

Author's Reply

To the Editor,

We would like to thank the authors of this letter for their comments on our article entitled "Evaluation of procedural and clinical outcomes of transcatheter aortic valve implantation: A single-center experience" (1). In their letter, discussed the para-valvular leak (PVL), which is a significant weakness in transcatheter aortic valve implantation (TAVI) compared with surgery, especially in the initial studies (2). However, in recent studies, TAVI has been shown to be effective in intermediate-risk and even low-risk patients. Therefore, PVL, a predictor of mortality, is more valuable, especially for low-risk patients. In this discussion, based on the study by Matteucci et al. (3), they stated that mild PVL decreased over time after surgical aortic valve replacement (SAVR), but this also increased TAVI. In our study, the rates of PVL at discharge, 30 days, and 1 year were 94 (17.9%), 52 (17.2%), and 23 (23.7%), respectively, and there was no statistically significant difference. In the PARTNER A study, the 30-day and 1-year PVL rates in the TAVI group were 104 (68%) and 58 (59%), respectively, whereas the PARTNER B cohort rates were 187 (65.2%) and 58 (25.3%) in the TAVI group and 134 (60.4%) and 32 (20.1%) in the SAVR group (4, 5). In a study with intermediate-risk patients, the mild PVL rates on day 30 and year 1 and 2 in the TAVI group were 196 (22.5%), 169 (23.2%), and 161 (26.8%), respectively. In the SAVR group, these rates were reported to be 21 (2.8%), 23 (3.8%), and 18 (3.5%), respectively. Unlike Matteucci et al. (3), the increase we observed in mild PVL in the first year was remarkable in the SAVR group (6). In the study performed with a self-expandable transcatheter valve in patients with intermediate-risk, the PVL ratios on day 30 and years 1 and 2 were 276 (33.7%), 185 (31.9%), and 94 (32.8%), respectively, in the TAVI group, and 29 (4.3%), 27 (5.5%), and 13 (5.8%), respectively, in the SAVR group. There was an increase in mild PVL in the first and second years in the SAVR group (7). However, there was considerable heterogeneity owing to the imaging method, evaluation timing, transcatheter heart valve type and size, and grade system. The recently published PARTNER 3 trial, which included low-risk patients, reported a low percentage of moderate or severe PVL, but a higher rate of mild PVL, in TAVI compared with SAVR (8). In the PARTNER 3 study, using the core echocardiography laboratory, the PVL rates demonstrated a slightly insignificant increase in the TAVI group (28.7% vs. 29.4%) and a slightly negligible decrease in the SAVR group (2.9% vs. 2.1%) on day 30 compared with the first year. Unlike previous studies, moderate or severe PVL or whole aortic regurgitation at 30 days was not correlated with an increased risk of mortality at 1 year in low-risk patients who underwent TAVI (8). Analyzing all these data, the mild PVL rates in our study demonstrate concurrence with the literature and are also at acceptable low rates. In addition, in the SAVR group, mild PVL was observed at a similar rate to TAVI

and did not decrease in all studies during follow-up. Producing more complimentary grading systems, imaging modalities, and gold standards for PVL in the future may resolve such confusion.

In conclusion, although moderate or severe PVL is a predictor of mortality after TAVI, lower PVL rates can be achieved by an experienced team and by selecting appropriate patients with multimodality imaging.

 Bilge Duran Karaduman,  Hüseyin Ayhan,  Telat Keleş¹,

 Engin Bozkurt²

Department of Cardiology, Faculty of Medicine, Atılım University, Medicana International Ankara Hospital; Ankara-Turkey

¹**Department of Cardiology, Faculty of Medicine, Ankara Yıldırım Beyazıt University, Ankara City Hospital; Ankara-Turkey**

²**Department of Cardiology, Medicana International Ankara Hospital; Ankara-Turkey**

References

1. Duran Karaduman B, Ayhan H, Keleş T, Bozkurt E. Evaluation of procedural and clinical outcomes of transcatheter aortic valve implantation: A single-center experience. *Anatol J Cardiol* 2020; 23: 288-96.
2. Génèreux P, Head SJ, Hahn R, Daneault B, Kodali S, Williams MR, et al. Paravalvular leak after transcatheter aortic valve replacement: the new Achilles' heel? A comprehensive review of the literature. *J Am Coll Cardiol* 2013; 61: 1125-36.
3. Matteucci M, Ferrarese S, Cantore C, Massimi G, Facetti S, Mantovani V, et al. Early Aortic Paravalvular Leak After Conventional Cardiac Valve Surgery: A Single-Center Experience. *Ann Thorac Surg* 2020; 109: 517-25.
4. Leon MB, Smith CR, Mack M, Miller DC, Moses JW, Svensson LG, et al.; PARTNER Trial Investigators. Transcatheter aortic-valve implantation for aortic stenosis in patients who cannot undergo surgery. *N Engl J Med* 2010; 363: 1597-607.
5. Smith CR, Leon MB, Mack MJ, Miller DC, Moses JW, Svensson LG, et al.; PARTNER Trial Investigators. Transcatheter versus surgical aortic-valve replacement in high-risk patients. *N Engl J Med* 2011; 364: 2187-98.
6. Leon MB, Smith CR, Mack MJ, Makkar RR, Svensson LG, Kodali SK, et al.; PARTNER 2 Investigators. Transcatheter or Surgical Aortic-Valve Replacement in Intermediate-Risk Patients. *N Engl J Med* 2016; 374: 1609-20.
7. Reardon MJ, Van Mieghem NM, Popma JJ, Kleiman NS, Søndergaard L, Mumtaz M, et al.; SURTAVI Investigators. Surgical or Transcatheter Aortic-Valve Replacement in Intermediate-Risk Patients. *N Engl J Med* 2017; 376: 1321-31.
8. Pibarot P, Salaun E, Dahou A, Avenatti E, Guzzetti E, Annabi MS, et al.; PARTNER 3 Investigators. Echocardiographic Results of Transcatheter Versus Surgical Aortic Valve Replacement in Low-Risk Patients: The PARTNER 3 Trial. *Circulation* 2020; 141: 1527-37.

Address for Correspondence: Dr. Engin Bozkurt,
Medicana International Ankara Hastanesi,
Kardiyoloji Kliniği,
Ankara-Türkiye
Phone: +90 530 694 53 53
E-mail: drebozkurt@yahoo.com.tr
©Copyright 2020 by Turkish Society of Cardiology - Available online
at www.anatoljcardiol.com