

The surgical treatment of atrial fibrillation

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During the last decade, surgical therapy in the treatment of cardiac arrhythmias has changed significantly. The development of catheter-based techniques in cardiology has ousted surgery, for example in the field of Wolff-Parkinson-White syndrome or in the major part of the surgical treatment of ventricular arrhythmias. Further indications for surgery still exist for the exclusion of the arrhythmogenic areas in the form of left ventricle reduction plasty, initially described by Vincent Dor. However, the surgical treatment of atrial fibrillation is rapidly gaining significance and popularity.

In the late eighties, Professor Cox and his co-workers put into practice the first surgical approach in the treatment of atrial fibrillation, which was performed by fragmentation of both atria with the "cut and sew" technique according to a particular pattern. This procedure was described as the Maze procedure. However, this very complex operation had to be performed using extracorporeal circulation. The rate of success in long-term follow-up after more than eight years was approximately 90% of sinus rhythm. Today, the Maze III procedure is described as the "golden standard" in the treatment of atrial fibrillation and is proven to be the most effective method in the prevention of cerebral embolism. However, these outstanding results could not be reproduced by most surgical groups. Due to its complexity, this procedure was not widely adopted in cardiac surgical centres and is applied very rarely nowadays.

After Professor Haissaguerre clarified that the focus of atrial fibrillation resides in the left atrium, and specifically in the pulmonary veins, numerous working groups focused their interest predominantly on the modes of treatment within the left atrium. Firstly, the idea of radiofrequency ablation, transferred from the cath-labs, was applied in the op-

rating rooms from the endocardium. Using various energy sources (unipolar and bipolar radiofrequency, microwaves, ultrasound and cryotherapy) during the last ten years, the surgical treatment of atrial fibrillation has gained popularity worldwide including both isolated stand-alone and combined procedure.

The rate of stable sinus rhythm after the operation ranges between 70 and 95%. According to scientific data, using exclusively left atrial ablation techniques for the treatment of paroxysmal, persistent or permanent atrial fibrillation without significant comorbidity, excellent results of over 95% efficacy can be obtained.

The denervation of the epicardial autonomic ganglia is a completely new idea in the therapy of atrial fibrillation. However, at this point in time, this method is under clinical evaluation and should be treated as experimental. Another possible option for the future is the endoscopic epicardial technique of ablation, which can also be improved by tele-manipulation.

Surgical ablation has evolved in numerous centres into a simple, safe and effective everyday practice in the treatment of atrial fibrillation. It concerns both patients with stand-alone atrial fibrillation and arrhythmia combined with other surgical comorbidity.

Today, when such rapid development in the field of treatment of atrial fibrillation is observed, there is a great need for discussion and exchange of ideas. The conference "New Europe, New Perspectives for Atrial Fibrillation Therapy" held in Warsaw in April 2007 was one of those perfect opportunities for cardiac surgeons and other physicians from various countries to summarize current knowledge, share their individual experiences and look at the future of the surgical treatment of atrial fibrillation.

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