Every patient had a major complication at 10 years. The actual incidence was 15% at 10 years, which is a high incidence. One-third of the recent publications suggested a linearized incidence around the level of anticoagulation. It is not clear why this is the case. It could be a reason for the linearized incidence being expanded to younger patients because of low rates of degeneration of the modern bioprostheses, especially in older patients. So how do we resolve this dilemma and choose the right type of prostheses for the individual patient? You stress in your manuscript very much the importance of careful patient selection, but you unfortunately do not tell us how you do this. But none of them leads to a few questions. How many patients received a bioprosthesis in the same age group during the same period and why is there no comparison? Secondly, what is the current practice of you and your institution and what are the actual selection criteria you used? Third, how do the current advances with transcatheter valve replacement technologies becoming available, and especially the concept of valve-in-a-valve replacement of a failing bioprostheses, affect your current practice or will it do so in the near future?

Dr. Coutinho: Regarding the first question, as I mentioned in the manuscript, the policy of our department is to implant a mechanical prosthesis in a suitable patient. The suitable patient goes until 70-72-year-old patient. When we look at the results, two-thirds of the patients were alive at the end of the study, and the mean age of the patients alive was 82.1 years, which means that if we had implanted a bioprosthesis, probably this patient would be at risk of reoperation. The mean overall survival was 13.6 years, which I think is remarkable.

Regarding the selection, yes, the selection is by conversation with the patient, beginning with the nurse and the cardiologist and, afterwards, the surgeon; the performance status is analyzed; the capability of the patient to manage the anticoagulation; the family support of the patient to be anticoagulated. There are several factors that we take into account when deciding to implant a mechanical prosthesis, but we are not saying that older patients should have a mechanical prosthesis.

We decided to perform this study because this goes in the opposite direction of the recent tendency. The recent tendency is to use a bioprosthesis in increasingly younger patients. Well, with these results we can say that mechanical valve replacement is a safe and appropriate measure. There weren’t exclusion or inclusion criteria to this study. This is a retrospective analysis.

Dr. Simon: So what is it you do now? Do you put mechanical valves in the patients 65 to 72, in all of them, or which ones?

Dr. Coutinho: No, no. I have just answered that, if the patient is suitable for a mechanical prosthesis.

Dr. J. Appoo (Calgary, Alberta, Canada): I have two questions. I think you had about 15% of patients at 10 years with a thromboembolic event but only three patients who had reoperation.

Dr. Coutinho: Five patients were reoperated.

Dr. Appoo: But none of them were reoperated for thromboembolism. So can you comment on that? If a patient has a thromboembolic event, do they usually require a reop or not? And secondly, at 10 years you had close to 30% of patients with a major thromboembolic or a bleeding event, which is actually a significant morbidity, and I don’t think that can be underestimated.

Dr. Coutinho: About the second question, yes, the gross analysis of 18% of the patients having a thromboembolic event seems inadmissible, but the linearized incidence was 1.56 per patient year.

Dr. Appoo: But that is the whole point. 1.56 per patient year adds up to 15% at 10 years, which is actually quite a high incidence. One-third of patients had a major complication at 10 years.

Dr. Coutinho: One explanation for that is that we use a lower threshold for the level of anticoagulation. I don’t know if that could be a reason for having a thromboembolic event. But the linearized incidence is around the values cited by other works in other population groups.

eComment: Mechanical valve replacement in the elderly: does anticoagulation have benefit?

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We read with great interest the recent report by Coutinho and coworkers regarding the outcome of mechanical aortic valve replacement (AVR) in the elderly patients [1]. AVR surgery is increasing and will increase even further as a result of population aging. Surgical treatment for symptomatic aortic stenosis in the elderly has an acceptable operative risk with excellent long-term results. De Vincentis et al. have demonstrated that survival rate with mechanical valve prosthesis is higher than bioprosthetic valve [2]. Biologic valves are considered the optimal choice in patients older than 65 years by the American College of Cardiology/American Heart Association 2008 guidelines [3]. Mechanical AVR has still some reservations to offer, because it may be associated with complications, such as anticoagulation and thromboembolism. However, the choice of mechanical prosthesis in the elderly patients often depends on different factors, including chronic atrial fibrillation, the use of anticoagulation for other diseases, less need of re-operation, preference of the cardiologist or surgeon as well as patients’ wishes, and technical reasons related to aortic annulus. We recently reported a cohort of patients who underwent aortic valve replacement and coronary artery bypass surgery [4]. We did not find any differences between the two types of prosthesis. Which mechanisms were responsible for neurological injury in patients who received mechanical valve prosthesis is obscure. Central neurological events may be due to not only the valve itself but also to other causes, such as aortic, particularly carotid and vertebral artery disease in this older age group. Furthermore, many patients are prone to cerebrovascular events at the advanced age. So, what is the explanation for this finding? Does the mechanical valve,
whether from the valve itself or from its associated anticoagulation, in the elderly patient really have some advantages? A randomized prospective trial of mechanical vs. biological valves would answer the question.

The controversial aspect of this article is that the authors presented only patients who received a mechanical valve with excellent survival. It would be better to compare them with those who received a tissue valve. We would like to congratulate the authors for their excellent long-term results with an acceptable mortality and morbidity rate.

References


