PVL incidence has not decreased over time (over a 1-year period), or that it has even increased, although not statistically significant. However, in patients with SAVR, both in daily practice and the literature, mild PVLs appear to improve or even disappear over time (3). In the study of Matteucci et al. (3), which includes a large number of patients in whom post-SAVR-PVLs were examined, it was stated that PVL disappeared during the follow-up period in half of the patients with early postoperative PVL (3). The causes of severe PVLs seen in both the early and late periods are mostly infective endocarditis or failure of the procedure, as the authors stated in their study. Even the mild PVLs progress to severe PVLs in longer term follow-ups. This situation makes sense considering the ongoing calcifications. However, we wonder how the authors interpreted the continued existence of mild PVL over a 1-year period.

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## 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 paravalvular 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.

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