

**Tricuspid three-dimensional ring versus fashioned flexible band annuloplasty in management of functional tricuspid valve regurge: comparative long term study**

**Abstract**

**Background:** Functional tricuspid valve regurgitation due to left sided valve lesions remains a common finding. Nowadays, different types of three-dimensional rings and flexible bands are considered to be the gold standard techniques for repair of such functional regurgitation. Our study aimed for long-term comparison of the durability and effectiveness of those techniques.

**Results:** The data of 170 adult patients with moderate or more functional tricuspid regurgitation secondary to mitral stenosis or regurgitation receiving tricuspid valve repair using either rigid 3D rings (contour 3D or MC3 ring) or prosthetic fashioned bands (Dacron or PTFE) and mitral valve surgery between March 2013 and September 2018 were collected and analysed. Patients were classified in two matched groups: ring group (group A) consisting of 90 cases and band group (group B) consisting of 80 cases. follow-up period ranged from 55.2 to 78 months (mean  $67.2 \pm 10.8$ ), during this period New York heart association for dyspnea functional class evaluation and full echocardiographic assessment were done and was scheduled as following: before hospital discharge, after 6 months of surgery and finally, every 2 years. In-hospital mortality was 1(1.1%) and 2 (2.5%) with  $p$  value 0.49 after ring or band annuloplasty, respectively. No significant differences in both groups regarding hospital mortality and morbidities. There was statistically significant decrease in NYHA class, degree of TR, and PASP within the 2 groups postoperatively with  $p$  value of 0.03, 0.04, and 0.033, respectively, with no statistically significant difference between both groups ( $p$  value  $> 0.05$ ). There was statistically significant difference in the freedom from recurrent TR and need for reoperation during the follow-up period between both groups with lower recurrence and reoperation rates in group A, ( $p$  value 0.03 and 0.001, respectively).

**Conclusion:** Tricuspid valve repair with different annuloplasty rigid three dimensional rings or fashioned flexible bands for functional tricuspid regurgitation offers good long-term outcome. Yet, the rigid rings maintain their benefits on the rate of recurrent TR and the need for reoperation.

**Keywords:** Functional tricuspid regurgitation, Band annuloplasty, Tricuspid 3D ring