

Introduction

Many audits have shown inadequate investigation and treatment of iron deficiency anaemia and that blood may be given inappropriately to those presenting with IDA. In some of these cases patients who are transfused are not investigated fully, treated with iron or followed up correctly.

Patient Blood Management is an international initiative. In the original US Choosing Wisely programme one of the five American Association of Blood Banks 'don'ts' was "Don't transfuse red blood cells for iron deficiency without hemodynamic instability" and this has been incorporated into the UK Choosing Wisely guidance. The NICE guidance for blood transfusion also made this recommendation and there is now a NICE quality standard which recommends optimisation of pre-operative anaemia with iron.

Table 1. Iron replacement given

Iron treatment	Oral (%)	IV (%)	Combined
Previous	84 (22.6)	25 (6.7)	73 (19.7)
Current	184 (49.6)	71 (19.1)	
Never	87 (23.5)	252 (67.9)	64 (17.3)
Not specified	16 (4.3)	23 (6.2)	

Results

Cause of anaemia

The commonest cause of anaemia was gastrointestinal blood loss; upper GI 23.3% and lower GI 18.6%. Only 4.3% cases had a dietary cause of their anaemia. No cause of anaemia could be assigned to 28% cases.

Investigation of cause

In terms of establishing a diagnosis using appropriate age and gender-related investigations, 219 cases had endoscopy or other similar investigations. These tests established that 14.2% had active bleeding and 38.8% had a previous potential source of blood loss identified. 43.8% had no source of blood loss identified. Investigation into the cause of iron deficiency, particularly the exclusion of GI malignancy with upper and lower GI endoscopy in men and post menopausal women, did not appear to be adequate although some of the cases having non-invasive imaging (i.e. CT colonoscopy) may have been missed. The audit analysed the adequacy of the GI investigation in women both >50 years and at a higher cut-off of >60 assuming that this correlated with the 'post menopausal' pathway of investigation recommended by the BSG guidance. Our audit shows that males are more likely to receive an endoscopy as a diagnostic tool for cause of anaemia compared to females with only 28% of males not undergoing endoscopy compared to 44.1% of females who did not have an endoscopy performed.

Indications for transfusion and use of alternatives

Guidelines support transfusion in iron deficiency in haemodynamically unstable patients with acute blood loss as well as patients who have been unable to receive iron therapy or in whom it is ineffective. The aim of iron treatment is to correct anaemia and replenish body stores. Oral iron treatment was given at some stage to 72.2% of cases and 19.7% went on to have intravenous (IV) iron as well. 17.3% patients were reported never to have received iron treatment (table 1) so transfusion had been their only treatment at the point of the audit.

Where patients are requiring transfusion, restrictive transfusion practice has been shown by many studies to be safer or equivalent to liberal transfusion practice, including in patients with GI bleeding. Aside from acute blood loss the decision to transfuse should be based on significant symptoms of anaemia first and Hb level second. In 14.8% of cases there was no specific indication for transfusion leading to the conclusion that the decision was made on Hb level alone. However, in the majority of cases (68.8%) transfusion was justified based on symptoms or co-morbidities which represents a more comprehensive and holistic assessment of need (table 2 and 3).

Table 2. Symptoms reported to justify transfusion

Symptoms reported	Cases (%)	Cases (%) as a single symptom
Serious symptoms		
Chest pain	58 (15.6)	11 (3.0)
Syncope	29 (7.8)	2 (0.5)
Significant but subjective symptoms		
Dyspnea	160 (43.1)	28 (7.5)
Lightheadedness	93 (25.1)	6 (1.6)
Non-specific symptoms		
Fatigue and/or pallor	173 (46.6)	31 (8.4)

Method

Using the data from Account for Blood (AfB) the SNBTS Transfusion Team linked the ICD10 code for iron deficiency (D50) and identified that in the study period 2017/18, 2,212, patients coded as having iron deficiency were transfused with 6,509 red cells during an episode in which IDA was diagnosed, which is approximately 5% of the Scottish blood supply.

A 20% random sample of patients with IDA who were transfused at least one unit of allogeneic red cells during an episode in which IDA was coded in Scottish hospitals was retrospectively audited by case note review. An algorithm was constructed to follow the expected diagnostic pathways and further reviewed by two haematologists on a case by case basis.

Table 3. Documented reasons for blood transfusion

Documented reason for transfusion	Cases (%)	Mean RCC units transfused
Within guidance (16.5%)		
Active bleeding	54 (14.6)	2.39
Unresponsive to iron	3 (0.8)	2.67
End of life care (QoL)	4 (1.1)	1.67
Documented justification (68.8%)		
Symptomatic of anaemia	231 (62.3)	2.21
Co-morbidities	24 (6.5)	2.17
No specific justification (14.8%)		
Asymptomatic (no further explanation)	42 (11.3)	2.03
Not specified	13 (3.5)	2.67

Key Recommendations

What you can do as an individual clinician, or as a clinical team

- In non-bleeding and in haemodynamically stable anaemic patients every effort should be made to characterise anaemia to guide investigation and treatment. This includes identifying iron deficiency and functional iron deficiency anaemia. Where the cause of the anaemia remains unclear the advice of a haematologist should be sought.
- In patients without haemodynamic instability, transfusion is appropriate in those with significant symptoms of anaemia such as chest pain and syncope as single symptoms or in combination with other anaemia symptoms. Light-headedness, dyspnoea, fatigue and pallor are less specific symptoms and signs of anaemia should not be used to justify transfusion where there are alternatives available.
- In non-bleeding anaemic patients the transfusion Hb trigger should be <70g/L (80 g/L in patients with cardiac disease or other co-morbidities). Transfusion is rarely indicated if the Hb is >90g/L and transfusion post-transfusion Hb should not exceed 100g/L.
- Prior to transfusion the risks, benefits and alternatives should be discussed with the patient using the 'Receiving a transfusion' patient information leaflet and documenting consent on the transfusion record. This should be part of shared decision making as one of the key principles of realistic medicine.
- Where transfusion in IDA is deemed appropriate, single unit transfusion followed by reassessment of the patient is preferred. Be aware of the recent information from SHOT that patients with severe anaemia are at risk of TACO
- Patients diagnosed with iron deficiency anaemia should have this clearly stated in the patient's record and discharge letter to the GP with a clear investigation and treatment plan at discharge. If transfusion has been given this should also be recorded in the discharge letter.

What you can do as a hospital transfusion team

- There should be a hospital policy for restricting transfusion in patients with iron deficiency anaemia and promoting the use of alternatives, at the same time identifying patients where transfusion is necessary and appropriate. This is another key principle of Realistic Medicine – 'Building a personalised approach to care'.
- The use of transfusion in iron deficiency should be systematically reviewed to ensure the appropriate treatment was given. This could include a prompt from the transfusion laboratory at the point that blood is requested or a case review by a designated clinician or by the Hospital Transfusion Team after the event.
- There should be a hospital policy for investigation of the underlying cause of iron deficiency based on BSG guidelines and local investigation algorithms should be developed with gastroenterology teams. This should include a framework for dietary assessments and patient information on both dietary iron and iron treatment.

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