Improving investigation for iron deficiency in patients with heart failure on the cardiology ward

Authors: Ali Al-Hadithi,[A] Patrick Hurley[A] and Paul Cacciottolo[A]

Introduction

Iron deficiency is common in patients with heart failure (HF) and can be present independently of anaemia. Iron deficiency is present in up to 55% of patients with chronic HF and in up to 80% of those with acute HF.[1–3] Iron deficiency in HF is associated with reduced functional capacity, impaired quality of life and poorer prognosis.[4]

According to the European Society of Cardiology 2021 guidelines, it is recommended that all patients with HF are regularly screened for iron deficiency.[5] Identifying iron deficiency could then lead to consideration of intravenous iron supplementation, which has been shown to reduce mortality and risk of hospitalisation.[6] Findings from these studies could also act as triggers to consider further investigations, such as in iron deficiency anaemia, to examine potential underlying causes.

The aim of this quality improvement project was to improve testing for iron deficiency in inpatients with HF. Interventions to improve testing were arranged if clinical practice did not meet standards (standards target 100%).

Materials and methods

All inpatients on the cardiology ward at our institution were studied over a period of 2–3 weeks at each plan, do, study, act (PDSA) cycle (three total PDSA cycles between August 2022 and January 2023). Data were collected on whether iron studies were requested (if not done in the past 3 months) and the number of patients identified as iron deficient. All patients with a diagnosis of HF were included in this study. Patients on end-of-life care were excluded.

Initial educational interventions included presenting findings to the cardiology team and poster summaries of findings; subsequent cycles included WhatsApp group reminders and posters of general cardiology common investigations.

Results and discussion

On the first PDSA cycle, 18/32 (56%) patients with HF underwent blood testing for iron studies. Following an educational intervention, 6/12 (50%) patients with HF were tested for iron studies, reflecting ongoing poor compliance with guidelines. On the third cycle, following additional interventions with online group reminders and posters, investigations for iron deficiency improved to 14/20 (70%), albeit still short of our target of 100%. Table 1 shows these results.

Iron deficiency was underinvestigated across all PDSA cycles; this has important knock-on effects on clinical decision-making in both treating iron deficiency and considering investigations for underlying causes. Cycle 1's interventions did not impact testing for iron levels. Educational interventions following cycle 2 improved clinical practice, although investigation rates for iron deficiency did not reach our target. Potential barriers identified include frequent changes in ward clinicians and lack of time.

Conclusions

This project showed that our current practice in inpatients with HF with regards to investigating iron deficiency was not compliant with guidelines. Interventions to improve awareness of the importance of investigating for iron deficiency improved compliance, but did not reach the set target. Future studies will assess the long-term impact of the interventions and aim to increase investigation by experimenting with different interventions. ■

Table 1. Patients with HF on the cardiology ward, classified according to whether tests for iron deficiency were arranged across three PDSA cycles

	Cycle 1	Cycle 2	Cycle 3
Total HF patients	32	12	20
HF Patients tested for iron deficiency	18	6	14
HF Patient not tested for iron deficiency	14	6	6
HF Patients with iron deficiency (% of those tested)	11 (61%)	0 (0%)	6 (42%)
Percentage tested for iron deficiency	56%	50%	70%

Authors: [A]Cambridge University Hospitals NHS Foundation Trust, Cambridge UK

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