

## **Title: Interatrial conduction disorders - clinical, echocardiographic and electrocardiographic characteristic of older population**

### **Background/Introduction:**

Structural and functional atrial changes contribute to interatrial-block development including the Bachmann's-bundle-block; which is connected to a higher risk of atrial fibrillation. The conduction abnormality might precede the enlargement of the atria and might thus be a better indicator for the later development of atrial fibrillation.

### **Material and methods:**

The statistical analysis included 215 patients (170 women (79.1%), aged 65 to 94 years (M = 78 years, SD = 7 years) we compared parameters such as: medication: beta blockers, ACE inhibitors and antiarrhythmics; hemoglobin blood level, potassium, glucose & creatinine; the coexistence of hypertension, diabetes, chronic kidney disease, ischemic heart disease, heart failure, paroxysmal atrial fibrillation; echocardiographic measurement: size and surface area of the left atrium, LVEDD and EF. Data from ECG tracings (paper speed 50mm/s, amplitude of 1 mv/1cm): P-wave duration, PR-segments, QRS-complexes. We classified Bachmann bundle (BB) blocks based on P wave morphology in leads II and V1. 1- physiologic interatrial conduction, 2- partial block of the BB (P-wave duration >120ms & notched morphology in lead II), 3- total block of the BB (P-wave duration >120ms & biphasic morphology in lead II).

### **Results**

Average P-wave duration in patients without Bachman's-bundle-block, partial and complete Bachmann's-bundle-block was 107,5 +/- 23,2ms, 128,5 +/- 29,5ms, 153,0 +/- 34,8ms respectively. We observed a positive correlation between the P-wave duration and P-R duration (R=0,722; P=<0,05). There was no correlation between stage of the Bachman's bundle block and the age (Stage 1: N77; 76,3 +/- 7,2 years; Stage 2: N64; 79,8 +/- 7,1 years; Stage 3: N=69; 78,0 +/- 7,2 years). Mean glucose levels and number (percentage) of patients with chronic kidney disease significantly differed in group with Stage 1: 103.8 ± 30.9 mg/dl, N:4 (5,2%) and the groups with Stage 2 and 3 of Bachmann's bundle block: 119.4 ± 39.8 mg/dl, N:12 (18,8%); 117.7 ± 32.5 mg/dl, N:10 (14,5%) respectively.

### **Conclusion**

With the progression of the Bachman's-bundle-block the measurement of the P-wave duration became increasingly inaccurate due to the decreasing amplitude in the higher stages of the blocks.