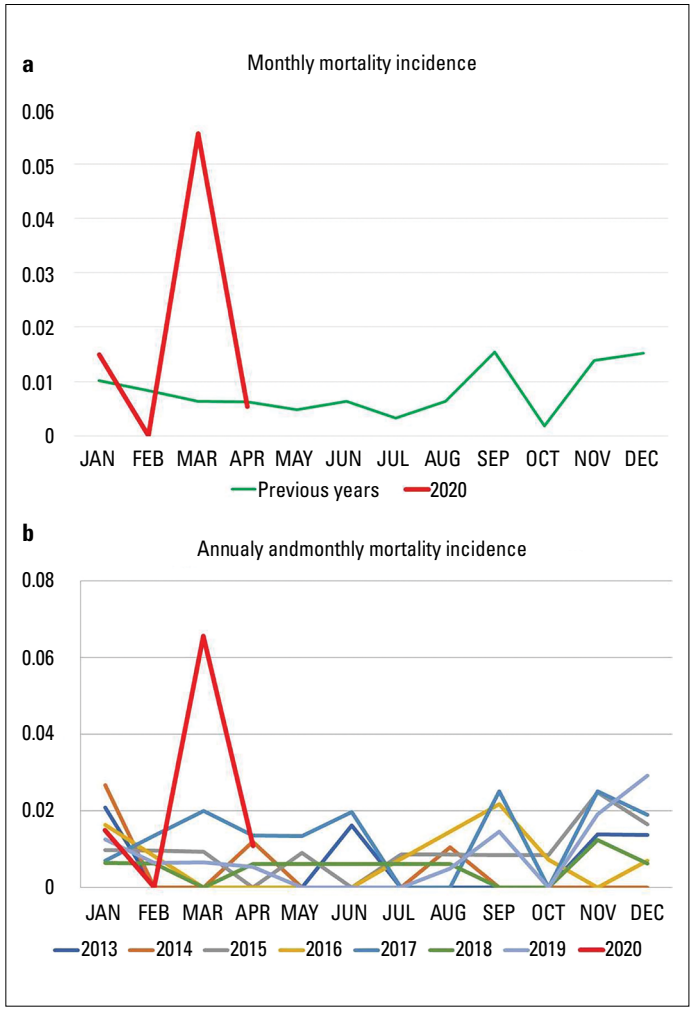

Figure 1. (a) Monthly mortality incidence of patients who underwent TAVI from 2010 to 2020 (the graph line of the COVID-19 period is marked in red as compared to the months from 2010 to January 2020). (b) Annual and monthly incidence of mortality. The mortality peak during the COVID-19 outbreak (February–April 2020). The mortality rate was calculated by dividing the number of patients who died by the total number of patients during the follow-up. Patients with postoperative mortality within 30 days were excluded

value of 0.82% in the non-COVID period). A telephonic follow-up revealed that most of the deceased patients reported the onset of fever, dyspnea, and sudden death during the following days after undergoing TAVI. The data, although preliminary and monocentric, consider all the possible biases and propose the need for more extensive population studies to confirm or deny at least three considerations of this study. Because of their clinical profiles, patients who have undergone TAVI are particularly fragile and presumably vulnerable to COVID-19 infection. It is necessary to understand how to better protect this population for which significant medical and technological resources have been largely invested. It will be essential to comprehend which subgroups of patients who underwent TAVI are most affected by a viral infection and further clarify the cardiovascular predisposition toward a less favorable outcome. It is important to understand the impact of this viral epidemic in the various registries and clinical studies where the viral outbreak could affect the results, especially the medium- and long-term ones in the older and more fragile populations.

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Paravalvular leak after transcatheter aortic valve implantation

To the Editor,

We read the study of Duran Karaduman et al. (1) with interest. The number of highly satisfactory patients and successful results for a single-center study is truly admirable. When evaluating transcatheter aortic valve implantation (TAVI) applications as the treatment of severe aortic stenosis, there are undoubtedly 2 basic issues to be evaluated. The first is clinical parameters such as postoperative survival and neurological complications. The other is the postoperative high valve gradients and paravalvular leak (PVL) incidence rates that show the durability of the valve. Different rates of PVL can be detected in both surgical aortic valve replacements (SAVR) and TAVI procedures. It has been reported in many studies that there is mild or severe PVL at the rate of 0% to 20% in surgical aortic valve replacements (2-4). In TAVI, this rate is somewhat higher owing to the nature of the procedure. In various studies, this rate has been reported to be as high as 60% for post-TAVI mild PVL (5, 6). However, the point we want to mention here is not to compare or interpret the 2 techniques in terms of this parameter. Another point regarding PVL in the study of Duran Karaduman et al. (1) attracted our attention. It has been reported that mild

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