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REPAIR OR REPLACE THE AORTIC VALVE: THE WEIGHT OF EVIDENCE

Reply to the Editor:

We thank Charitos and Takkenberg for their interest in our work. They raise interesting and important questions about the potential differences in survival between patients undergoing aortic valve (AV) repair and those undergoing AV replacement. They question the fact that patients undergoing replacement had a higher mortality than those undergoing repair and suggest that this may be due to false-positive findings in a small series.

Obviously, we can hardly deny that the matched comparison in our study only involved a limited number of subjects and could therefore have been subject to statistical

inaccuracies. There are nonetheless several lines of evidence that this was not the case.

As far as AV repair is concerned, the outcome data in the matched group were quite similar (in fact almost identical) to those in the unmatched population. Figure 1 shows overall survival of the 241 patients undergoing repair who met the inclusion criteria and from whom the 44 matched patients were selected. In these patients, overall survival was similar (83% at 9

years) to that of the age- and sex-matched Belgian population (86% at 9 years). Furthermore, similarly good results have been reported by several other groups as well. Among 331 patients who underwent elective AV repair for aortic regurgitation at the Mayo Clinic, in-hospital mortality was 0.6% (2 of 332 patients), and overall survivals were 91% and 81% at 5 and 10 years, respectively.¹ Similarly, in 640 patients undergoing AV repair for regurgitation, Aicher and

FIGURE 1. Kaplan-Meier survival curves comparing overall postoperative survival between patients undergoing aortic valve (AV) repair (solid line) and the age- and sex-matched Belgian population (dashed line). NS, Not significant.

FIGURE 2. Relative survival in patients undergoing aortic valve (AV) repair (solid line) or aortic valve replacement (AVR, dashed line).

colleagues² reported an operative mortality of 3.4%, and overall survivals were 92% at 5 years and 80% at 10 years. Taken together, these data indicate that our findings are unlikely to be attributable to a selection bias in favor of the repair group.

Could our findings be due to a selection bias in disfavor of the replacement group? Charitos and Takkenberg clearly suggest that this might be the case, because according to their analysis survival in the replacement group was much lower than in previous reports. The main reference they quote to back up their statement is an article by Kvidal and colleagues³ that seemingly shows better outcome after AV replacement than in our population. Careful inspection of Figure 6 in the article of Kvidal and colleagues,³ however, shows that their results were in fact quite similar to ours. Indeed, in their analysis of long-term survival, Kvidal and colleagues³ excluded operative mortality (which we did not) and only reported on relative survival, the ratio of observed to expected survival rate, the latter being calculated from life tables compiled from the total population of Sweden stratified by sex and age. Figure 2 shows the same analysis with our data. One can clearly see that survival of patients undergoing repair was close to 100% (which means a similar survival to the age- and sex-matched Belgian population) and that by contrast 9-year survival in the replacement group was significantly reduced to 73% at 9 years, a value not very different from the 76% found at 9 years by Kvidal and colleagues.³ Our results are also aligned with those of Klodas and associates,⁴ for whom 10-year survival was 65%, and those from the Veterans Affairs randomized trial,⁵ in which 10-year mortality after mechanical AV replacement was 40%. It would thus appear that our findings after AV replacement for aortic regurgitation are also unlikely to be due to a selection bias in disfavor of the replacement group.

Is this the end of the story? Certainly not; as we stated in our article, we cannot agree more on the need for a large-scale randomized trial to establish definitively the superiority of valve repair over valve replacement.

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ARRHYTHMIA PREVALENCE AFTER EXTRA CARDIAC CONDUIT FONTAN: A VIEWPOINT

To the Editor:

I read with much interest the article by Balaji and colleagues,¹ “An International Multicenter Study Comparing Arrhythmia Prevalence Between the Intracardiac Lateral Tunnel and the Extracardiac Conduit type of Fontan Operations,” which concluded that there was an increased chance of early sinus node dysfunction but no significant difference in late arrhythmia prevalence for extracardiac conduits (ECCs) relative to

intracardiac lateral tunnels (ILTs). These conclusions carry much relevance considering an overall worldwide preference toward ECCs from an arrhythmia perspective and the potential difficulties for transvenous pacing and transcatheter arrhythmia ablations after ECC use. I would, however, like to bring up 2 important points in this context.

First, Balaji and colleagues¹ mentioned a higher number of patients with heterotaxy in the ECC group (n = 70) than in the ILT group (n = 30), and there is published evidence² that the incidence of arrhythmias after the Fontan operation is much higher in patients with heterotaxy. I believe that this difference may well have influenced the results of the study, and a subgroup analysis excluding the patients with heterotaxy would therefore be of much interest.

Second, apart from this large study, 2 other studies^{3,4} have also pointed out the possibility of increased incidence of sinus node dysfunction after ECC relative to ILT, and the cause remains unexplained in the literature. An important possible contributing factor to this occurrence is the reoperative dissection to separate the right pulmonary artery from the left atrial roof during ECC completion after a bidirectional Glenn shunt; this may possibly damage blood supply to the sinus node, which arises from the circumflex artery in as many as 40% of cases. This dissection is not needed during an ILT completion after a hemi-Fontan operation, avoiding the potential for this occurrence postoperatively. More careful dissection in this area during ECC completion thus could possibly reduce the incidence of sinus node dysfunction.

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