

Identification and Treatment of Iron Deficiency in Patients with Heart Failure with Reduced Ejection Fraction

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INTRODUCTION

Iron deficiency (ID) is a common comorbidity of heart failure (HF) present in 50% of patients. (1) HF complicated by ID may result in impaired functional capacity, poor quality of life (QOL), and increased mortality. (2) ID in HF with reduced ejection fraction (HFrEF) is defined as ferritin <100µg/L or <300µg/L if transferrin saturation (TSAT) is <20%. (3) The National Heart Foundation of Australia (NHFA) and Cardiac Society of Australia and New Zealand (CSANZ) suggest considering intravenous (IV) iron in ID. (4) Benefits include improved 6-minute walk test and QOL and reduced fatigue. (2)

The literature, as well as locally at University Hospital Geelong (UHG), are unclear on the rates at which ID is being appropriately identified and treated in HFrEF patients.

AIM

To determine adherence to NHFA and CSANZ guideline with respect to identification and treatment of ID in patients with HFrEF admitted to UHG.

METHODS

This was a retrospective study on patients discharged from UHG between 1 January and 30 September 2021.

Ethics approval was granted.

Inclusion Criteria

- General Medical or Cardiology admissions
- HFrEF as either a presenting complaint or comorbidity

Exclusion Criteria

- End stage kidney disease, cancer, haemochromatosis or admitted with stroke
- Iron infusion within last 4 months
- Unable to determine type of heart failure
- Admission < 24 hours

Data Collected in REDCap

- Patient demographics (age, gender), discharge team, length of stay, HFrEF as presenting complaint or comorbidity
- Iron studies (ferritin and TSAT) and IV iron given

Analysis

- SPSS (V23.0, Amonk, NY)
- Subgroup Analysis performed using chi-square (X²) test

RESULTS

Over the data collection period, 264 patients were included in the study. Demographic data is detailed in Table 1.

