

EPICARDIAL MICROWAVE ABLATION OF ATRIAL FIBRILLATION IN HEART SURGERY PATIENTS – ATRIAL FUNCTION AND 1 YEAR RESULTS

A. Ahlsson, P. Linde, P. Rask, A. Englund, Örebro, Sweden

Objective: Isolating the pulmonary veins with epicardially applied microwave thermal energy has been suggested as a method to cure atrial fibrillation. The aim of this study was to test the feasibility of the method, heart rhythm at 1 year follow and left atrial and ventricular function pre- and postoperatively.

Materials and Methods: 20 consecutive patients with symptomatic paroxysmal or permanent atrial fibrillation undergoing open-heart surgery were included in the study. The mean age was 71 yrs, Female/Male ratio 3/17. 11 pats had paroxysmal and 9 pats had permanent atrial fibrillation. The type of surgery performed was: CABG 6 pts, OPCAB 2 pts, AVR ± Ascendens surgery 5 pts, Mitral valve plasty ± CABG 5 pts, David 1 pt and ASD 1 patient. 7 – 10 linear epicardial ablations were made during 90 seconds each with 65 W effect using the Flex IV™ Microwave antenna. The lines encircled both lung pairs and connected the pairs via the left atrial roof. Left atrial and ventricular dimensions, E/A ratio if feasible and Tissue Doppler registrations were made preoperatively and 6 months postoperatively. Arrhythmia follow up was at 1, 3, 6 and 12 months after ablation with R-test at 12 months.

Results: There was no mortality. 4 patients required DDD-PM or ICD due to SA block or ventricular arrhythmia, 2 of which were planned preoperatively. One AVR patient suffered a stroke with hemiplegia due to a severe carotid disease. At 6 months follow up, 11/15 pat (73 %) were in sinus rhythm, and at 12 months 10/12 pts (83 %) were in sinus rhythm and free of antiarrhythmic drugs. Apart from smaller LV diastolic dimensions at 6 months postoperatively (60 mm vs. 56 mm, $p = .04$), there were no significant differences in pre- and postop LV/LA dimensions, EF or E/A ratio. One patient died of ruptured abdominal aortic aneurysm 3 months postoperatively. Autopsy with biopsies from the ablated areas of the left atrium showed absence of total transmural ablation in some areas. Despite this, the patient was in stable sinus rhythm at follow up preceding the rupture.

Conclusions: Epicardial microwave ablation with the Flex IV antenna is a feasible method, which appears safe. In this pilot study the 1-year prevalence of patients in stable sinus rhythm was 83 %. The ablation lines do not seem to diminish left atrial or ventricular function.