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*Corresponding author. Department of Surgery, Competence Center of Thoracic Surgery, Charite University Hospital Berlin, Charitéplatz 1, 10117 Berlin, Germany. Tel: +49 30 450622099; e-mail: jens-c.rueckert@charite.de (J.-C. Rueckert).

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Concomitant aortic root enlargement is perhaps safe, but is it also effective?

Michiel D. Vriesendorp , Rob A.F. de Lind van Wijngaarden and Robert J.M. Klautz *
Department of Cardiothoracic Surgery, Leiden University Medical Center, Leiden, Netherlands

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Although the surgical techniques used for aortic root enlargement (ARE) have been around since the 1970s, the last decade has seen renewed interest in these procedures. To compete with the haemodynamic performance of transcatheter valve replacements and to enable future valve-in-valve procedures, the sizing of surgical valves has become the key issue. To facilitate the implantation of larger valves than the native annulus can accommodate, a concomitant ARE, according to the Nicks or Manougian technique, could provide the solution. In agreement with other recent reports [1], the current study by Haunschild *et al.* [2] concludes that ARE is a safe and effective procedure.

However, before we can accept these results and translate them into clinical practice, it is important to understand the context. Similar to other studies that have analysed the effect of concomitant ARE [1, 3–6], the present study is conducted retrospectively, with a high risk of confounding by indication. For instance, the decision to perform ARE is only explained by the authors in vague terms: 'The need for ARE was evaluated before surgery based on the echocardiographically measured aortic annulus and body surface area of the patient'. In addition, this decision could then be revised during surgery, based on the surgeon's judgement. This lack of strict criteria to perform ARE may impact the results, because subjective observations of the aortic root anatomy, comorbidities, as well as the surgeon's experience with complex procedures, potentially influence the decision to perform ARE. With only 171 out of the 4120 included patients receiving a concomitant ARE, we are wondering why ARE was not performed in the other 95% of patients. This confounding by indication also provides a potential explanation of why the mean implanted size was surprisingly smaller in the concomitant ARE group.

The second issue we would like to emphasize is the unclear effectiveness of concomitant ARE. Although the conclusion that 'severe prosthesis-patient mismatch (PPM) can be reliably eradicated by ARE' is stretching the data given the limited number of events in both groups, the prevention of PPM is not the ultimate goal of ARE. As surgeons, we hope that the larger prosthesis improves the haemodynamic performance, which decreases the left ventricular-workload and therefore survival. However, the present study does not demonstrate the survival benefit at the 5-year follow-up. Other studies with longer follow-up periods also did not find any significant differences in the 10- or 15-year survival rate [4, 5]. For concomitant ARE to be used on a regular basis, the procedure not only needs to be safe but also to provide a clear benefit in terms of clinical outcomes. Besides the aforementioned limitation of confounding by indication, the current study on concomitant ARE has not shown any advantage over conventional aortic valve replacement. Although we agree intuitively that a prosthesis should be as large as possible for optimal haemodynamic performance, there are also studies that have demonstrated that concomitant ARE is not always as safe as argued by the authors [3, 6]. Therefore, only a large randomized controlled trial can help establish a place for concomitant ARE in the surgeon's arsenal.

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*Corresponding author. Department of Cardiothoracic Surgery, Leiden University Medical Center, Albinusdreef 2, 2333 ZA Leiden, Netherlands. Tel: +31-71-5269111; e-mail: r.j.m.klautz@lumc.nl (R.J.M. Klautz).

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