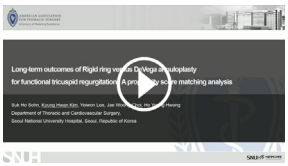
annuloplasty showed less TR recurrence. Rigid ring annuloplasty can be considered for the treatment of functional TR in terms of its better durability (Figure 5).

Webcast

You can watch a Webcast of this AATS meeting presentation by going to: https://aats.blob.core.windows.net/media/19%20AM/Monday_May6/206F/206F/S81%20-%20Tricuspid%20valve%20surgery%20essentials/S81_7_webcast_030444140.mp4.



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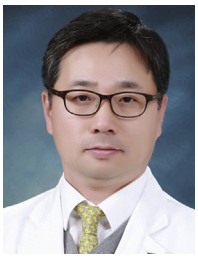
Key Words: tricuspid regurgitation, tricuspid annuloplasty

ADULT

Discussion

Dr Percy Boateng *(New York, NY)*. Thank you, Dr Kim, for your presentation. I have a few questions, but just to summarize what you said, in your experience in your institution there was no difference in the long-term outcome and freedom from cardiac death, tricuspid-related events, which are listed as thromboembolism, permanent pacemaker implantation, bleeding, reoperations or morbidity in patients who were propensity matched, and the follow-up time was 94 months median up to 51 months, somewhat of a range of about 10 years.

The first question I have is, if there is no difference in the ring that you choose or the prosthesis that you choose, should anyone be doing a rigid ring for selective patients or does it make a difference? The De Vega is clearly cheaper. Why would you want to use a more expensive ring if there is no difference in outcomes, because primarily the purpose of the annuloplasty is to prevent morbidity and mortality down the line, and if we are not making a difference in the patient's morbidity or mortality, then does it make a difference what ring we use, or should we be doing any rings at all?



Dr Kyung Hwan Kim *(Seoul, Republic of Korea)*. Thank you for your question. It is not the issue of the cost or expense. According to our 2008 article, in which we analyzed more than 600 patients who underwent left-sided valve surgery without significant tricuspid regurgitation (TR), significant TR with poor prognosis occurred in around 27% after more than 10 years, average 11.3 years later. So we have aggressively performed tricuspid annuloplasty, any kind of annuloplasty, for functional TR. That is our policy. Suture annuloplasty versus ring annuloplasty, the choice is up to surgeon's discretion. In terms of suture annuloplasty, our results were relatively excellent because we used the polytetrafluoroethylene suture, not polypropylene suture, to prevent guitar-string effect and we measured the tricuspid valve area after annuloplasty using the tissue valve sizer. These were our endeavors to standardize the tricuspid annuloplasty and to improve surgical outcomes. On the other hand, ring annuloplasty is supported by many surgeons because of its remodeling effect and reproducibility. My preference is ring annuloplasty, but there is intrainstitutional variability.

Dr Boateng. So then is it fair to say that TR, as we all know, eventually leads to significant morbidity and mortality, maybe beyond 10 years, that your study did not go far enough to detect a difference? Maybe a sample size with a smaller group would detect a difference?

Dr Kim. In fact, I have never seen a report that says, "Our sample size is sufficient," especially regarding TR. Despite the small sample size with fewer than 10 years of follow-up, we observed significant difference in TR recurrence. We expect this will matter at longer-term follow-up, although it did not show any difference in mortality and morbidity in this study. In addition to longer-term follow-up, we hope a multicenter trial to be conducted because it is very difficult to get sufficient evidence from a single institution.

Dr Boateng. The other thing that you included in your analysis is cardiac death. The primary procedure that was done was left-sided heart surgery. How do you explain using cardiac death as an end point when you were looking at TR? Could the primary procedure, which was either an aortic valve replacement or a mitral valve replacement, the failure of that procedure could have been the cause of cardiac death and not because of TR?

Dr Kim. It is true that, as you pointed out, the long-term clinical outcomes, including cardiac mortality, tricuspid valve-related events, and even TR recurrence would be greatly associated with the left-sided pathology and how well it was treated. In this study, we could not analyze the results considering the clinical status of left-sided lesion, because stratifying the patients according to their left-sided pathology and valvular function would be very complicated, and in fact, there were a small number of patients with recurrent mitral reguritation or prosthetic mitral valve failure. Your point would be a limitation of our study.

Dr Boateng. And in your experience with the patient population that you studied, those who have recurrent maybe early or midterm severe TR, did they have higher morbidity or mortality? I didn't see that clearly.

Dr Kim. We have not observed clear evidence of higher mortality or morbidity in recurrent TR patients in this study. But we got some impression that patients with recurrent TR presented worsening symptoms during follow-up periods, and we anticipate this will influence clinical outcomes with longer-term follow-up. Another article published by our institution also supports our impression.

Dr Boateng. I just want a clarification, you showed that patients who had mitral valve replacement tend to have a much higher recurrence of TR. Were you able to glean any information from your dataset why that is the case? Was it because of early valve failure, or stenosis? Were there any particular features of those patients that may have led to earlier recurrence of TR than the patients who had mitral valve repair?

Dr Kim. Actually I don't exactly know the reason why the mitral valve replacement group presented worse outcomes than the repair group in terms of TR recurrence. One thing is that replacement group mostly belonged to rheumatic disease while repair group to degenerative disease. This might have caused the difference between the 2 groups, although the exact mechanism is unknown. Anyway, in case of less than mild to moderate TR with left-sided valve surgery, my surgical principle is not doing any procedure on the tricuspid valve in degenerative mitral regurgitation, while doing tricuspid annuloplasty in rheumatic mitral disease.

Dr Boateng. Thank you very much. Good talk, great study.