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Reply: Balancing, timing, and efficiency in tricuspid TEER

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We appreciate the perspectives of Ktenopoulos et al[1] and agree that the 1-year results from the TriCLASP study provide important insights into this evolving field and opportunities for further research.

Our study evaluates the effects of tricuspid transcatheter edge-to-edge repair (T-TEER) in treating patients with ≥severe tricuspid regurgitation (TR). Ktenopoulos and colleagues correctly highlight the echocardiographic discordance between site assessments and post-enrolment core laboratory grading of baseline TR and the treatment of patients with moderate TR, which we explicitly discussed in our manuscript. Even with moderate TR patients in TriCLASP, the population was similarly or more symptomatic at baseline compared with patients treated with T-TEER in contemporary studies, especially regarding heart failure metrics[2-5]. Despite the treatment of some patients with moderate TR, we observed a substantial increase in quality of life and functional status, signs of improved right ventricular remodelling, and importantly, a dramatic reduction in heart failure hospitalisation. These data are hypothesis-generating and provide an opportunity to evaluate outcomes for patients in earlier disease stages.

Along these lines, the authors bring up an important point regarding the comparatively modest improvement in Kansas City Cardiomyopathy Questionnaire scores at 1 year in TriCLASP, which was 4 points lower than the change in T-TEER patients in TRILUMINATE or TRI.FR. Although there were some signals that this could be related to baseline TR grade and the amount of TR grade reduction (with changes ranging from 7.0 to 17.6 points for patients who improved by 1 to ≥3 grades, respectively), the greater increase in the six-minute walk distance for TriCLASP patients (29.4 m vs 11.5 m in TRILUMINATE and 10 m in TRI.FR) suggests a meaningful, functional improvement[2-4]. It is encouraging that T-TEER consistently improves quality of life and functional capacity across these studies.

Finally, as the authors note, there is a difference in hospital length of stay between the TriCLASP (European) and TRILUMINATE (predominantly US-based) patient cohorts, and this is consistent with other T-TEER studies, where regional variation has been observed. For instance, in a single-centre Swiss study of TriClip (Abbott) patients, the median hospital stay was 3.0 (interquartile range 2-5) days[6], similar to the median of 4.0 days recorded in the TriCLASP study. Despite the variation in length of stay, the overwhelming evidence to date is that T-TEER is an exceptionally safe procedure. While there might be regional differences in the length of hospital stay, influenced by different healthcare systems, additional experience and a wider understanding of the excellent safety profile may drive down the length of hospital stays in the future.

We agree with Ktenopoulos and colleagues that the current trial adds to the evolving body of evidence for T-TEER and look forward to longer-term follow-up and additional trials that will continue to inform on procedural safety, heart failure hospitalisation, and quality-of-life outcomes.

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Conflict of interest statement

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