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Title	Monitoring iron deficiency anaemia management is a useful indicator in Patient Blood Management implementation
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Abstract

Introduction: We performed an audit of management of patients with iron deficiency anaemia (IDA) in 2023 and found that 25% (19/75) of the IDA patients in the study period (2021 cohort: 15th-19th June 2021) were not given iron replacement. Among those who were given oral iron replacement, only 6% (3/53) were prescribed with 100mg elemental iron alternate day dosing, which is the latest evidence-based recommended dosing [1]. We enhanced laboratory result screening by addition of clinical decision cut-off of ferritin <67pmol/L in the footnotes of ferritin result reporting. Additionally, alternate day oral iron sulphate was included in the prescription set. A re-audit of patients with iron deficiency anaemia in NTWC was conducted to evaluate the effectiveness of these measures and to identify areas for further improvement.

Method: Adult patients with ferritin test performed in NTWC in the week 10th-16th December 2023 were retrieved from the Laboratory Information System. Patients with known iron deficiency were excluded. Iron deficiency was defined as ferritin <67pmol/L. Anaemia was defined by haemoglobin <12g/dL for females and <13g/dL for males, according to the WHO definition. Clinical information was reviewed from the EPR, including selected laboratory investigations (CBC and iron profile interpretation), iron replacement therapy, blood product utilization and readmission due to symptomatic anaemia.

Results: We compared the re-audit results from the 2023 cohort with that of the 2021 cohort (Table 1). Overall transfusion rates were similar (13% vs 15%). All cases adopted single unit transfusion. There were fewer cases given transfusion but missing iron replacement in the 2023 cohort (9% (1/11) vs 25%(4/10) in 2021). Readmission due to symptomatic anaemia was fewer in the 2023 cohort (1 vs 4 in 2021). There is a significant increase in prescription with the 100mg elemental iron alternate day dosing from 6% (3/53) in 2021 cohort to 65% (33/51). However, the overall iron replacement rates were similar for both cohorts (75% in 2021 vs 73% in 2023). We explored the possible factors associated with the persistence of missing iron replacement. Subgroup analysis (Table 2) identified that the iron replacement rates were comparatively lower for IDA patients among obstetrics, surgery and accident & emergency specialties (42% (8/19)) than medical & geriatrics, family medicine and gynaecology units (85% (44/52)). None of the 3 IDA patients presented to the EMW were given iron replacement. We observed that the mean haemoglobin level was lower among those given iron replacement compared with those without (9.2g/dL vs 10.4g/dL p=0.0265).

Discussion:

The re-audit results showed improvement in IDA management with fewer readmission due to symptomatic anaemia and fewer cases being given transfusion but missing iron replacement. More patients were prescribed with 100mg elemental iron alternate daily dosing. However, the overall iron replacement rates were similar between the two cohorts. We postulated that IDA might be overlooked when patients presented with conditions without obvious anaemic symptoms. Additionally, iron replacement is less likely to be given if patient has a higher haemoglobin level. Further and continuous effort in education on recognition and management of IDA among different specialities is warranted. Our study illustrated that monitoring iron replacement rate among IDA patients could be a useful indicator in PBM implementation.

Table 1: Comparison of the 2023 cohort with the 2021 cohort

	2021 cohort	2023 cohort
Number of IDA patients	75	73
Gender		
Male:Female	15:60	19:54
Location		
Inpatient (%)	17/24 (71%)	17/23 (74%)
Outpatient (%)	35/47(74%)	33/43 (77%)
AED (%)	4/4(100%)	3/4(75%)
EMW (%)	0/0	**0/3 (0%)**
Transfusion		
Yes	10(13%)	11(15%)
No	65(87%)	62(85%)
Transfusion but missing iron replacement	4/10 (25%)	1/11(9%)
Readmission due to symptomatic anaemia	4	1
Iron replacement		
Yes (%)	56 (75%)	53 (73%)
No (%)	19 (25%)	20 (28%)
Iron replacement regime		
Oral	Total:53	Total:51
100mg elemental iron alternate day (%)	**3(6%)**	**33(65%)**
100mg elemental iron daily/BD/TDS (%)	50(55%)	17(33%)
50mg elemental iron daily (%)	0(0%)	1(2%)
Intravenous	7	6

Table 2: Subgroup analysis on the iron replacement by specialties

Specialty	2023 cohort
M&G (%)	24/28 (86%)
A&E (%)	3/7 (43%)
GYN (%)	10/12(83%)
FM (%)	10/12(83%)
OBS (%)	2/5(40%)
SURG (%)	3/7(43%)
RT (%)	1/1(100%)
ORTH (%)	0/1(0%)

References

1.Stoffel NU, Zeder C, Brittenham GM, Moretti D, Zimmermann MB. Iron absorption from supplements is greater with alternate day than with consecutive day dosing in iron-deficient anemic women. Haematologica. 2020;105(5):1232-1239.

2.Cook JD. Diagnosis and management of iron-deficiency anaemia. Best Pract Res Clin Haematol 2005;18:319-332.