Bipolar RF Combined with Cryo-energy for Surgical Ablation of Atrial Fibrillation

Leonid Sternik [1], David Luria [2], Michael Glikson [2], Ateret Malachi [1], Maya First [1], Ehud Raanani [1]

[1] Cardiac Surgery, [2] Cardiology Department, Sheba Medical Center, Tel-Aviv University, Tel-Hashomer, Israel

Background: In the past decade numerous ablation devices have been introduced into the surgical practice. We describe results of a combination of bipolar radiofrequency (RF) and cryo for surgical ablation of atrial fibrillation (AF). And a new trend for the surgical treatment of isolated AF.

Methods: From February 2004 till October 2008 we used this method on 182 patients. Seventy-six patients suffered from permanent AF (45%), fifty-five had persistent atrial fibrillation (32%), and forty patients had paroxysmal AF (23%). We used lesions set similar to Maze III procedure in the left atrium with addition of right atrial lesion set in some patients. Forty-two patients had left atrial volume more than 200 cc (23%). 17 patients (9%) had permanent AF for more than 10 years.

Results: Most patients underwent AF ablations as an additional procedure to mitral valve surgery (74%). There were two postoperative deaths, five patients had stroke after surgery (3%).

Average time for ablation was 30 minutes (range 27-36) for biatrial and 16 minutes (range 15-19) for left atrial procedures. One hundred twenty-nine patients (75%) were discharged in sinus rhythm. Mean follow-up was 26 months (1-52 months). At the end of follow-up 79% of patients were in sinus rhythm. Predictor for recurrent AF or atrial flutter after procedure was preoperative permanent AF for more than 10 years ($p = 0.025$). Size of the left atrium was not found to be a factor for failure. Five patients underwent minimally invasive surgical ablation for stand alone.

Conclusion: The use of bipolar RF device with cryoprobe is an appealing combination. It enables to complete a Maze III lesion set in an easy, safe and efficient way.