

In-hospital therapy for worsening heart failure: black box or sweet spot?

Hospitalization for worsening heart failure (HF) is a major clinical concern and an *event* characterized by an increased risk of subsequent rehospitalization and mortality.¹ A widely recognized empirical in-hospital therapy for worsening HF should effectively stabilize haemodynamics and relieve symptoms; however, some patients may experience exacerbation during the hospital stay and/or immediately after discharge, suggesting a strong need to elucidate the clinical characteristics of patients with an unstable course of HF.² Furthermore, earlier risk stratification of hospitalized patients with HF and evidence-based optimization of in-hospital therapeutic strategies for worsening HF would largely improve short-term and long-term clinical outcomes. Nonetheless, details of in-hospital therapy and its association with outcomes have not been intensely investigated, which has hindered the establishment of standardized and evidence-based approaches to in-hospital care for worsening HF.

Greene *et al.*³ recently demonstrated the actual use and variability of in-hospital therapy and patterns associated with poor outcomes in patients hospitalized for HF with reduced ejection fraction (HFrEF). Intriguingly, even among haemodynamically stable patients at initial presentation, one-third showed several types of escalated in-hospital therapy and an increased risk of readmission or mortality. This is the first demonstration that such clinical courses, in which patients require complicated in-hospital HF therapy, can be powerful indicators of poor outcomes. Obviously, careful observation is necessary, at least for patients who follow such clinical courses. Additionally, because decision-making regarding subsequent treatment largely depends on physician experience, further assessment is needed to determine

the best treatment pattern to use when escalated therapy is needed, which should lead to the development of standardized and evidence-based algorithms for in-hospital HF therapy.

In this context, recent exciting studies have demonstrated that earlier in-hospital initiation of some agents, such as sacubitril/valsartan and empagliflozin, may be preferable in hospitalized patients with HFrEF.^{4,5} These newer options may change the clinical practice of in-hospital HF therapy dramatically and modify the course of the underlying disorder.¹ Thus, further research is needed to highlight the importance of in-hospital HF therapy and establish evidence-based and case-based approaches in this clinical setting.

Funding

This work was partly supported by the Uehara Memorial Foundation.

Atsushi Tanaka

Department of Cardiovascular Medicine, Saga University,
5-1-1 Nabeshima, Saga, 849-8501, Japan
E-mail: tanaka2@cc.saga-u.ac.jp

Koichi Node

Department of Cardiovascular Medicine, Saga University,
5-1-1 Nabeshima, Saga, 849-8501, Japan

References

1. Packer M. Acute heart failure is an event rather than a disease: plea for a radical change in thinking and in therapeutic drug development. *JACC Heart Fail* 2018; **6**: 73–75.
2. Tanaka A, Node K. Who will be rehospitalized next?: targeting heart failure patients with brittle dimensions. *JACC Heart Fail* 2017; **5**: 760–761.
3. Greene SJ, Triana TS, Ionescu-Ittu R, Burne RM, Guérin A, Borentain M, Kessler PD, Tugcu A, DeSouza MM, Felker GM, Chen L. In-hospital therapy for heart failure with reduced ejection fraction in the United States. *JACC Heart Fail* 2020; S2213–1779: 30383–30388.
4. Pascual-Figal D, Wachter R, Senni M, Bao W, Noè A, Schwende H, Butylin D, Prescott MF, TRANSITION Investigators. NT-proBNP response to sacubitril/valsartan in hospitalized heart failure patients with reduced ejection fraction: TRANSITION study. *JACC Heart Fail* 2020; S2213–1779: 30336-X.
5. Damman K, Beusekamp JC, Boorsma EM, Swart HP, Smilde TDJ, Elvan A, van Eck JW, Heerspink HJL, Voors AA. Randomized, double-blind, placebo-controlled, multicentre pilot study on the effects of empagliflozin on clinical outcomes in patients with acute decompensated heart failure (EMPA-RESPONSE-AHF). *Eur J Heart Fail* 2020; **22**: 713–722.