

Relation Between Blood Pressure Variability and Coronary Artery Remodeling Index in Normotensive Patients with Coronary Artery Disease: An Intravascular Ultrasound Study

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OBJECTIVE

We aimed to investigate the relation of blood pressure variability and coronary artery remodeling in normotensive patients with coronary artery disease by intravascular ultrasound (IVUS).

MATERIALS AND METHODS

BP variability indices including systolic and diastolic 24-h average, the day and the night values of standard deviation (SD) and variation coefficient (VC) were measured and calculated, and the coronary artery remodeling derived from IVUS, in 120 normotensive patients, presented for coronary angiography. The remodeling index was defined as the ratio of the external elastic membrane (EEM) area at the lesion site to the EEM area at the proximal reference site. Based on the definition of remodeling index (Nakamura, et al)* patients were stratified into 3 groups: group with positive remodeling (RI>1.05), intermediate remodeling (RI:0.95-1.05) and a group with negative remodeling (RI<0.95). Systolic SD and VC values for 24-h average (15.6±2.9mmHg vs. 7.2±1.5mmHg, p<0.001 and 15%±3 vs. 9%±2, p<0.001, respectively). In addition the night systolic SD and VC values

(13.5±3.8mmHg vs. 7.3±2.1mmHg, p<0.001 and 16.2%±4.1 vs. 10.4%±2.8, p<0.004, respectively) were significantly higher in patients with positive remodeling compared to patients with negative remodeling. Meanwhile the diastolic parameters were slightly higher in patients with positive remodeling, yet non-significant. ROC curve analysis showed that, the cut-off values of 13 mmHg and 15% for 24-h systolic SD and VC, respectively, were found to be the best cut-off values, with a sensitivity of 94% and 95%, whilst the specificity was (87% and 89%, respectively) in predicting positive remodeling in normotensive patients presented with typical chest pain for CAD

CONCLUSION

We suggest that systolic SD and blood pressure variability coefficient are associated with positive coronary artery remodeling index independent of coronary artery disease risk factors in normotensive patients.

KEYWORDS

Blood pressure variability; Remodeling Index; IVUS