All Wales Perioperative Anaemia Pathway

This is a consensus document developed by All Wales Pre-Operative Anaemia Leads Group & the Blood Health National Oversight Group (BHNOG)
1. Aim

The aim of this pathway is to:

i. To provide a perioperative blood management programme for NHS Wales; the first pillar of which is to embed a pathway that supports anaemia and iron deficiency detection in patients presenting for surgery

ii. To reduce the use of allogeneic blood in patients presenting for surgery with treatable causes

iii. To deliver timely treatment with intravenous (IV) iron for those identified with iron deficiency that require urgent interventions, or offer a reasonable alternative

2. Pathway

Any patient > 18 years of age (any gender) unless otherwise specified

Iron deficiency is defined in Figure 1.

2.1. Any patient presenting with one of the following should follow the pathway:

a. All patients with a haemoglobin (Hb) <130g/l having surgery with possible blood loss >500ml or transfusion risk of >10%

b. Consider patients with non-anaemic iron deficiency with a possible blood loss of >500ml or transfusion risk of >10%. This is diagnosed with a Hb >130g/L with a Ferritin <30 μg/L or TSAT<20%

c. Consider any patient presenting for minor or intermediate risk surgical procedures who are iron deficient from chronic ongoing blood loss. This includes but is not exclusive to gynaecological bleeding, upper or lower gastrointestinal bleeding.

2.2. A pre-operative anaemia screen includes the following blood tests: a full blood count (FBC), serum ferritin, transferrin saturation (TSATs), C-reactive protein (CRP), urea and electrolytes (U&E) and may require B12 & folate if MCV>100fl.

2.3. The minimum pathway standard would need a FBC and either a serum ferritin OR TSATs to be performed on the same day as pre-operative assessment clinic (POAC) or surgical referral, whichever is first. This allows rapid identification of those requiring iron treatment ahead of scheduled surgery. The samples for these tests could be taken in primary care (pre-referral), surgical outpatients or pre-assessment clinics.

2.4. The optimum pathway would allow same day testing/reflex testing of the pre-op anaemia screen. This supports the delivery of same day treatment of iron deficiency in suitable patients, minimising delay in surgery and reducing the number of hospital visits.

3. Classification of anaemia using the algorithm shown in Figure 1. Further details of patient management based upon anaemia classification and urgency of surgery is found in the corresponding text.
4. Patients having urgent surgery:
   a. If Iron Deficiency Anaemia (IDA) is identified or anaemia of chronic inflammation with iron deficiency - consider IV iron as early as possible before surgery (Figure 2.) N.B. patients with anaemia of chronic inflammation with iron deficiency (a functional iron deficiency) should be treated as iron deficient.
   b. If the anaemia is macrocytic or anaemia of chronic inflammation without iron deficiency, see points 5e and 5f below.

5. Patients having elective surgery:
   a. Where anaemia is diagnosed, appropriate investigation and management should be undertaken before surgery, with the aim of avoiding any delay to the procedure.
   b. If the cause of the anaemia or iron deficiency is unexpected and cannot be explained, the possibility of malignancy must be considered and pathways to support this should be agreed at a local level.
   c. If IDA is diagnosed, first-line treatment should be oral iron where scheduled surgery is >12 weeks (Figure 2.). If the patient cannot absorb oral iron or there are <12 weeks until scheduled surgery, IV iron should be used as treatment if surgery cannot be delayed to allow oral iron treatment to be effective.
d. Patients with **anaemia of chronic inflammation with IDA** (a functional iron deficiency) should be treated as iron deficient, first line treatment should be **IV iron** (Figure 2.)

e. Depending on the urgency of surgery patients with macrocytic anaemias should be;

   I. referred to Haematologist for advice (if urgent < 4 weeks)
   II. referred to GP for investigation/treatment

   Macrocytic anaemias are rarely the cause of severe anaemias and there is no expectation it is fully resolved prior to scheduled surgery date if this is the main cause.

f. Patients with anaemia of chronic inflammation without IDA are difficult to manage as they may have a lower target haemoglobin.

To support the management of this group:

   I. Check B12/folate and renal results, refer to Haematology and/or nephrology if appropriate based on results.
   II. If surgery cannot be delayed for investigation and TSAT <20% consider IV iron (Figure 2.)

Figure 2. Proposed Iron Treatments

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<tr>
<th>Oral Iron</th>
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<tbody>
<tr>
<td>• Oral iron, alternate days</td>
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<tr>
<td>• Counsel the patient of side effects and advise to return if patient cannot tolerate</td>
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<tr>
<td>• Recheck FBC in 4 weeks</td>
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<tr>
<td>• If Hb normal – proceed with surgery, continue iron treatment for 3 months further with Hb recheck every 3 months for 1 year</td>
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<tr>
<td>• If Hb not corrected or patient cannot tolerate oral iron prescribe IV iron</td>
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<table>
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<tr>
<th>IV Iron</th>
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<tr>
<td>• Recommend that IV iron prescribed is given at 20mg/kg at one sitting to minimise patient visits to a clinical setting <em>(Refer to product SPCs)</em></td>
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<tr>
<td>• IV iron should be given as soon as possible or preferably at least 2 weeks prior to surgery</td>
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<tr>
<td>• With urgent surgery, there is often not an available timescale, but IV iron should be considered until the day prior to surgery to reduce the need for perioperative transfusion</td>
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<tr>
<td>• IV iron can also be given postoperatively</td>
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<td>• Counsel the patients of the side effects</td>
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Please note: the pathway implemented locally should aim to minimise the requirement for patients to attend on site appointments and obtain blood samples. Treatment selection may be influenced by this.

For example: if a patient presents with IDA at 12 weeks prior to surgery and there is no opportunity to be able to recheck their bloods after a trial of oral iron they should be offered IV iron.