

## **SUMMARY**

### **Usefulness of P wave dispersion as marker of target organ damage in hypertensive and diabetic patients**

#### **Background:**

High blood pressure, chronic hyperglycemia and diastolic dysfunction may cause morphological and hemodynamic changes in the left atrium, consequently instability and heterogeneity in atrial conduction. This is seen as an increase in P wave dispersion (PWD) on the electrocardiogram. Diastolic dysfunction is regarded as a initial stage of a diabetic and hypertensive cardiomyopathy. The aim of this study is to examine whether PWD can be used as a non-invasive marker of target organ damage in hypertensive and diabetic population.

#### **Material and methods:**

Sixty-five diabetic and/or hypertensive patients who had no coronary artery disease (mean age  $50.9 \pm 5.5$ ) and 20 healthy individuals (mean age  $49.1 \pm 7.8$ ) were enrolled in the study. Systolic and diastolic functions of all cases were evaluated by echocardiography, PWD from 12-lead surface ECG was calculated and microalbuminuria levels were assessed. PWD cutoff value was 40 msec.

#### **Results:**

Mean PWD was  $31.3 \pm 2.4$  msec in hypertensive patients,  $34.7 \pm 3.9$  msec in diabetic patients and  $39.3 \pm 3.7$  msec in patients with both. In the control group mean PWD was  $25.6 \pm 8.8$  msec. PWD was significantly higher in the study group ( $p = 0.015$ ). Tissue Doppler mitral E, pulse wave Doppler mitral E velocities were significantly lower and microalbuminuria levels were significantly higher in patients with  $PWD \geq 40$  msec.

#### **Conclusion:**

PWD was found to be correlated with diastolic functions in hypertensive and diabetic patients. Thus, the results support the hypothesis that PWD can be used as a non-invasive marker of target organ damage in the hypertensive and diabetic population.

**Key words:** P wave dispersion, diastolic dysfunction, diabetes mellitus, hypertension