

Atrial fibrillation (AF) is the most common arrhythmia, which occurs in about 1-2% of the total population . Atrial fibrillation increases the risk of stroke 5-6 times, and one in five of all brain strokes are due to this arrhythmia. Over 90% of all thrombosis in patients with AF is formed in the left atrial appendage (LAA). Compared to the rest of the heart, the LAA is anatomically prone to stasis by virtue of having a long, tubular structure as well as a narrow junction with the atrium. Both, LAA anatomy and turbulent and slow velocity of blood flow in LAA (according to lack of effective contraction of the atria) have significant influence on thrombus formation in LAA. Previous study showed that closing the LAA might eliminate a potential source of thrombus in patients with AF. Currently, LAA closure procedure became an affective, alternative method in thromboembolism prevention in patients with AF.

However, LAA ligation not only eliminates a source of thrombus, but also eliminates a major endocrine organ; and therefore eliminates LAA reservoir and secretory function. LAA is the main source of ANP, one can intuitively expect the levels of ANP to decrease after LAA suture ligation and response to physiologic stimuli like exercise and fluid overload may also be attenuated. As lower levels of natriuretic peptides are associated with metabolic risk factors, this procedure may lead to low ANP levels, which in turn may predispose the patients to develop metabolic syndrome after procedure.

The scientific aims of this study are:

1. Evaluation and analysis of changes in neurohormonal system before and after LAA isolation from cardiovascular system.
2. Evaluation and analysis of changes in lipid and glucose metabolism and metabolic risk factors before and after LAA isolation from cardiovascular system.
3. Evaluate the relationship between metabolic risk factors and LAA morphology in patients with AF.
4. Evaluate the relationship between metabolic risk factors and level of closure and post procedure LAA morphology after LAA isolation from cardiovascular system.

The effect of LAA exclusion on renin angiotensin aldosterone system, lipid and glucose metabolism has not been studied so far. Results of this project will help the authors to answer the question, whether LAA ligation used for protection against stroke does not expose patients neurohormonal or metabolic complications. Therefore a new, advanced research are needed that will expand our knowledge of the basic phenomena occurring after isolation of LAA performed by percutaneous suture ligation procedure.