Usefulness of a scoring evaluation for practical introduction of the guideline-directed medical therapy (GDMT) in heart failure patients

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Backgrounds: Guideline-directed medical therapy (GDMT) has been recommended for heart failure (HF) with reduced EF (HFrEF) based on the accumulating clinical evidence. However, it is difficult to introduce all the trial-proven drugs to every patient in a real-world setting.

Purpose: We developed a simple GDMT score consisting of RAS (renin-angiotensin system) inhibitor, beta-blocker, MRA (mineralocorticoid receptor antagonist), and SGLT2 (sodium-glucose cotransporter 2) inhibitor, which is a modification of the previously proposed GDMT score, and investigated whether this score is related to the prognosis of HF patients and how this score can be used in daily clinical practice.

Methods: We retrospectively analyzed 1782 consecutive patients with ADHF at our hospital from April 2015 to March 2022. One thousand fifty-four patients with HFrEF and HFmrEF (HF with mildly reduced EF) were extracted, excluding 61 patients who died in hospital, 53 patients with dialysis, and 614 patients with HFpEF. First, we calculated the simple GDMT score in these patients. Then, the association with clinical outcomes (composite outcome: HF readmission or all-cause death, HF readmission, all-cause death) was examined.

Results: The cut-off value for the association between the composite outcome and the simple GDMT score was 4 points (AUC = 0.607, 95% CI = 0.57-0.64) using the receiver operating characteristic (ROC) curve. Multivariate analysis showed that high simple GDMT score (more than 5 points) was strongly associated with the composite outcome (HR = 0.606, 95%CI = 0.439-0.912, p = 0.016), HF readmission (HR = 0.207, 95%CI = 0.077-0.558, p = 0.001) and all-cause death (HR = 0.250, 95%CI = 0.093-0.669, p = 0.005). The Kaplan-Meier curve showed that events were less frequent in the group with a high simple GDMT score group. Furthermore, a simple GDMT score of 5 or higher was associated with a good prognosis in both subgroups.

Conclusions: The designed GDMT score was associated with prognosis in HFrEF and HFmrEF patients. Even if for some reason all four drugs cannot be introduced, a regimen with the simple GDMT score ≥ 5 may improve the prognosis in HF patients.