A strange finding of the present study is that ring provided better long-term outcomes and echocardiographic results in a subset of patients with TR grade below moderate. Although this result confirmed that even lesser-grade TR deserves to be treated, it sounds a bit odd, since lesser TR grade more often mirrors a lesser tricuspid valve annular dilatation and leaflet tethering, so that a De Vega procedure could be enough; on the contrary, in patients with high-grade TR, morphologic alteration of either annulus or subvalvular apparatus are deeper and deserve the application of a ring.[4] This finding deserves surely a further evaluation, hopefully in a larger cohort of patients.

However, we can conclude, paraphrasing what a famous American actress and comedian named Mae West said, "Opportunity knocks for every man, but you have to give a woman a ring," by saying "Opportunity knocks for every heart surgeon, but you have to give a tricuspid a ring."

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See Article page 1788.

Commentary: Ring versus string

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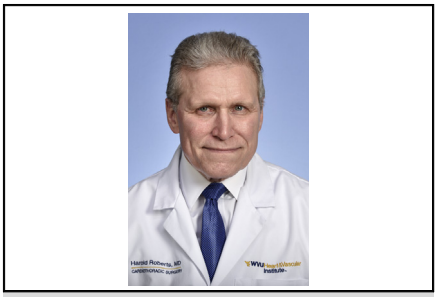

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CENTRAL MESSAGE

Does equipoise still exist between rigid remodeling and suture annuloplasty for secondary functional tricuspid regurgitation?

Persistent functional tricuspid regurgitation (FTR) may result in longitudinal morbidity or symptoms following left-sided cardiac operations. Although debate on the merits of addressing moderate FTR continues, relying on FTR to spontaneously resolve after addressing other lesions during cardiac procedures may be met with disappointment.[1] In recent years, surgeons are becoming more aggressive in surgically treating significant FTR at the time of a cardiac procedure. The "forgotten valve" is becoming less neglected. In fact, according to the Society of Thoracic Surgeons database, the frequency of tricuspid procedures has nearly doubled over the last 10 years.[2]

In this issue of the *Journal*, Kim and colleagues[3] from Seoul University shared their considerable experience in managing FTR with either rigid ring or suture "De Vega" annuloplasty. Although the study was reasonably constructed with excellent follow-up averaging 102 months, the major weakness was that the De Vega cohort contained older and sicker patients with a greater incidence of atrial fibrillation and reoperations. Thus, even with propensity matching, the long-term outcomes may be biased against the De Vega group. With greater-risk patients, one might readily see how the surgeon in such a case might opt for a quick suture annuloplasty to reduce the length of a difficult

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procedure. The main conclusions of the authors were that no difference in overall survival and cardiac death existed between the 2 groups. However, there was a highly significant difference in recurrence of moderate or worse tricuspid regurgitation (TR) with suture annuloplasty as wells as an increase in heart failure readmissions. Of note, the difference was less pronounced with more severe preoperative TR. This was likely a reflection of advanced adverse remodeling of the right ventricle with consequent leaflet tethering that should probably have been addressed with adjuvant techniques such as anterior leaflet augmentation or even bioprosthetic replacement.

Studies comparing the 2 methods of repair have generally demonstrated rigid ring annuloplasty to be the most durable.[4,5] A recent meta-analysis demonstrated a 32% decrease in moderate or worse TR at 15 years with suture annuloplasty versus rigid ring annuloplasty.[6] In contrast, Shinn and colleagues[7] from Mayo demonstrated no difference in suture versus ring repair. However, their ring was flexible rather than rigid. In the quest for limiting ischemic time, the De Vega may still have a valuable role in a particularly difficult procedure to correct milder degrees of TR and annular dilatation in a heart with a limited right ventricular dysfunction. Yet, this operative concern may be mitigated by the fact that a rigid ring can be readily installed during the post-clamp recovery phase while the heart is warm and beating. Although nearly 10% of all concomitant tricuspid repair at the time of left-sided operations is performed with suture annuloplasty,[8] the evidence is becoming clearer that durably correcting clinically important FTR often requires a rigid ring. In the final analysis, although it is incumbent that we be stewards of institutional outcomes and health care resources, we should strive to use the most longitudinally effective therapy for our patients.

ADULT

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