ANAEMIA AND HAEMOGLOBINOPATHIES IN PREGNANCY

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. OPTIMAL OUTCOMES
   • Appropriate assessment and management of anaemia / haemoglobinopathies to prevent fetal and maternal morbidity and mortality
   • To facilitate prompt and appropriate referral to genetics of couples who are “high risk” of haemoglobinopathies

2. PATIENT
   • Pregnant woman with Hb ≤ 110g/L prior to 20 weeks
   • Pregnant woman with Hb ≤ 105g/L after 20 weeks
   • Woman and their partners at risk of, or with known haemoglobinopathy

3. STAFF
   • Medical staff
   • Registered midwives

4. EQUIPMENT
   • 21 gauge needle with vacutainer
   • EDTA blood tube - Full Blood Count (FBC), B12, red cell folate, HbEPG (if required)
   • Lithium heparin with gel separation blood tube (iron studies) (if required)

5. CLINICAL PRACTICE
   • Review woman and partner's history and prior investigations at first pregnancy contact (by GP) for risk for anaemia / haemoglobinopathies
   • Perform Full Blood Count (FBC) at booking visit and at 28 weeks
   • Discuss appropriate diet to maintain iron stores and inform woman of symptoms of anaemia
   • Perform Haemoglobinopathy Screening (see Figure 1)
     o Screen if:
       ▪ High risk ethnicity: SE Asian, Asian, Indian, Mediterranean, Arabic, Black African
       ▪ Low MCV (<86fL)
     o Request FBC + Film, HbEPG and Iron studies for woman. Include gestation and ethnicity on request form
     o Screen partner (FBC + Film, HbEPG, Iron studies).
     o State woman's name and MRN on partner's form and state partner's name and Date of Birth on woman's form
   • Investigate anaemia as per Figure 1:
     o Review history and past investigations
     o Review blood film (microcytosis, fragmentation, sickle cells) and MCV, MCH
     o Iron studies / vitamin B12 / folic acid / red cell folate / HbEPG
   • Refer haemoglobinopathy carriers to an Obstetrician / Haematologist for maternal management
   • Refer to Geneticist if both parents known or suspected haemoglobinopathy carriers. DNA testing, then CVS / Amniocentesis may be offered
ANAEMIA AND HAEMOGLOBINOPATHIES IN PREGNANCY  cont’d

• Treat iron deficiency (Ferritin <30, regardless of Hb)
  o Dietary measures AND
  o Oral iron supplementation
    • At least 80mg daily, up to 100mg tds, as tolerated
    • Give woman information handout (Appendix 1)
    • Refer to table below and patient handout for iron preparations
    • When discussing iron supplementation in pregnancy, awareness of the
      variation in elemental iron contents in supplemental formulations, is important
  o Do not commence iron replacement without confirming iron deficiency on iron studies
    because low MCV or Hb may actually be due to haemoglobinopathy
  o Discuss side effects of iron supplementation
  o Monitor response: Hb should increase within 2 weeks. If not, evaluate further
  o Infusion of iron may be indicated in women who are resistant / intolerant to oral iron
    replacement
• Treat specific causes of anaemia
• Refer to Obstetrician or Haematologist if unexplained anaemia, moderate to severe anaemia
  (Hb < 90g/L), significant symptoms, late gestation >34 weeks or failure to respond to a trial of
  oral iron

6. DOCUMENTATION
• Antenatal Hospital Record and Yellow Card
• Integrated Clinical Notes

7. EDUCATIONAL NOTES
Iron tablets commonly available include:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ELEMENTAL IRON CONTENT</th>
<th>ADDITIONAL CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fero-Gradumet</td>
<td>105mg</td>
<td></td>
</tr>
<tr>
<td>Fero-Grad C</td>
<td>105mg</td>
<td>Vitamin C</td>
</tr>
<tr>
<td>Ferro-f tab</td>
<td>100mg</td>
<td>Folic acid 350mcg</td>
</tr>
<tr>
<td>Fefol</td>
<td>87.4mg</td>
<td>Folic acid 300mcg</td>
</tr>
<tr>
<td>FGF</td>
<td>80mg</td>
<td>Folic acid 300mcg</td>
</tr>
<tr>
<td>Elevit</td>
<td>60mg</td>
<td>Folic acid 800mcg + others</td>
</tr>
<tr>
<td>Fabfol plus</td>
<td>12mg</td>
<td>Folic acid 500mcg</td>
</tr>
<tr>
<td>Ferro liquid</td>
<td>30mg/5ml</td>
<td></td>
</tr>
<tr>
<td>Blackmores for Women Biiron</td>
<td>5mg</td>
<td></td>
</tr>
</tbody>
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8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP
• Antenatal Shared Care Protocol
• Ironcarboxymaltose by Infusion (Ferinject)
• Prevention and Treatment of Postpartum Haemorrhage
ANAEMIA AND HAEMOGLOBINOPATHIES IN PREGNANCY

