migrated into the left ventricle. Because of hemodynamic instability, our cardiac surgery team intervened locally and placed the patient on extracorporeal membrane oxygenation, before transferring her to our institution, where she underwent aortic valve replacement. After a complicated course, she was sent to a rehabilitation facility in good condition.

During the late 1980s and the beginning of the 1990s, at the onset of the coronary interventional era, all procedures were performed only in institutions with cardiac surgery on site and strictly with surgical standby. Later, with the increasing confidence of the interventional cardiologists, more sophisticated technology, and a very low need for surgical rescue, the procedure also gained widespread application in hospitals without cardiac surgery on site.

Similarly, because the need for surgical rescue has been low in all series, it is understandable that some interventional cardiologists have been tempted to perform TAVI without surgical standby. Approximately one third of centers performing TAVI in Germany do not have cardiac surgery on site, and in Italy, at least 1 other institution currently performs TAVI without cardiac surgery on standby.

Not surprisingly, the invasive cardiologists are already in turmoil, and the discussion on whether TAVI can be performed without on-site cardiac surgery has been continuing in the published studies. In response to a plea for a same-institution interdisciplinary approach,² Eggebrecht and colleagues³ cautioned against considering the use of the heart team concept as being synonymous with an on-site cardiac surgery program. They also claimed that some centers have embraced a different “heart team” interpretation by collaborating with cardiac surgeons who would come to their hospitals, participate in the procedure, and rescue the patient when complications occurred.³

Through our experience with the patient we have described, others would now argue that, provided the expertise is available to promptly institute extracorporeal membrane oxygenation, this could be another acceptable method to salvage patients with complicated cases. Finally, let us not forget that the entire dispute could become merely academic if someone asked why bother to try to rescue, with slight chances of success, that very rare patient already deemed inoperable by the surgeon from the beginning. Our patient’s good outcome was probably more the exception than the rule.

Notwithstanding any of these arguments, we and the surgical community remain convinced that to achieve the best possible result, any major complication should be managed by a surgical team immediately after the occurrence and that any other creative arrangements can only put the patient’s life at greater risk and subject the hospital and operating team to a malpractice suit. That statement becomes even more persuasive if we look at the future, when this procedure could be offered to an increasing number of patients who are low-risk surgical candidates.

Accordingly, the recent European Society of Cardiology/European Association for Cardio-Thoracic Surgery guidelines⁴ have considered the absence of cardiac surgery on site a contraindication. Hopefully, also in Europe and Italy, just as in the United States, procedure reimbursement will be authorized only for those institutions at which TAVIs are performed in an interventional suite or hybrid operating room by a heart team. Only then we could consider applying this revolutionary procedure even in lower risk patients.

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References

1. Agnihotri A. 2012 ACCF/AATS/SCAI/STS expert consensus document on transcatheter aortic valve replacement: executive summary. *J Thorac Cardiovasc Surg.* 2012;144:534-7.
2. Seiffert M, Conradia L, Baldus S, Schirmer J, Blankenberg S, Reichenspurner H, et al. Severe intraprocedural complications after transcatheter aortic valve implantation: calling for a heart team approach. *Eur J Cardiothorac Surg.* 2013;44:478-84.
3. Eggebrecht H, Schmermund A, Mehta RH. Reducing severe intraprocedural complications during transcatheter aortic valve implantation with an interdisciplinary heart team approach. *Eur J Cardiothorac Surg.* May 3, 2013 [Epub ahead of print].
4. The Joint Task Force on the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS). Guidelines on the management of valvular heart disease (version 2012). *Eur Heart J.* 2012;33:2451-96.

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FREESTYLE XENOGRFT FOR AORTIC VALVE ENDOCARDITIS

To the Editor:

It was with great interest that we read the article by Heinz and colleagues¹ reporting the long-term outcomes after Freestyle (Medtronic Inc, Minneapolis, Minn) root replacement for complex destructive aortic valve endocarditis. They included 32 patients (median age, 61 years) who underwent the procedure between 1997 and 2012 and found that 5-year survival was 62%, and 5-year freedom from short- and long-term cardiac events was 56%. They concluded that the Freestyle xenograft is a comparable alternative to homograft for treatment of complex aortic valve endocarditis.

We congratulate Heinz and colleagues on their excellent results in a challenging patient group and we wish to offer some additional data supporting the use of the Freestyle

FIGURE 1. Kaplan-Meier estimated survival in 25 patients who underwent Freestyle (Medtronic Inc, Minneapolis, Minn) xenograft aortic valve replacement for infective endocarditis between 2002 and 2012.

graft in the treatment of infective aortic valve endocarditis.

We investigated long-term survival after surgical intervention for native and prosthetic valve endocarditis.² Our total study population consisted of 252 patients, 25 of whom received a Freestyle xenograft. The median age was 57 years (range, 24-73 years); 16 were men and 9 were women. Fifteen patients (60%) had prosthetic valve endocarditis and 10 patients (40%) had native valve endocarditis. Death within 30 days of surgery occurred in 4 patients (16%). One- and 5-year survival was 76% and 65%, respectively (Figure 1). Five-year survival was 70% in patients who were operated on for native valve endocarditis and 53% in patients who underwent prosthetic valve endocarditis; however, the survival difference was not statistically significant. Five-year survival was 69% in the 16 patients in our original study population who received a homograft.

Promising results were also reported in an Italian study³ of 18 patients who underwent aortic root replacement for infective endocarditis with a Freestyle xenograft. The in-

hospital mortality was 11%, and during a median follow-up time of 24 months (range, 1-113 months) no deaths occurred. Furthermore, freedom from reoperation was 87.5%.

Thus, the results from our study² and the Italian study³ are in accordance with the findings from Heinz and colleagues.¹ We therefore agree with the authors' conclusion that the Freestyle xenograft can be considered a reliable choice for patients with aortic valve infective endocarditis in need of aortic root replacement.

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References

1. Heinz A, Dumfarth J, Ruttman-Ulmer E, Grimm M, Müller LC. Freestyle root replacement for complex destructive aortic valve endocarditis. *J Thorac Cardiovasc Surg.* July 11, 2013 [Epub ahead of print].

2. Edlin P, Westling K, Sartipy U. Long-term survival after operations for native and prosthetic valve endocarditis. *Ann Thorac Surg.* 2013;95:1551-6.
3. Miceli A, Crocchia M, Simeoni S, Varone E, Murzi M, Farneti PA, et al. Root replacement with stentless Freestyle bioprostheses for active endocarditis: a single centre experience. *Interact Cardiovasc Thorac Surg.* 2013;16:27-30.

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Reply to the Editor:

The letter by Edlin and Sartipy adds further important information on the advantages of the Freestyle xenograft in aortic valve endocarditis. Their results are excellent, and we congratulate them. Fifteen of their patients (60%) had prosthetic valve endocarditis, and the indication for full root replacement thus appears obvious.¹ For the remaining 10 cases, however, they gave no information on extent of the disease and mode of use of the xenograft (full root vs subcoronary technique). This information would be of major importance for adequate appreciation of the results. Nonetheless, their results do reflect our conclusion that homograft use can be safely replaced with xenograft use for this indication.²

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References

1. Edlin P, Westling K, Sartipy U. Long-term survival after operations for native and prosthetic valve endocarditis. *Ann Thorac Surg.* 2013;95:1551-6.
2. Heinz A, Dumfarth J, Ruttman-Ulmer E, Grimm M, Müller LC. Freestyle root replacement for complex destructive aortic valve endocarditis. *J Thorac Cardiovasc Surg.* July 11, 2013 [Epub ahead of print].

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