

AUGMENTATION INDEX AS A MARKER OF INCREASED LOADS OF ATRIAL ARRHYTHMIAS AMONG LOW-RISK AND YOUNG PATIENTS

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OBJECTIVES: Previous studies demonstrated that premature atrial contraction (PAC) loads could be the precursor of AF. Atherosclerosis was also noted to be associated with AF. This study aimed to elucidate the relationship between PAC loads and aortic stiffness in adults younger than 50 years old.

METHODS: We enrolled 200 consecutive patients (95 men, mean age 36 ± 10 years) who received ambulatory electrocardiography (ECG) examination for the cause of palpitation. Augmentation (AG) represents difference between the first and second systolic peaks of the central pressure waveform. Augmentation index (AIx) is defined as augmentation expressed as a percentage of pulse pressure. Increased PAC load was defined as more than 24 beats of PAC per day. Low risk is defined as having < 2 risk factors for atherosclerosis, and high risk as having ≥ 2 .

RESULTS: There were 23 patients (12%; age 40 ± 10 years) who had increased PAC loads. In the low risk subgroup, 19 patients (14%; age 34 ± 10 years) had increased PAC loads. Age (38 ± 10 years vs. 34 ± 10 years, $p = 0.042$), AG (6.8 ± 6.0 mmHg vs. 3.5 ± 5.1 mmHg, $p = 0.012$) and AIx (21.8 ± 18.5 vs. 11.9 ± 15.0 , $p = 0.002$) were significantly higher in patients with increased PAC loads. After multivariate analysis adjusted by age and mean blood pressure, AIx ($p = 0.021$, OR 1.23, 95% C.I. 1.03~1.41) was an independent factor associated with PAC loads.

In the high-risk subgroup, 4 patients (6%; age 46 ± 3 years) had increased PAC loads. There were no differences in clinical characteristics between patients with or without increased PAC loads.

CONCLUSION: In young adults with low risk for atherosclerosis, increased aortic stiffness might be an important predictor of increased PAC loads.

Keyword : augmentation index; atrial arrhythmia; aortic stiffness