9. REFERENCES
1. Antenatal screening tests. RANZCOG college statement 2006
3. Lone FW, Qureshi RN and Emanuel F. Maternal anaemia and its impact on perinatal outcome. Tropical Medicine and International Health 2004; 9: 486-490
5. Reveiz L, Gyte GML, Cuervo LG. Treatments for iron-deficiency anaemia in pregnancy (review). Cochrane Database of Systematic Reviews 2008
7. Government of South Australia, South Australian Perinatal Practice Guidelines, Chapter 60 Anaemia in Pregnancy 2012
8. UK guidelines on the management of iron deficiency in pregnancy, British Committee for Standards in Haematology July 2011

REVISION & APPROVAL HISTORY
Endorsed Obstetrics LOPs 5/11/13
Reviewed and renamed November 2013 (previously named Anaemia in Pregnancy Guideline)
Approved Patient Care Committee 5/2/09
Endorsed Obstetric Clinical Guidelines Group December 2009

FOR REVIEW: NOVEMBER 2018
Your recent blood test shows that you have anaemia (low haemoglobin, below the recommended level of 110g/L) and / or low iron (ferritin) levels.

This is common in pregnancy. You should increase your iron levels both by increasing the iron in the food in your diet and by taking an iron supplement tablet. This should improve your energy levels and also ensure plentiful iron is available for the baby.

A. Diet
Iron is best absorbed into the body from food that you eat.

Increase your daily intake of food with high iron content:
- **Red meat**: beef, lamb, veal, pork (the best source)
- **Chicken**
- **Fish**, especially oily fish: tuna, trout, salmon
- **Tofu, soybeans, lentils, beans, baked beans**
- **Cereals**, especially wholegrain. Check the label on bread and breakfast cereals, as some are iron-fortified, eg. Weet-Bix, All-Bran

Other foods also contain iron, but to a lesser extent: eggs, green leafy vegetables (especially spinach), dried fruit and some other fruit and vegetables.

B. Iron Supplements
There are several iron supplements available over the counter at any pharmacy. Check for the **Elemental Iron content** – the higher the better. Start with one tablet and increase to two and then three tablets per day.

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To help your body absorb the iron efficiently, take the tablet with orange juice between meals. Avoid consuming coffee, tea, dairy products (milk, yoghurt, cheese) and calcium supplements at the same time. Try to spread out the calcium and dairy throughout the rest of your day, as it is still very important for you and your baby. Some women who are taking iron supplements may notice that their stool is darker in colour – this is normal. Iron can cause varied gastrointestinal symptoms including nausea (most commonly), abdominal discomfort, constipation and diarrhoea and occasionally trying a different iron preparation may improve the symptoms. You should drink plenty of water (approximately 1.5 Litre per day) and eat foods high in fibre, such as brown grain bread and rice, fruit and vegetables.

You are recommended to continue your iron treatment for at least one month after your baby is born.

**Please discuss any concerns with your Midwife or Doctor at your next visit**

Patient information leaflet written by Giselle Kidson-Gerber and Joanne Arkwright.

Revised September 2013
**Figure 1: Investigation of Anaemia and Haemoglobinopathy in Pregnancy**

**Anaemia:**
- Hb < 110 before 20 weeks
- Hb < 105 after 20 weeks

**Investigate Cause of Anaemia:**
- FBC
- Blood film
- FE studies

**Known Haemoglobinopathy Carrier**

**Women at High Risk of Haemoglobinopathy**
- High risk ethnicity: SE Asian, Asian, Indian, Mediterranean, Arabic, Black African
- MCV < 86fl

**Screening**
- FBC + Film, HbEPG, Iron studies
- Include gestation and ethnicity and partner’s name and date of birth on form

**Partner screening simultaneously**
- FBC + Film, HbEPG, Iron studies
- State woman’s name and MRN on partner’s form

**Treat Confirmed Iron Deficiency**
- Ferritin < 30ug/L
- Commence oral iron supplementation

**Treat Other Causes of Anaemia**

**Refer to Obstetrician or Haematologist**
- Unexplained anaemia
- Hb < 90
- Significant symptoms
- > 34 weeks
- Failure to respond to oral iron

**Refer Prompt Review of Results**

**Refer Haemoglobinopathy Carriers to an Obstetrician / Haematologist for Maternal Management**

**Refer to Geneticist if Both Parents Known or Suspected Haemoglobinopathy Carriers. Genetic Counselling Regarding Potential DNA / Prenatal Testing May Be Appropriate**

**If Resistant to Oral Supplements, Iron Infusion May Be Indicated**