Anecdotal reports of early failure of the Trifecta bioprosthetic valve despite promising early improved hemodynamics have spurred efforts to quantify these observations. Squiers and colleagues\(^1\) demonstrate in their analysis of the literature that the Trifecta bioprosthetic valve is associated with greater rates of structural valve degeneration (SVD) or reintervention for SVD than the Magna Ease, as well as greater rates of all-cause reintervention compared with the Magna Ease and PERIMOUNT.

Although the question “Which is the best valve?” may seem simple at face value, proving this is inherently challenging. Studies have been hampered by varying definitions of valve-related end points, an issue that is addressed by the Valve Academic Research Consortium (VARC) standardization of valve-related outcomes.\(^2\) VARC-2 was published in 2012,\(^3\) whereas the studies in Squiers and colleagues’ meta-analysis were all published from 2015 onwards. Yet, VARC-2 criteria were used in only 4 studies,\(^4-7\) whereas 2 studies defined SVD as something other than VARC criteria\(^8,9\) and the remaining 4 did not provide the definition of SVD used by their investigators.\(^10-13\)

With multiple valve products in common use, studies have yet to accumulate comparisons that demonstrate definitive superiority or inferiority of any particular valve. The appeal of the network meta-analysis approach is that it allows one to indirectly compare 2 interventions that have not previously been directly compared in a trial, through estimation of relative effects. However, this relies on the assumption that the various studies in the analysis are similar. The variety of SVD definitions resulted in a quantitative heterogeneity metric (I\(^2\)) of 85.7\% for the composite outcome of SVD or reoperation for SVD. A reasonable question, then, is whether this study can offer much more than a well-conducted propensity match, as Yongue and colleagues\(^11\) have recently done.

Despite Trifecta receiving Food and Drug Administration approval 11 years ago, the 10 studies in the analysis had short follow-up. A single study had follow-up at 5 years, 2 studies did not specify their follow-up time,\(^9,11\) and the remainder had follow-up of only 2 to 4 years. One could consider how longer follow-up may yield different findings. As Squiers and colleagues discuss, the modes of failure are known to differ between Trifecta and other valves, but the time course of failures is not yet clear. The meta-analysis here only tells us about early SVD. Bioprosthetic degeneration resulting in prosthetic valve stenosis generally increases with time, but whether the incidence of cusp-tear failures (which are more predominant in Trifecta) similarly increases with time is not known. In this regard, use of VARC criteria, where both modes of failure are lumped into a single definition of SVD, is perhaps detrimental.

We applaud Squiers and colleagues for their work in reviewing the available information regarding SVD of bioprosthetic valves, but such a review remains constrained by the existing literature and the limitations discussed. As older valves are continually modified and novel valves make their way to the scene in pursuit of a bioprosthetic
valve that is immune to the woes of SVD, it is clear we will have to continue to re-evaluate comparisons like this.

References