

Bicuspid aortic valve and aortopathy — conundrum still unsolved?

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We would like to thank Dr Ozturk et al. [1] for their interest in our recent article regarding the impact of bicuspid aortic valve (BAV) morphology on the aortic diameter and for their insightful comments concerning the methodology of our study [2].

The reported echocardiographic measurements were obtained retrospectively from our echo-database. Importantly, however, the fact that measurements were taken by different, randomly assigned experienced echocardiographers and the random selection of a very large control group (one thousand patients) at least partially reduced potential measurement bias, and provided us with reliable averaged values of aortic diameters. We agree that the ideal methodological approach might involve repeated measurements done by at least two sonographers, including the analysis of intra- and interobserver differences. Unfortunately, the retrospective character of our study limited this approach, but strict adherence to international quantification guidelines was, in our opinion, successful in reducing variability, as supported by local quality control measures.

Although these data were not presented, there was no significant difference in the presence of arterial hypertension or in the left ventricular (LV) echocardiographic size (LV mass, end diastolic and systolic diameters, and interventricular septal (IVS) thickness — indexed and non-indexed to body surface area) between the two BAV subtypes. This corroborates published [2] data on aortic stenosis severity and transvalvular pressure gradient data (peak and mean), similar in both BAV phenotypes. We feel that this is also consistent with haemodynamic theory of BAV aortopathy, which is supported by growing literature evidence [3] and is mentioned by Dr Ozturk.

Another important issue raised is that some occupational activities may alter the aortic diameter in BAV individuals, especially work related to everyday isometric-type strenuous activity [4]. Despite some reports regarding healthy individuals (with tricuspid aortic valve) suggesting that strenuous activ-

ity is associated with larger aortic diameters [4], there is still limited and inconclusive evidence that these activities might significantly alter the aortic diameter in BAV patients [5]. In their observational study in aviators with BAV exposed to prolonged extreme G-force and anti-G manoeuvres, Carter et al. [5] demonstrated that there was no relationship between the aviation environment (high- vs. low-performance pilots) and aortic diameter progression over time. Interestingly, similar results in healthy pilots were presented by Dr Ozturk et al. [6]. Without systematic data about the occupational profile of the studied BAV patients, we can only indirectly hypothesise that the previously mentioned observation of no differences in LV echocardiographic parameters (LV mass, LV end-diastolic/systolic, and IVS diameter) may indicate that the studied subjects did not differ in their job intensity. However, further larger cohort studies in this field are warranted to more precisely determine whether occupation may have significant impact on aortopathy in BAV individuals.

Conflict of interest: none declared

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