.0043 to 0.0003 (Systolic), and 0.0024 to 0.0002 (Diastolic), for the lowest to highest heart rate category, respectively.

Conclusions: Blood pressure variability is inversely associated with heart rate, especially in lower heart rate, likely reflecting less precise blood pressure measurements where the `sample size' of heart beats is small. The observed effect compromising precision might be accompanied by a concomitant reduced accuracy of blood pressure measurement which is another theoretical implication of a smaller `sample size', leading to a systematic bias towards measuring lower and higher than real systolic and diastolic blood pressure,

BLOOD PRESSURE VARIABILITY IN THE SETTING OF ACUTE MYOCARDIAL INFARCTION: ASSOCIATION WITH THE TYPE OF INFARCTION AND CLINICAL CHARACTERISTICS

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Objective: Blood pressure variability (BPV) has been mainly studied through the prism of congestive heart failure (CHF) and hypertension, but not in the setting of an acute coronary syndrome (ACS). The aim of the present study was to assess blood pressure variability (BPV) in patients hospitalized for myocardial infarction (MI).

Design and method: We studied 211 patients (79.8% male; mean age 62.33 years) who were hospitalized because of ST-elevation myocardial infarction (STEMI) and Non ST–elevation myocardial infarction (NSTEMI). All patients underwent baseline estimation of clinical and laboratory parameters during their hospitalization. Additionally, BPV was estimated based on daily measurements of BP during hospitalization and with 24-hour ambulatory BP monitoring during the third day of hospital stay. The parameters of BPV analyzed were: a) standard deviation (SD) of systolic BP, b) SD of diastolic BP, c) the coefficient of variation (CV) of systolic BP and d) the average real variability (ARV) of systolic and diastolic BP.

Results: From the total population, 28.9% had family history of cardiovascular disease, 67.3% were hypertensives, 27% had diabetes mellitus (DM), 58.8% were smokers and 23.7% had previous history of coronary artery disease. Regarding the type of myocardial infarction, 49.3% were admitted for STEMI and 78.5% had coronary revascularization. From the ambulatory BP, ARV SBP was 9.32 ± 2mmHg while NSTEMI patients demonstrated significantly higher values of ARV SBP compared to STEMI (9.72 ± 2 mmHg vs 8.9 ± 1.7 mmHg; $p = 0.002$). Using univariate analysis, the type of MI (STEMI and NSTEMI) was significantly related to ARV SBP ($r = 0.215$, $p < 0.002$). After multivariate regression analysis, ARV SBP remained significantly associated with the type of MI ($b = 0.144$; $p = 0.042$), independently of age, gender, history of hypertension, history of DM, history of chronic kidney disease (CKD) and low-density lipoprotein (LDL-C).

Conclusions: In patients admitted for MI there is a relationship between the ARV and the type of myocardial infarction. These findings suggest differential impact of hemodynamic load on the cardiovascular system in patients with STEMI and NSTEMI.

DIFFERENCES IN THE LOW FREQUENCY VARIABILITY OF DIASTOLIC BLOOD PRESSURE INTERVAL IN PATIENTS WITH TYPE 1 AND TYPE 2 DIABETES

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Objective: Dysfunction of the autonomic nervous system can be diagnosed by spectral analysis of variability of cardiac frequencies of consecutive RR interval using TASK FORCE monitor.

Design and method: Study was done using TASK FORCE monitor and software analysis of HRV, Fourier transform algorithm. Testing at rest (20 min) and passive orthostasis (tilt table 90 for 6 minutes). Parameters analyzed: baroreceptor sensitivity (BRS), of this spectrum variability of RR-interval of high frequencies of (HF-RRI which is linked to the parasympathetic), part of the spectrum of low frequency variability of diastolic blood pressure interval (LF-DBP, partly linked to effects of sympathicus), LF / HF-RRI (sympathovagal balance of RR interval). Diagnostic procedures were done in 45 patients, of which 20 treated for type 1 diabetes, average age 37 years, of which 12 men and 8 women. The second group contained 25 patients with type 2 diabetes, average age 62 years of which 18 men and 7 women.