## Global Cardiology Summit

October 22-23, 2018 Osaka, Japan

Comparative study between two devices of radio-frequency energy for bi-atrial maze operation for the treatment of long-standing atrial fibrillation: Prospective randomized trial

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**Background & Aim:** The Electro Surgical Unit (ESU or Bovie) is a Radio Frequency (RF) generator and can be used to create surgical lesions, which cause interruption of the basic flutter cycle that initiates/maintains chronic permanent Atrial Fibrillation (AFib). The aim of the study is to evaluate the efficacy and efficiency of the bi-atrial electro-maze plus amiodarone in the management of chronic permanent AFib in mitral valve surgery and to compare between two sources of RF energy; namely, ESU or bovie and RF devices.

**Method:** After approval of Local Ethics Committee and obtaining written informed consent, a prospective, comparative randomized study was conducted on 90 patients who were referred for mitral valve surgery with chronic AFib. They were divided into three groups. Group-1: 30 patients were submitted to bi-atrial RF maze and amiodarone protocol. Group-2: 30 patients were submitted to bi-atrial ESU or bovie maze and amiodarone protocol. Group-3: 30 patients were treated with amiodarone only. Patients were followed-up in the post-operative period at the following time intervals, 2 weeks, 3 months and 6 months.

**Results:** There was no mortality in any group. The aortic-cross clamp time, bypass time were slightly longer in the electro-maze groups, but without any statistical significance. There was no statistical significance amongst the 3 groups as regard morbidity. There was an immediate intraoperative conversion to sinus rhythm in the 3 groups respectively (83.3%, 80% and 20%). Sinus rhythm has remained stable over 3-month duration in the 3 groups respectively (70%, 66.6% and 16.6%) and over a follow-up of 6-month duration (66.6%, 63.3% and 13.3%). In the electro-maze groups, there has been a significant reduction in left atrial size.

**Conclusion:** The bi-atrial electro-maze protocol appears to be a simple, effective, and quick method to cure chronic permanent AFib. The ESU or bovie is as effective as radiofrequency device as a source of energy for ablation.

## **Biography**

Ezzeldin A Mostafa is an Emeritus Professor and Past HOD of Cardiovascular and Thoracic Surgery, Ain-Shams University Hospital, Faculty of Medicine, Cairo, Egypt. He is the Ex-Managing Director of Cardiac Surgery Academy, Ain-Shams University, Cairo, Egypt. He has Bachelor's degree from Faculty of Medicine, Ain-Shams University (1976), MSc in General Surgery and then in Cardiology and Vascular Diseases (MCVD), and then his PhD (MD) in Thoracic and cardiovascular surgery (1984) and lastly MBA from ESLSCA (2010). He is a Member of the Society of Thoracic Surgery; the European Association of Cardio-Thoracic Surgery; the World Society of Pediatric Cardiology and Cardiac Surgery and the Egyptian Society of Cardio-Thoracic Surgery (ESCTS), etc. His major interests are neonatal and pediatric cardiac surgery, mitral and aortic valve repair, Ebstein's repair, dysrhythmia and maze surgery and health management by information system.

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