Searching for minimally invasive aortic valve surgery that can compete with a transcatheter approach

Spencer J. Melby, MD

From the Division of Cardiothoracic Surgery, Washington University in Saint Louis, St Louis, Mo.

Disclosures: Author has nothing to disclose with regard to commercial support.

Received for publication Jan 7, 2016; accepted for publication Jan 8, 2016; available ahead of print Feb 4, 2016.

Address for reprints: Spencer J. Melby, MD, Division of Cardiothoracic Surgery, Washington University in Saint Louis, 660 S Euclid Ave, Campus Box 8234, St Louis, MO 63110 (E-mail: melbys@gmail.com).

J Thorac Cardiovasc Surg 2016;151:1648-9

0022-5223/\$0.00

Published by Elsevier Inc. on behalf of The American Association for Thoracic Surgery

<http://dx.doi.org/10.1016/j.jtcvs.2016.01.016>

The study in this issue of the *Journal* by Wahlers and colleagues¹ demonstrates excellent outcomes after aortic valve replacement with a new sutureless rapid deployment aortic valve developed by Edwards, the Intuity valve (Edwards Lifesciences, Irvine, Calif), through a full sternotomy, upper hemisternotomy, or right anterior thoracotomy. Crossclamp times were short for the sternotomy approaches (43 minutes) and longer for anterior thoracotomy (88 minutes). The complication rates were similarly low among all cohorts. The same group has previously reported similar excellent outcomes from the first implanted valves, showing reduced aortic crossclamp times relative to conventional surgery as well as low gradients across the valve.² In another published report, 1-year outcomes were excellent with the use of this innovative valve.³ This group is to be commended for their expertise in aortic valve replacement and proven excellent short-term outcomes with the new sutureless valve. Although Wahlers and colleagues¹ describe this study as an evaluation of whether the rapid deployment valve can be placed as quickly through a minimally invasive approach as through a traditional sternotomy (an important question in itself), there are bigger issues at play with a valve of this nature.

Transcatheter aortic valve replacement (TAVR) has become common in high-risk patients, and its use is now encroaching on the moderate and low-risk patient populations. The modern cardiac surgeon, previously comfortable with decades of historically good outcomes with surgical aortic valve replacement, is now *uncomfortable* with the notion that surgical aortic valve replacement may become obsolete, or a rare procedure reserved for the few cases in which TAVR is not possible. Surgeons rightly wonder whether there is an equivalent surgical intervention that could rival the short-term TAVR outcomes and maintain surgery's long-term excellent results, which would keep surgeons doing surgery on the aortic valve. This is thus a timely trial to evaluate technology similar to TAVR but in a surgical setting. The surgeon knows that the removal of the diseased

Spencer J. Melby, MD

Central Message

Although good short-term outcomes have been achieved with a sutureless rapid deployment aortic valve, long-term outcomes are needed.

See Article page 1639.

calcified leaflets improves the outcome of aortic valve replacement (ie, less paravalvular leak) and thus strongly believes it better not to abandon this important part of the procedure. This study of Wahlers and colleagues¹ shows that short-term excellent outcomes can be achieved with this sutureless valve. Whether the shortened surgical time is that critical is up for debate; it may play a crucial role in very sick patients, but most patients would likely not see much difference in morbidity as a result of saving 20 minutes of crossclamp time. If this procedure is to be of benefit, we must know whether these sutureless valves can replace the currently used valves. Will they hold up in the long run?

This remaining question, whether any rapid deployment valve (transcatheter or otherwise) will have the longevity that will make them a viable replacement of the traditional sewn-in aortic valves, is an important point that needs careful, long-term evaluation—and the answer cannot be achieved without years of follow-up. This study of Wahlers and colleagues¹ is a good start to evaluate the rapid deployment valve, but it is only that, a beginning. Short-term gains must be weighed carefully against the long-term need for repeated interventions, adverse cardiac events, and potential diminished long-term survival. It would be a disservice

to the hundreds of thousands of patients who will need aortic valve replacement to replace the excellent existing valves prematurely with potentially inferior ones on the basis of short-term and midterm outcomes. Likewise, it would be erroneous never to give way to new technology, because if these valves can stand the test of time, then the upfront decrease in morbidity would likely be a substantial benefit to patients. We must decide when the long-term outcomes are known.

References

1. Wahlers TC, Haverich A, Borger MA, Shrestha M, Kocher AA, Walther T, et al. Early outcomes after isolated aortic valve replacement with rapid deployment aortic valve. *J Thorac Cardiovasc Surg*. 2016;151:1639-47.
2. Borger MA, Moustafine V, Conradi L, Knosalla C, Richter M, Merk DR, et al. A randomized multicenter trial of minimally invasive rapid deployment versus conventional full sternotomy aortic valve replacement. *Ann Thorac Surg*. 2015;99:17-25.
3. Haverich A, Wahlers TC, Borger MA, Shrestha M, Kocher AA, Walther T, et al. Three-year hemodynamic performance, left ventricular mass regression, and prosthetic-patient mismatch after rapid deployment aortic valve replacement in 287 patients. *J Thorac Cardiovasc Surg*. 2014;148:2854-60.