

Examining adherence to guideline-directed medical therapy for patients with HFrEF and HFmrEF post-cardiac surgery: A single-center cross-sectional study

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Background:

Treatment of heart failure has evolved over the last few years. The initiation of the four pillars of HF medical therapy is emphasized in international guidelines. Guideline-Directed Medical Therapy (GDMT) for HFrEF has reduced morbidity, mortality, and hospital admissions. A focused update published in 2023 emphasized the role of sodium-glucose cotransporter-2 inhibitors (SGLT2i) initiation in both HFrEF and HFmrEF. Cardiopulmonary bypass during cardiac surgery is associated with alteration in the homeostasis. This includes volume overload, acute kidney injury, low cardiac output, and heart block. This usually hinders the early initiation of GDMT.

Aim and objectives:

Our study aimed to examine the adherence to prescribing GDMT for patients with HFrEF and HFmrEF after cardiac surgery at our Centre at the time of discharge.

Methods:

We conducted a cross-sectional study and included all adults who underwent CABG, valvular heart surgery, or both and who have a pre-discharge LVEF of less than 50%. We reviewed patients' charts and collected all patient demographics, operative details, postoperative course, and complications. We extracted data on the prescription of GDMT for patients with HFrEF and HFmrEF. All variables were summarized and interpreted depending on the measurement scale and data distribution.

Results:

We have included 201 patients in our analysis. 139 (69.2%) were males. The median (IQR) age was 54 (38–62) years. 103 (51.2%) patients had a BMI of 25 or more. 48 (23.8%) patients were hypertensives, 57 (28.3%) were diabetics, and 31 (15.4%) were diabetic hypertensives. The frequencies of different cardiac surgeries are shown in Figure (1). The median cardiopulmonary bypass and cross-clamp times were 140 (108–179) and 85 (63–114) minutes, respectively. The median ICU length of stay (LOS) was 3 (2–4.65) days, and hospital LOS was 10 (8–18) days. Eighty-two (41%) patients had postoperative AKI according

to KDIGO classification using creatinine criteria. IABP was used in eight patients, and two patients had complete heart block requiring PPM insertion. We summarized the adherence to the prescription of the

Figure (1) Frequencies of different heart surgeries in the study population

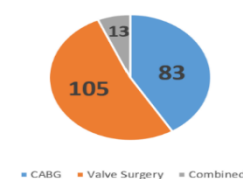


Figure (1)

Figure (2) Adherence to GDMT prescription at the time of discharge for patients with HFmrEF and HFrEF after cardiac surgery

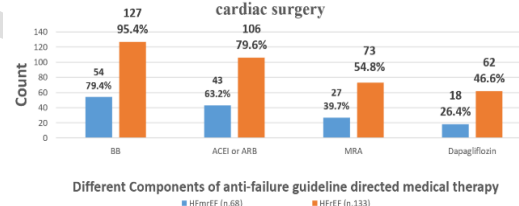


Figure (2)

GDMT for both groups (patients with HFrEF and patients with HFmrEF) in Figure (2). There was a significant difference in the prescription of Dapagliflozin for patients with HFrEF between 2022 and 2023 Figure (3), reflecting the progressive spread of knowledge of its value. This also reflects the increasing availability of this medication group in the market in our vicinity. In patients with AKI (n= 82), safe initiation of ACEIs (55 patients [67%]) and MRAs (36 patients [43.9%]), after improvement of kidney functions, was seen with no in-hospital rebound AKI or electrolyte abnormalities.

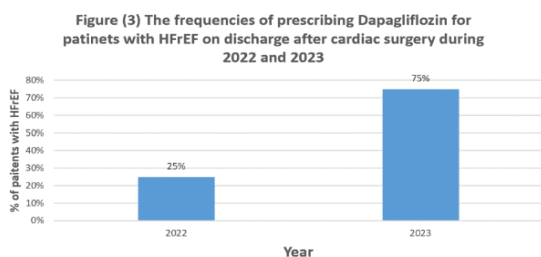


Figure (3)

Conclusion:

Given the limitation of our retrospective cross-sectional study, we could not identify the exact obstacles that delay the initiation or up-titration of anti-failure GDMT after cardiac surgery. One of the most common reasons in the literature is impaired kidney function. Careful introduction and gradual up-titration may be safe after the improvement of kidney functions. Further outpatient clinic visits focusing on optimizing GDMT are paramount for this cohort of patients.

Keywords:

Anti-failure GDMT (Guideline-Directed Medical Therapy), Heart failure (HF), Cardiopulmonary bypass, CABG (Coronary Artery Bypass Grafting), LVEF (Left Ventricular Ejection Fraction), Sodium-glucose cotransporter-2 inhibitors (SGLT2i)