

## Sutureless aortic valves

### *Dikişsiz aortik kapaklar*

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We read the article by Mataraci et al.<sup>[1]</sup> with a great interest. In consistent with our clinical results and literature data, we share the same opinion regarding to the superior hemodynamic consequences of sutureless aortic valves.<sup>[2]</sup> However, the main advantage of these valves, in our opinion, may be the standardization and reproducibility of valve implantation process. This property may help cardiac surgeons to ensure a high operative quality for aortic valve replacement independently from surgeon factor at least to a certain degree. Moreover, these valves may be the choice during the training period of a surgeon with less experience, or adopting a new surgical access skill such as minimally invasive techniques with mini-sternotomy or mini-thoracotomy. Thus, adaptation of these valves into our current practice would probably be favorable for cardiac surgeons.

From this point of view, we congratulate the authors and thank them for sharing their experiences. However, there are some points to be discussed regarding to the methodological aspects of the article.

First, we were unable to find any information regarding to the preoperative aortic valve area or aortic annular size and we were, therefore, unable to conclude how the decision for valve choice (sutureless or not) was made for each patient. Were the patients in each group consecutive? Do the authors have or recommend a preoperative decision making algorithm for valve choice? Might they prefer sutureless valves for the patients with aortic root enlargement in the study? In addition, the sizes of the valves implanted (which is one of the major determinants of postoperative

transvalvular pressure gradient reported to be in favor of sutureless valves) were not included in the study. These data may help to elucidate the true effect of sutureless technology over conventional valves.

Second, the comparison of two groups was made retrospectively without any randomization or propensity score matching with a relatively small number of patients. Moreover, the two groups differ statistically in terms of gender, body surface area, New York Heart Association (NYHA) functional class and left ventricle wall thickness. Also, mini-extracorporeal circulation system (which is reported in the literature to be beneficial in terms of clinical outcomes)<sup>[3]</sup> was used in 28% of patients in the sutureless group, but none in the other group. Therefore, making inferences regarding to clinical outcomes with using such a patient population and methodology may reduce the strength of findings and preclude establishing a true statement. How would the authors comment on that?

Consequently, there is a growing evidence regarding to the treatment of aortic valve diseases.<sup>[2,4]</sup> Conventional surgery still remains the gold standard, sutureless technology practices to offer some benefits of conventional surgery with less invasive methods and shorter operative times. Meanwhile, transcatheter aortic valve implantation (TAVI) techniques struggle to expand its indications through intermediate and low-risk patient groups. Currently, large-scale randomized trials for comparing the sutureless valves over conventional valves and also conventional valves over TAVI for intermediate-risk groups are being enrolled. The intend to compare these different techniques will evolve and probably let us more precisely define an indication for specific patient group for each one. Sutureless valves in this regard may expand through the indication area of conventional valves at least for intermediate-risk group. However, as cardiac surgeons, we should today start focusing on comparing sutureless valves with transcatheter aortic valve therapies and attempt to offer a durable option with less invasive methods and no paravalvular leak for patients at least for the intermediate-risk group and currently a target for TAVI.



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### Author Reply

Dear Editor,

We thank to authors for their insightful comments and the opportunity to clarify a number of points from our original article titled 'Early outcomes of the sutureless aortic valves versus conventional stented bioprosthetic valves' which was published in the recent issue of your journal.<sup>[1]</sup>

The mean age of the patients was over 70 in both groups of the study. However, due to the increase in the patient age and their existing comorbidities, mechanical valves are more restricted to patients below 60 years old. Currently, approximately 80% of prostheses implanted in the aortic position in Western societies are biological valves.<sup>[2]</sup> With the introduction of sutureless valves in the Turkish market, we started to use the sutureless valves in high-risk elderly.

In the sutureless group, we use Perceval S in 17 patients (8 Large, 4 Medium and 5 Small) and Edwards Intuity in four patients of which numbers were 23, 25, 23, 25 respectively. In the stented bioprosthetic group, we used Sorin Soprano in 20 patients and St. Jude Trifecta in five patients of with a mean valve number of 19.72±1.62 (range, 18 to 24). A high number valve replacement facility with a large effective orifice area can be possible with the sutureless valves.<sup>[3]</sup> We choose sutureless valves for isolated aortic valve

severe stenosis over 70 years old patients and high-risk patients particularly with concomitant procedures. Unfortunately, our clinical algorithm is consistent with the Turkish insurance policy. We also choose sutureless valves in high-risk patients, if the root enlargement procedures are needed. There was no patient-prosthesis mismatch due to the root enlargement procedures performed. As previously mentioned, the optimal orifice area was achieved in all patients. We performed two root enlargement procedures in the stented bioprosthetic group before sutureless valves were released in the Turkish market.

Sutureless valves are more appropriate than conventional valves for minimally invasive procedures. We choose Perceval S for these procedures, as the design of itself is a self-expendable valve and it does not need extra-sutures.

In our population, a higher number of female patients, higher New York Heart Association Scores and smaller body surface area were exciting in the sutureless group. Mini-extracorporeal circulation system was used in six patients (28%) in the sutureless group. This system is associated with lower inotropic support need, significantly lower morbidity rates, and lower incidence of stroke and respiratory insufficiency. However, it does not affect the operative procedures timing and postoperative gradient decreasing.

Although it still carries some drawbacks such as paravalvular leakages, increased need of pacemaker implantation, increased rate of stroke, vascular complications, and migration and the durability of these valves is uncertain, we agree that transcatheter aortic valve implantation (TAVI) techniques struggle to expand its indications through intermediate- and low-risk patient groups.<sup>[4]</sup>

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