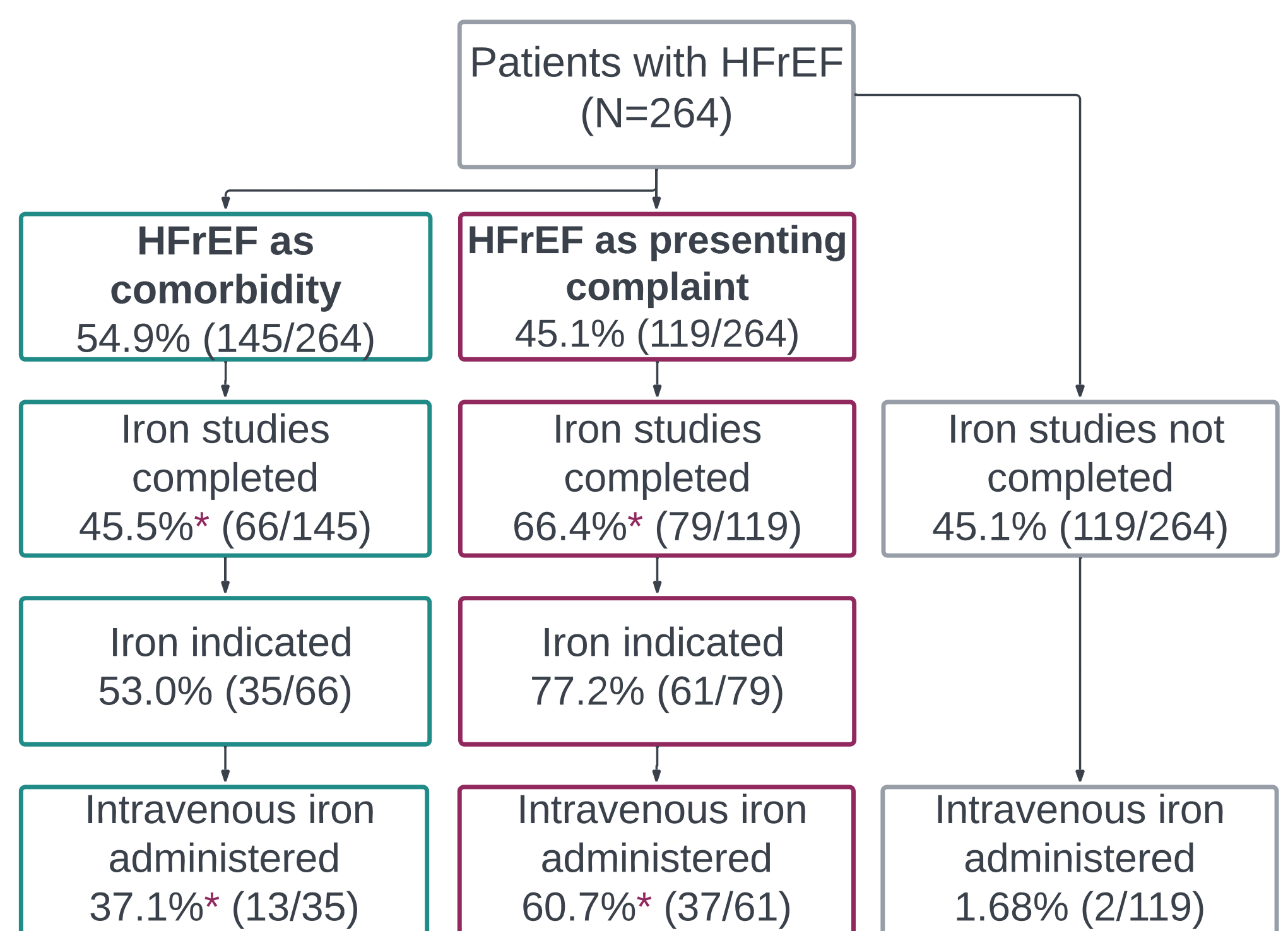
Table 1: Patient Demographics

Demographic	Patients (N=264)
Gender (male), % (n)	69.3% (183)
Age (years); median [IQR]	77 [65;86]
Length of stay (days); median [IQR]	5 [3;9]
Patients admitted under:	
General Medicine, % (n)	58.7% (155)
Cardiology, % (n)	41.3% (109)
HFrEF as:	
Presenting Complaint, % (n)	45.1% (119)
Comorbidity, % (n)	54.9% (145)

RESULTS

Overall, iron studies were completed in 54.9% (145/264) of patients. Of those, 66.2% (96/145) had iron studies indicative for iron replacement, with 52.1% (50/96) receiving IV iron. Patients admitted with HFrEF had significantly more iron tests (p=0.001) and more iron infusions (p=0.026) than those with HFrEF as comorbidity (Fig 1).

Figure 1: Flowchart of ID Identification and Treatment



* Statistically significant

In addition, 2 patients were administered iron despite iron studies within normal limits. There was no significant difference in ID identification and treatment between cardiology and medical teams.

DISCUSSION

There is the potential for a large proportion of undiagnosed and untreated HFrEF ID at UHG. Consequently, the benefits of iron, such as a reduction in New York Heart Association Function Capacity class and reduced risk of hospitalisation for HF (2) are not achieved.

Guidelines recommend iron studies for HF patients with persistent symptoms despite optimised therapy. (4) This may contribute to lower rates of ID testing for patients with HFrEF as a comorbidity, compared to presenting complaint.

UHG protocol stipulates that IV iron is to be administered on day of discharge and claimed under the Pharmaceutical Benefit Scheme due to cost. This has been identified as a barrier to ID treatment during the admission.

CONCLUSION

This study demonstrated that ID identification and treatment in patients with HFrEF can be improved at UHG. Pharmacists can play an essential part in protocol development, education, and timely supply of iron. Further opportunities for advanced pharmacist practice may also be developed.

REFERENCES

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