



If a job's worth doing, it's worth doing well at optimal timing

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Response to: Hida Y, Imamura T. Detailed association between hepatic dysfunction and tricuspid valve surgery. *J Thorac Dis* 2023;15:5258-9.

Submitted Jul 24, 2023. Accepted for publication Aug 21, 2023. Published online Sep 04, 2023.

doi: 10.21037/jtd-2023-10

View this article at: <https://dx.doi.org/10.21037/jtd-2023-10>

We appreciate the valuable comments by Hida *et al.* (1) As they mentioned, preoperative management of systemic congestion is important, and we completely agree that various types of diuretics or diuretic-related drugs should be used effectively. Unfortunately, these drugs are not routinely used for preoperative management of systematic congestion. The SGLT 2 inhibitors were used in some diabetic patients included in our study, and angiotensin receptor neprilysin inhibitors were used in cases of left ventricular failure. We performed preoperative volume management with a combination of furosemide and intravenous dobutamine with or without milrinone (2). Of a total of 101 study subjects, 24 patients attempted this aggressive preoperative volume reduction, of which 15 were in the hepatic dysfunction (HD) group (2).

Second, there have been many studies that suggest biomarkers that can propose the optimal timing for isolated tricuspid regurgitation (TR) surgery. In our study, a cutoff value for the Model for End-Stage Liver Disease (MELD) score that improves clinical outcomes after surgery was also suggested (2). However, it was difficult to provide a reliable cutoff value due to limited data. Clinically, when the serum hemoglobin level drops on serial tests, especially less than 10, systemic congestion is a concern, and surgery is considered even if there are no symptoms of severe TR in our center. It is already widely known that the preoperative hemoglobin level is a predictive factor for event-free survival in isolated TR surgery. According In this regard, suggests that it is desirable to consider TR surgery when the hemoglobin concentration is less than 11 g/dL (3).

In addition to biomarkers that can be obtained through

blood tests, as Teruhiko Imamura mentioned, we fully agree that markers that can determine the appropriate surgical timing through right ventricular (RV) evaluation on echocardiography are needed. Some echocardiographic markers such as overall RV free-wall longitudinal strain, tricuspid annular plane systolic excursion (TAPSE) or RV end-systolic area have also been suggested as prognostic factors for TR surgery (3-5). However, RV function evaluation is not easy due to its complex geometry and limitations of the test. The evaluation of right heart function routinely provided in our center on results of echocardiography is TAPSE, and even these were not measured for all patients during our study period. Therefore, it was difficult to infer these factors from our findings. In some patients with torrential TR with RV dysfunction, the degree of RV failure was accessed by measuring cardiac magnetic resonance imaging (MRI), but there is no clear cut off value for irreversible RV failure (6). We fully agree that further research is needed on the earlier marker for detecting end organ dysfunction and I hope this study will be an initiation.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Journal of Thoracic Disease*. The article did not undergo external peer review.

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <https://jtd.amegroups.com/article/view/10.21037/jtd-2023-10/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Cite this article as: Lim MH, Je HG. If a job's worth doing, it's worth doing well at optimal timing. *J Thorac Dis* 2023;15(9):5260-5261. doi: 10.21037/jtd-2023-10