LETTER TO THE EDITOR RESPONSE

Reply to Lee

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First of all, we would like to thank Dr Lee for his insightful comment [1] on our manuscript recently published in the European Journal of Cardio-Thoracic Surgery [2]. Dr Lee addressed, in his letter to the editor, three important and controversial aspects of bicuspid aortic valve (BAV) disease, which we would like to discuss in detail.

The first issue highlighted by Dr Lee was the adequacy of follow-up examination in order to detect the actual progression of aortic disease in our study population. In fact, serial aortic imaging by means of computer tomography (CT) or magnetic resonance angiography (MRA) was available in only a quarter of followed patients in our study, and the exact progression rate of proximal aortic dimensions for the whole study population cannot be determined. However, our follow-up was not limited by telephone interview and included simultaneously the analysis of serial echocardiography reports, which were performed on a yearly basis in the majority of the followed patients. Although transthoracic echocardiography may underestimate the maximal diameter of the proximal aorta, a clinically relevant progression of aortic disease can be ruled out in the majority of patients with this technique. All patients with suspected progression of aortic disease on echocardiographic examination were thereafter referred for more detailed aortic imaging (i.e. CT and MRA). Based on these data, we may assume that the proportion of patients with an asymptomatic and undiagnosed proximal aortic aneurysm >50 mm is quite low in our study population.

Another important question addressed by Dr Lee is the adequacy of the length of the follow-up period, given the relatively slow progression rate of the proximal aortic diameter in BAV patients. Nevertheless, we did not observe the increasing risk of aortic complications with the longer duration of follow-up [i.e. only 2 of 8 (25%) adverse aortic events occurred later than 10 years post-aortic valve replacement (AVR)]. Moreover, Dr Lee quoted that the progression rate of the aortic diameter of 0.5 mm/year was observed in only 5 patients in our study who underwent proximal aortic surgery for progressive ascending aortic aneurysm and probably is an overestimate of the actual aortic growth rate in such patients. Although we had 95 BAV patients (i.e. 62% of the study population) still available for follow-up at 13 years postoperatively, we cannot reject the hypothesis that the risk of aortic complications may increase later than 17 years post-AVR. However, we believe such a hypothesis is unlikely.

The second important issue refers to the current guidelines of surgical treatment of BAV-aortopathy. Given the low incidence of aortic events at 15 years after an isolated AVR in our study population, we would recommend adjusting the current guidelines. However, it should be noted that our results apply only to the BAV population of isolated/predominant BAV stenosis and concomitant ascending aortic dilatation of <50 mm. In this specific BAV cohort, we would suggest raising the threshold size for concomitant aortic surgery to a diameter of 50 mm. However, these data may not be generalized to the whole BAV population, particularly to the so-called ‘root phenotype’ of the BAV disease (i.e. patients with dilatation of aortic-root and aortic-valve insufficiency). This subgroup of young male patients with isolated BAV insufficiency and predominant dilatation of the aortic root probably have a significantly higher risk of adverse aortic events after isolated AVR [3]. The coexistence of distinct BAV phenotypes has been confirmed by the results of our most recent prospective study (unpublished data), showing a strong correlation between transvalvular flow patterns and the structural changes in the media of the proximal aorta. Therefore, we strongly believe that the specific BAV phenotype should be considered when determining the need for concomitant aortic surgery. Unfortunately, most previous studies on BAV-aortopathy have mixed these two distinct and prognostically different patient groups (i.e. root phenotype and BAV stenosis phenotype) together, making interpretation of their results difficult. The oft-quoted 2004 paper by Borger et al. [4] is a prime example thereof.

Lastly, Dr Lee addressed in his comment the issue of reduction aortoplasty in patients with BAV disease. Reduction ascending aortoplasty (RAA) is a rather controversial surgical technique with a variety of modifications that have been proposed to overcome its limitations [5]. In order to answer the question of RAA in BAV patients, the focus should once again be placed on the BAV phenotype. A number of published reports identified BAV insufficiency (‘root phenotype’) as a significant risk factor for late redilatation of the proximal aorta after RAA, when compared with BAV stenosis [5, 6]. Moreover, BAV insufficiency patients showed a significantly faster growth of the proximal aortic diameter after RAA when compared with those with BAV stenosis (i.e. 1.3 vs 0.2 mm/year, respectively) [6]. Therefore, RAA is most probably not a good idea in BAV patients with the so-called ‘root phenotype’, and replacement of the ascending aorta should be performed in such patients. Whether or not RAA is a reasonable option in younger
Letters to the Editor / European Journal of Cardio-Thoracic Surgery

Is the right vertical axillary incision an alternative technique to the submammarian incision for the repair of simple congenital heart defects in female patients?

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We read with interest the surgical approach of Yan et al. [1] to simple congenital heart defects. The right vertical axillary incision ( RVAI) procedure decreased neither cardiopulmonary bypass time nor aortic cross-clamp and hospital stay. The authors claim that they had excellent results, achieving cosmetically satisfactory outcomes in young female patients. Although an objective multiple-choice questionnaire that focused attention on the auto-evaluation of the aesthetic result and its psychological influences has been reported previously [2], we could not understand how Yan et al. evaluated patient satisfaction. Meanwhile, it is not stated whether the subgroup analysis was made in terms of age and gender. This approach is recommended for its cosmetic advantages in young female patients, but adult patients in particular, might be dissatisfied regarding the incision of lateral breast tissue. Minithoracotomy with a submammarian incision can be specifically considered a more favourable approach. Contrary to the authors’ comment, breast deformity or asymmetry or any cage deformity will not develop when a careful tissue approximation is performed by the elevation of the breast tissue in young or adult female patients [3, 4]. As stated by the authors, due to poor exposure of the operating field with the RVAI approach, the learning period of this technique will take longer than the other minimally invasive techniques. The conversion of the process into another approach such as an additional surgical incision, can be very difficult, may cause the sacrifice of the internal mammary artery and may pulmonary complications and increase the magnitude of pain in the postoperative period as well.

We fully agree with the authors’ concern about femoral artery stenosis in the future, however, vascular complications such as dissection or stenosis after femoral cannulation is still a debatable topic. Femoral access [5] has been shown to be a safe and preferable option in selected patients and allows limited surgical chest incisions thereby reducing the patient’s surgical trauma. In the preoperative period, Doppler examination of the femoral artery (diameter and quality) can minimize the possible vascular problems and assist in determining the surgical strategy in the young or adult patient.

In conclusion, this is a valuable study, and we are grateful to the authors for sharing their experiences. This surgical technique, specialized according to gender, might be performed in male adolescent patients in particular. It might be an alternative to the submammarian incision in female and adult patients.