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Bileaflet mechanical valves: They are not the same

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Background: Continuous effort is still provided in designing optimal artificial heart valves with better hemodynamic function and reduced thromboembolic potential. The question is do we have moved forward toward this goal or not.

Method: A prospective, randomized comparative study was done on 360 patients scheduled for elective mitral valve replacement. Patients were grouped into On-X group (n=180) who received On-X mechanical valve and St-Jude Medical prosthetic valve, SJM (n=180) who received St Jude mechanical valve. Echocardiographic and clinical assessments were performed for all patients at 6 and 12 months follow up period.

Results: Rheumatic heart disease was the most common cause of valve affection (94.2%). Early mortality was 6.4%. The mean followup time was 3.11 ± 2.44 years. No structural or non-structural valvular dysfunction and no thrombo embolism cases were encountered. Late valve thrombosis was 1.9%/patient year in On-X group and 2.1%/patient year in SJM group. The mean Effective Orifice Area (EOA) was higher in on-X group (2.0 ± 0.3 cm²) than in SJM group (1.9 ± 0.2 cm²), (P value ≥ 0.05). The mean Indexed effective orifice area, EOAI was higher in On-X group (1.1 ± 0.1 cm²/m²) than in SJM group (1.0 ± 0.1 cm²/m²), (P value=0.034), especially significant in small valve size (25 mm) where it was 1.09 ± 0.21 cm²/m² in On-X group and 0.93 ± 0.12 cm²/m² in SJM group, (P value=0.02).

Conclusion: On-X and St Jude prosthetic valves have a comparable hemodynamic performance in mitral position. However, On-X prosthesis might have a forwardstep on the way of design technology that may allow better function in terms of EOA and Effective Orifice Area (EOAI) especially in smaller valve size.

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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