

Iron Management in the Preoperative Setting of Elective Surgeries

Bassett A, Bortoletto D

Pharmacy Department, University Hospital Geelong, Barwon Health



INTRODUCTION

Iron deficiency anaemia (IDA) is the most common type of anaemia within the surgical population¹. Preoperative anaemia is considered a risk factor for poor outcomes in surgical patients². In surgical patients, the administration of red blood cells post surgery has been linked to an increased risk of morbidity and mortality³, proving that pre-operative anaemia management is crucial.

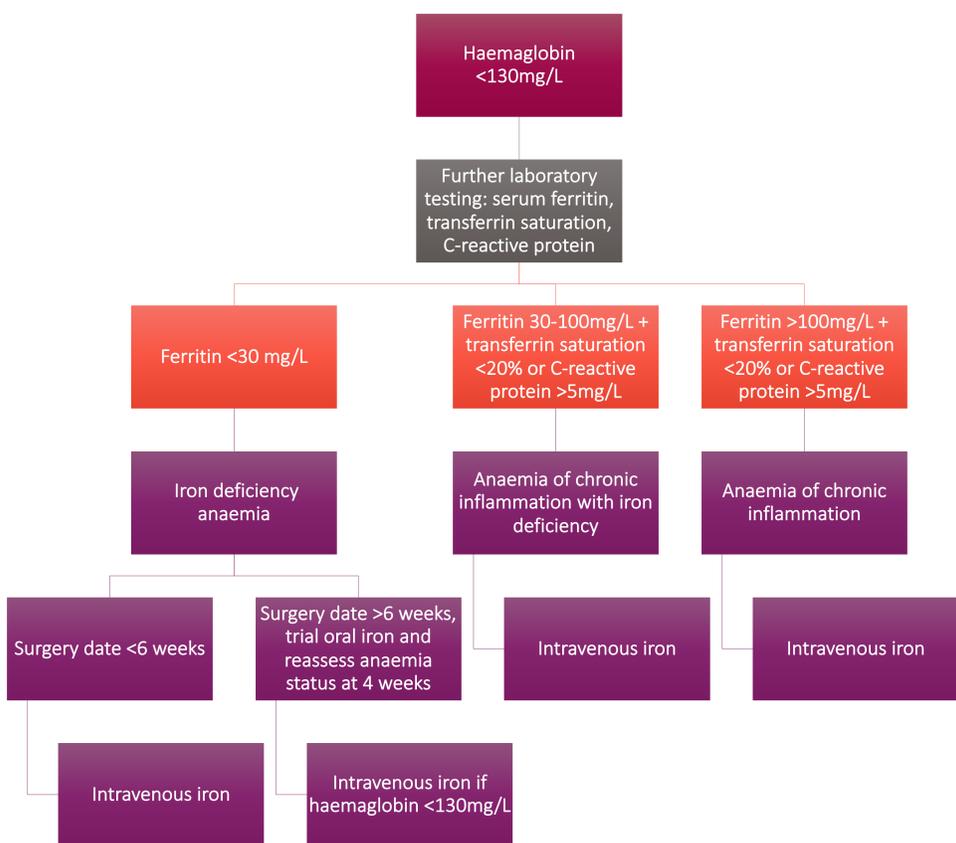
International consensus guidelines on the peri-operative management of anaemia and iron deficiency provide a detailed algorithm for the diagnosis and treatment of iron deficiency anaemia in surgical patients^{4,5}. Ferric carboxymaltose (Ferinject®) is commonly used to treat IDA, and allows more time-efficient access to intravenous iron.

AIM

To identify whether Ferinject® was appropriately prescribed for elective procedures for the management of preoperative anaemia according to guidelines at a Victorian regional hospital.

METHODS

This study involved a retrospective audit of patients who underwent an elective surgery and were administered Ferinject® either preoperatively or on discharge over a 7-month period (September 2019 - March 2020). Appropriateness of Ferinject® prescribing was assessed according to consensus guidelines⁴.



