Concomitant use of bipolar radiofrequency left atrial ablation for chronic atrial fibrillation during mitral valve surgery: Impact on clinical and echocardiographic outcomes

By

Dr Yasser Farag Elghonemy

Professor of cardiothoracic surgery

Mansoura University

Dr Mohammad Abdelrahman Hussein

Lecturer of cardiothoracic surgery Cairo University

Dr. Abdullah Osama Mahfouz

Lecturer of cardiothoracic surgery

Fayoum University

Dr Wael Mohammed Attia

Assistant professor of cardiology

Al Azhar University

Corresponding author

Mohammad Abdelrahman Hussein

(dr_cts2010@yahoo.com)

Abstract

Background: Atrial fibrillation is the most common of the serious cardiac rhythm disturbances and commonly complicates the course of heart diseases. Management ranges from medical treatment to complex surgery. As it was documented that in most cases of AF, the trigger of the abnormal impulse comes from the territory of pulmonary veins, the idea of pulmonary vein isolation came in mind. A bipolar probe which transmits radiofrequency waves to that territory can be used to ablate the macro reentrant conduits allowing the left atrium (LA) to function properly.

Methods: The population of this prospective observational study was 17 cases with mitral valve pathology requiring surgery complicated by chronic AF (onset > 1 year). They underwent mitral valve surgery and bipolar radiofrequency ablation in the period of October 2012 to October 2014 in King Fahd University hospital. They were followed for at least one year following surgery; mean follow up period was 17 ± 2.4 months. Primary end point was reversion to stable sinus rhythm (SR) at one year follow up.

Results:, Mean AF duration was 5.14 ±3.14 years. 9 patients had mitral valve replacement, 5 bioprostheses and 3 had repair concomitantly with bipolar radiofrequency ablation. 4 patients had associated tricuspid valve repair. Mean bypass and cross clamp times were 92.35 ± 16.7, 66 ± 10.28 minutes, respectively. No mortalities, postoperative complications were few: one patient required re-exploration for bleeding, one with severe bradycardia who had permanent pacing, one stroke which was tolerated (right upper monoparesis). At one year follow up 12/17 (70.5%) patients were in stable sinus rhythm, subjective clinical improvement in terms of marked reduction of NYHA class (3.18 ± 0.6 to 1.57±0.72). Echocardiograghic parameters (EF, LA dimensions and LA function) had also significantly improved.

Conclusion: We conclude from our study that bipolar radiofrequency ablation is a safe and effective method of controlling atrial fibrillation and it can be easily added to conventional mitral valve surgery without considerable risk added to the patient.

Key words: atrial fibrillation- radio frequency- ablation.