Summary

Atrial fibrillation (AF) is the most common sustained arrhythmia affecting the older population. The prevalence of this arrhythmia is still rising.
Recent electrophysiologic studies showed that ectopic beats triggering AF are in one third of affected patients localized in processes of myocardium onto the pulmonary veins, in so called myocardial sleeves of pulmonary veins (MSPV).
Ectopic beats triggering AF originate mostly in myocardium structurally changed. Frequent structural changes of myocardium are scars after myocardial infarction or disperse fibroses in chronic ischemic heart disease. Structural changes of myocardium could also be represented by deposits of amyloid, which are found in the myocardium of the older population very frequently.
During the three years of our project we examined one hundred autopsied hearts (50 with AF, 50 controls, 393 pulmonary veins).
This is the largest study so far. Our study was predominantly pointed to the identification of structural changes (amyloidosis, scarring) of myocardium of the left atrium and MSPV, which are the most frequent foci of arrhythmogenic beats triggering atrial fibrillation.
The aim of this study was to find out if isolated atrial amyloid affects also MSPV and if there is a realtionship between IAA in myocardial sleeves of pulmonary veins and AF.
Amyloidosis of MSPV was found in 76% of patients with AF with average grade 0,89 against 60% and 0,76 of average grade in patients with sinus rythm, but those differences lack statistical significance.
Scarring of the myocardial sleeves was present in all 100 hearts, the average grade was higher in patients with AF (2,44) than in control patients with sinus rhythm (2,00) and the difference was statistically significant. Scarring of MSPV seems to play important role in pathogenesis of AF.
Our study shows as first that myocardial sleeves of pulmonary veins are supported by coronary arteries. We did not proof the relationship between scarring of MSPV and the grade of atherosclerosis of the main coronary arteries. The etiology of scarring seems to be rather degennerative than postnecrotic, probably due to diffuse hypoxia.
Amyloidosis and scarring of atrial myocardium area very frequent conditions in the older population and make an arrhythmogenic terrain for AF.