Pathway for preoperative anaemia management (adapted from reference 4)

RESULTS

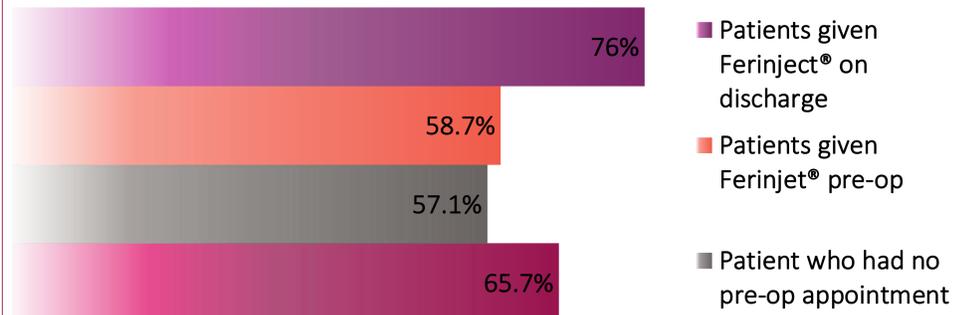
Eighty-eight patients were included. Median age was 72 years [57, 79], 70.5% (62) were female, and 57% (50) underwent major surgical procedures.

Overall, 71.3% (63) received Ferinject® prior to surgery [96% (48/50) for major surgical patients vs 39.5% (15/38) for non-major surgical patients).

RESULTS

Patients attended a pre-operative appointment 76.1% (67/88) of the time [82% (41/50) for major surgical patients vs 68.4% (26/38) non-major surgery patients).

APPROPRIATENESS OF FERINJECT® PRESCRIBING ACCORDING TO GUIDELINES



Overall, Ferinject® was appropriately prescribed on discharge from hospital more often than prior to surgery. However, patients that attended a preoperative appointment were prescribed Ferinject® according to consensus guidelines more frequently than those who did not.

	Major Surgical Patients	Non-Major Surgical Patients	All patients
Anaemic patients (Hb<130mg/L)	66%	86.8%	75%
Further testing completed where Hb<130mg/L	100%	93.9%	97%

Majority of patients that received Ferinject® were anaemic. There were 3 cases where Ferinject® was prescribed but oral iron was the appropriate treatment, according to consensus guidelines. The most common indication for Ferinject® was iron deficiency anaemia where oral iron was not suitable (30.7%).

DISCUSSION

Management of preoperative iron deficiency anaemia in this study is superior to a comparable study⁶, notably the completion of further testing.

Ferinject® on discharge may be more appropriately prescribed due to diagnosis post procedure and laboratory findings during hospital admission.

Implementation of an iron deficiency anaemia pathway preoperatively may ensure the appropriateness of Ferinject® prescribing for elective surgical patients.

CONCLUSION

Ferinject® prescribing for the management of pre-operative iron deficiency was appropriate according to consensus guidelines for the majority of patients at this hospital. However, this can be improved through further education and protocol development to prescribers. Development of a pre-operative pharmacist role may also support appropriate prescribing.

REFERENCES

- Shander A, Knight K, Thurer R, Adamson J, Spence R. Prevalence and outcomes of anemia in surgery: A systematic review of the literature. *The American Journal of Medicine*. 2004Apr5;116(7):58-69.
- Muñoz M, Gómez-Ramírez S, Campos A, Ruiz J, Liubruno GM. Pre-operative anaemia: prevalence, consequences and approaches to management. *Blood Transfusion*. 2015Jun16;13(3):370-9.
- Fowler AJ, Ahmad T, Phull MK, Allard S, Gillies MA, Pearse RM. Meta-analysis of the association between preoperative anaemia and mortality after surgery. *British Journal of Surgery*. 2015;102(11):1314-24.
- Munting KE, Klein AA. Optimisation of pre-operative anaemia in patients before elective major surgery - why, who, when and how? *Anaesthesia*. 2019Jan;74:49-57.
- Muñoz M, Acheson AG, Auerbach M, Besser M, Habler O, Kehlet H, et al. International consensus statement on the peri-operative Management of Anaemia and Iron Deficiency. *Anaesthesia*. 2016;72(2):233-47.
- Legazpi IR, Verde MJG, Hernández AMM, Penín IR. 4CPS-021 treatment of preoperative anaemia with ferric carboxymaltose. Section 4: Clinical pharmacy services. 2018;