**Author’s response to reviews**

**Title:** Emergency transcatheter aortic valve replacement for a patient with decompensated severe aortic stenosis accompanied by cardiorenal syndrome: A case report

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**Author’s response to reviews:**

Emiliano Angeloni, M.D., Ph.D. (Reviewer 1): Very interesting case report. The paper is well written and contains all needed specifications. We really appreciate for your kind comments to improve our manuscript. İhsan Alur (Reviewer 2): Dear Authors, Manuscript entitled "Emergency transcatheter aortic valve replacement for a patient with decompensated severe aortic stenosis accompanied by cardiorenal syndrome: A case report" has been reviewed. My comments are included at the bottom of this letter. First of all I want to thank the writers of this article for their planning and performed such important investigation. I have read this study and here are my ideas and thoughts about it:

1. You have indicated 3 references for the first sentence of the "Introduction" section. You only need to specify one reference. Thanks for your kind comments to improve our manuscript. As the Reviewer suggested, we specify one reference as following:

   Transcatheter aortic valve replacement (TAVR) is an efficient treatment for patients with severe aortic stenosis (AS) at high risk with surgical aortic valve replacement (1).


2. Was the ejection fraction taken at postop TTE? So did EF correct after the procedure? Please indicate this. Thanks for your kind comments to improve our manuscript. As the Reviewer suggested, we added the value of postop TTE findings in “Case presentation” as following (page 4-5, line 85-87): The patient’s dyspnea was dramatically improved after the procedure, and chest X-ray showed marked improvement. The post-procedural TTE revealed improved LV systolic function (LV ejection fraction, 45%) with well-functioning CoreValve (aortic valve area of 2.15 cm² based on the continuity equation and mean systolic pressure gradient of 3.22 mmHg).

3. The “Introduction” section is a little short. In this section cardiorenal syndrome can be mentioned. Thanks for your kind comments to improve our manuscript. As the Reviewer suggested, we added a sentence about cardiorenal syndrome in “Introduction” as following (page 3, line 44-46): Severe AS can lead to acute decompensated heart failure and cardiorenal syndrome resistant to medical treatment in some cases. Acute heart failure accompanied by cardiorenal syndrome is the complex physiological, biochemical, and hormonal derangements manifested by worsening renal function during heart failure treatment and diuretic resistance. 

4. TTE findings did not indicate whether the aortic valve was tricuspid or bicuspid. This is important. Because bicuspid aortic valve is a relative contraindication to TAVI. Thanks for your kind comments to improve our manuscript. The patient’s TTE findings indicated tricuspid aortic valve stenosis. As the Reviewer suggested, we
modified TTE findings in “Case presentation” as following (page 3, line 62): Transthoracic echocardiography (TTE) revealed low-flow, low-gradient tricuspid aortic valve stenosis (aortic valve area of 0.69 cm$^2$ based on 2D planimetry, 0.86 cm$^2$ based on the continuity equation, and mean systolic pressure gradient of 16.3 mmHg) with decreased left ventricular (LV) systolic function (LV ejection fraction, 34%).

5. Did you have a "Rapid Pacing" before placing the aortic valve? Were the heart working while placing the valve? What method did you apply. Please indicate this.-> Thanks for your kind comments to improve our manuscript. Unlike Edwards valve system implanted by balloon expansion, the CoreValve system (Evolute-RTM, Medtronic, NY, USA) is self-expanding and does not require rapid pacing during implantation. So, we did not apply “Rapid Pacing” before placing the aortic valve. We modified a sentence in “Case presentation” to indicate self-expandable valve system as following (page 4, 82-84):

Then, we inserted a 26-mm self-expanding CoreValve through the right common femoral artery sheath and deployed it at the aortic valve under fluoroscopic guidance without rapid pacing.6. Please write the number of the balloon you used in the TAVI procedure. (For example, you can look at the case report of Yildiz et al. See: Yildiz BS, Alihanoglu YI, Alur I, Evrengul H, Kaya D. A rare complication: an attempt of retrieval of an aortic valve wrapped with pig tail catheter during transcatheter aortic valve implantation. Cardiovasc Revasc Med. 2015 Sep;16(6):376-7.)-> Thanks for your kind comments to improve our manuscript. As the Reviewer mentioned, balloon predilation is considered a requirement before performing TAVI procedure. However, recent study suggested pre-balloon aortic valvuloplasty was not associated with clinical outcomes (Am J Cardiol 2016;118:107-12. J Am Heart Assoc 2017;6.). We performed TAVI procedure without pre-balloon aortic valvuloplasty in this case. Furthermore, post ballooning also was not required, because the immediate post-procedural aortogram and TEE showed only mild paravalvular regurgitation.

7. It would be good if you could talk about the complications of TAVI in a short paragraph. Because TAVI has advantages as well as disadvantages or unwanted complications. I think it would be helpful to inform the reader about this.-> Thanks for your kind comments to improve our manuscript. As the Reviewer recommended, we added a short paragraph about TAVI complications as following in “Discussion” (page 6,116-123):

Procedural complications following TAVR, such as paravalvular regurgitation, stroke, permanent pacemaker implantation, vascular access injury, and renal failure, are commonly reported as previous literature. Especially, significant postprocedural aortic regurgitation after TAVR observed 10% to 20% is reported one of the strongest independent predictor of mortality (9). Peri-prosthetic aortic regurgitation result from under-expansion of the prosthesis stent frame, which might be caused by calcification of the annulus or the cusps of the native valve, malposition with too shallow or too deep implantation depth of the prosthesis, or annulus-prosthesis size mismatch (10). Van Belle E, Juthier F, Susen S, Vincentelli A, Iung B, Dallongeville J, et al. Postprocedural aortic regurgitation in balloon-expandable and self-expandable transcatheter aortic valve replacement procedures: analysis of predictors and impact on long-term mortality: insights from the FRANCE2 Registry. Circulation. 2014;129:1415-27. Sinning JM, Hammerstingl C, Vasa-Nicotera M, Adenauer V, Lema Cachiguango SJ, Scheer AC, et al. Aortic regurgitation index defines severity of peri-prosthetic regurgitation and predicts outcome in patients after transcatheter aortic valve implantation. J Am Coll Cardiol. 2012;59:1134-41.8. In the "Case presentation" section, you indicated that the STS score is 21.153%. Please specify a reference for this information.-> Thanks for your kind comments to improve our manuscript. As the Reviewer recommended, we added a reference about STS score in “Case presentation" as following: 2. Shih T, Paone G, Theurer PF, McDonald D, Shahian DM and Prager RL. The Society of Thoracic Surgeons Adult Cardiac Surgery Database