

Heart Failure - Chronic Heart Failure, Treatment, Pharmacotherapy

Trends in angiotensin receptor/neprilysin inhibitor (ARNI) prescribing across multi-Centre, multi-ethnic heart failure population

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Background: Angiotensin receptor-neprilysin inhibitors (ARNIs) are recommended in clinical guidelines for the management of heart failure with reduced ejection fraction (HFrEF) due to their proven benefits in reducing mortality and hospitalization rates. However, real-world data on the use, and dosing of ARNI therapy remain limited especially in middle income country.

Objectives: We aim to study the prescribing patterns of ARNI among HFrEF patients in heart failure (HF) clinic.

Methods: This is a retrospective cohort study encompassing HF clinic patients followed up in 10 hospitals from 1st January 2021 to 30th June 2023.

Results: Overall, the cohort of 416 patients consisted of 78.1% men with a mean age of 55.6 (13.5) years. Majority of the population was local indigenous population (46.1%), followed by Malay (29.5%) and Chinese (23.8%). The most prevalent comorbidity was hypertension (64.7%), followed by dyslipidemia (52.9%), ischemic heart disease (44.2%) and diabetes mellitus (38.8%). At baseline, 71.2% of patients were on renin-angiotensin-aldosterone system (RAAS) blockers. Following their first clinic visit, RAAS blocker prescriptions increased to 82.9%, reaching 88.5% at three months and 88.9% at six months. At the time of recruitment to the HF clinic, 16.9% of patients were already receiving ARNI therapy. This rate increased to 27.5% by their first clinic visit, 35.1% at three months, and 38% at six months. At baseline, only 43.1% of patients were receiving 50% or more of the recommended ARNI dosage. After the first clinic visit and subsequent optimization at three and six months, this proportion increased to 57.9%, 67.1%, and 72.8%, respectively.

Conclusions: ARNI prescription as initiation is low but the dosage and use of ARNI has risen over time. This study reflects the gap in treatment patterns between clinical trials and real-world practice.

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Guideline-directed medical therapy optimization among multi-ethnic groups of heart failure with reduced ejection fraction patients

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Background: Despite established guidelines, there is still substantial gap in guideline-directed medical therapy (GDMT) prescription among heart failure with reduced ejection fraction (HFrEF) population. The implementation of heart failure (HF) clinic could be a strategy to improve GDMT optimization.

Objective: This study investigated the usage of GDMT and clinical outcomes of HFrEF patients in HF clinic.

Methods: This is a retrospective, observational study that reported HFrEF patients followed up at HF clinic in ten hospitals, inclusive of one cardiology centre and nine hospitals without cardiology service, from January 2021 until June 2023. GDMT utilization at 6-month post HF clinic recruitment was analyzed.

Results: A total of 416 patients (78.1% male, mean age 55.6 (13.5) years) were reported. Majority of the population was local indigenous population (46.1%), followed by Malay (29.5%) and Chinese (23.8%). At baseline, there were 65.9% patients on renin-angiotensin-aldosterone system (RAAS) blockers, 76.2% on beta blockers, 62.7% on mineralocorticoid receptor antagonists (MRAs), and 18.3% on sodium-glucose cotransporter-2 (SGLT2) inhibitors. Patients on three or four GDMT pillars were 41.3% and 10.9% respectively. At 6-month, GDMT prescriptions increased across all pillars, 89.2% RAAS blockers, 93.0% beta blockers, 86.3% MRAs and 57.0% SGLT2 inhibitors. The number of patients treated with at least three

GDMT pillars also increased, with 37.6% on three and 45.6% on four pillars. The mean ejection fraction had been shown to improve from 27.7% (7.86%) at baseline to 38.4% (13.5%) at 6-month. The 6-month all-cause mortality and HF emergency visit or hospitalization were 8.5% and 7.2% respectively.

Conclusion: This study concluded that HF Clinic improved GDMT prescriptions, which was associated with improvement in ejection fraction among HFrEF patients.

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Clinical and safety outcomes of a pharmacist-led medication therapy management clinic (MTM) for heart failure patients in a tertiary hospital in Singapore

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Background: Guideline-Directed Medical Therapy (GDMT) constitutes the fundamental approach for the pharmacological therapy of patients diagnosed with heart failure with reduced ejection fraction (HFrEF), reducing readmission and mortality rates.

Purpose: This study evaluated the up-titration of HFrEF GDMT, and its impact on clinical and safety outcomes, within a medication therapy medication clinic (MTM-C) led by a team of clinical cardiovascular pharmacists in a tertiary hospital.

Method: A retrospective, observational cohort design was used to analyze the pre- and post-clinical data of HFrEF patients visiting the MTM-C from May 2022 to May 2023.

Main Outcome Measures: Primary clinical outcomes included the number, fractional dosage change of GDMT and the proportion of patients reaching target GDMT doses at the last clinic visit. Secondary clinical outcomes included left ventricular ejection fraction (LVEF), hospital readmission rates, New York Heart Association (NYHA) classification. Safety outcomes include drug-related problems (DRPs) and adverse drug reactions (ADRs).

Results: Among 150 patients, the proportion of patients who achieved quadruple GDMT significantly increased ($p < 0.001$). There was a statistically significant increase in the fractional dosage ($p < 0.001$ for all GDMT classes) and patients reaching target GDMT doses (ACEI/ARB/ARNI: $P = 0.004$; BB: $P = 0.035$; MRA: $p < 0.001$; SGLT2: $p < 0.001$). LVEF significantly improved ($p < 0.001$), but NYHA classification remained unchanged ($P = 0.414$). The 30-day hospital readmission rate was 4.0%. Common ADRs include hyperkalemia (22.0%) and symptomatic hypotension (20.7%).

Conclusion: The MTM-C is effective in optimising GDMT and is associated with improved clinical and safety outcomes in HFrEF patients.

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SGLT2 inhibitor use in underweight patients with diabetes mellitus and heart failure

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Background/Introduction: Underweight, globally defined as a body mass index (BMI) < 18.5 , is associated with higher mortality in patients with heart failure (HF). Although sodium-glucose cotransporter-2 (SGLT2) inhibitors improve prognosis including mortality in patients with HF independent of left ventricular ejection fraction (LVEF), the prognostic impact of SGLT2 inhibitors in underweight patients with HF has yet to be determined, given that SGLT2 inhibitors could cause body weight loss.