Guideline for the management of Thrombocytopenia in pregnancy (GL927)

Approval and Authorisation

<table>
<thead>
<tr>
<th>Approved by</th>
<th>Job Title or Chair of Committee</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Maternity Clinical Governance Committee</td>
<td>Chair, Maternity Clinical Governance Committee</td>
<td>6th October 2017</td>
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</tbody>
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Change History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Author</th>
<th>Reason</th>
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<tbody>
<tr>
<td>1.0</td>
<td>March 2011</td>
<td>Yulia Gurtovaya (Specialist Registrar), Samantha Low (Consultant Obstetrician)</td>
<td>Trust requirement</td>
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<tr>
<td>2.0</td>
<td>January 2013</td>
<td>Maged Shendy (Specialist Registrar), Pat Street (Consultant Obstetrician)</td>
<td>Reviewed</td>
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<td>3.0</td>
<td>May 2015</td>
<td>J Siddall (Consultant Obstetrician)</td>
<td>Reviewed</td>
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<td>4.0</td>
<td>July 2017</td>
<td>J Siddall</td>
<td>Reviewed, minor changes throughout</td>
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1.0 Overview:

Thrombocytopenia occurs in 8-10% of all pregnancies. The severity is classified as follows:
- Mild: >100
- Moderate: 50 -100
- Severe: <50

In pregnancy most cases are mild and benign, but it can be associated with severe complications for mother and baby.

In cases where the platelet count is <80, discussion with a consultant haematologist is advised.

2.0 Signs (usually only present if platelets <50):

- Petechiae
- Nose bleeds
- Rarely: haematuria, gastrointestinal bleeding.

3.0 Possible Causes:

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Proportion</th>
<th>Pathophysiology</th>
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<tbody>
<tr>
<td>Gestational Thrombocytopenia</td>
<td>About 75%</td>
<td>Physiological dilution, accelerated destruction</td>
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<tr>
<td>Immune Thrombocytopenic Purpura (ITP)</td>
<td>About 3%</td>
<td>Immune destruction, suppressed production</td>
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<tr>
<td>Thrombotic Thrombocytopenic Purpura (TTP)</td>
<td></td>
<td>Peripheral consumption, microthrombi</td>
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<tr>
<td>Haemolytic Uraemic Syndrome (HUS)</td>
<td></td>
<td>Peripheral consumption, microthrombi</td>
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<tr>
<td>Pre-eclampsia, Eclampsia, Haemolysis, Elevated liver enzymes and low platelet count syndrome (PET, HELLP)</td>
<td>About 15-20%</td>
<td>Peripheral consumption, microthrombi</td>
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<tr>
<td>Hereditary thrombocytopenia</td>
<td></td>
<td>Bone marrow underproduction</td>
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<tr>
<td>Pseudo thrombocytopenia</td>
<td></td>
<td>Laboratory artefact</td>
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<td>Viral infections: HIV, Epstein-Barr virus</td>
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<td>Secondary autoimmune thrombocytopenia</td>
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<tr>
<td>Medications: heparin-induced</td>
<td></td>
<td>Bone-marrow suppression</td>
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<tr>
<td>Leukaemia/Lymphoma</td>
<td></td>
<td>Failure of Platelet production, bone marrow infiltration</td>
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<tr>
<td>Severe Vitamin B12 or Folate Deficiency</td>
<td></td>
<td>Failure of Platelet production</td>
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<tr>
<td>Splenomegaly</td>
<td></td>
<td>Splenic Sequestration</td>
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</table>
The section below describes optimum management based on the different diagnoses of thrombocytopenia. **Read with CARE**

4. Gestational Thrombocytopenia

4.1 **Presentation / Diagnosis:**
- Usually mild to moderate; platelet count > 80x10⁹/L
- Incidental finding
- Diagnosis of exclusion
- No previous history
- No symptoms of bleeding
- Typically occurs in 3rd trimester
- Spontaneous resolution
- May recur in subsequent pregnancy

4.2 **Management:**

4.2.1 **Antenatal:**
- Refer for Consultant care
- Exclude pathological causes
- Monitor platelet count every 4-6 weeks
- If moderate or severe: anaesthetic referral

4.2.2 **Labour/Delivery:**
- Avoid traumatic vaginal delivery to minimise maternal risk of haematoma formation
- Caesarean section for obstetric reasons only
- Epidural is safe if count above 80x10⁹/L
- If maternal count <80x10⁹/L – cord sample should be taken at delivery and neonatal count days 1 & 4

4.2.3 **Postnatal:**
- Verify that counts returns to normal after delivery
5. **Immune Thrombocytopenic Purpura (ITP)**

5.1 **Presentation / Diagnosis:**
- May show: purpura, bruising, mucosal bleeding
- Asymptomatic
- Diagnosis of exclusion;
- Previous history;
- Platelet antibodies: lacks sensitivity and specificity
- Glycoprotein-specific antibodies
- Antibodies can cross placenta and cause fetal thrombocytopenia

5.2 **Management:**

5.2.1 **Antenatal:**
- Multidisciplinary care with Haematologist
- Optimize prior to pregnancy (azathioprine)
- Monitor platelet count
- Anaesthetic referral
- Treatment if symptoms or count <20x10^9/L at any stage of pregnancy or <50x10^9/L in late pregnancy without symptoms, consider, in consultation with Haematologist:
  1. Prednisolone 20 mg daily (start dose);
  2. iv IgG;
  3. Anti-D in Rh –positive women
  4. platelet transfusion
  5. Azathioprine

5.2.2 **Labour/Delivery:**
- Have platelets available if count <50x10^9/L (Discuss with consultant Obstetrician, Haematologist and Anaesthetist)
- In general, avoid epidural if count <80x10^9/L although a consultant anaesthetist may agree on a case by case basis
- Avoid traumatic delivery, fetal blood sampling (FBS), fetal scalp electrode (FSE)
- Caesarean section for obstetric reasons only
- Cord sample at delivery; Neonatal platelet count days 1 & 4
5.2.3 Postnatal:
- Platelet count daily until day 2-5
- If count <20x10^9/L or symptomatic – perform USS of brain and treat with iv IgG;
- Platelet transfusion if heavy bleeding

6. Thrombotic Thrombocytopenic Purpura (TTP)

6.1 Presentation / Diagnosis:
Life-threatening disorder with five of signs due to a severe deficiency of vW’s factor-cleaving protein:
- microangiopathic haemolytic anaemia
- thrombocytopenia
- neurological symptoms (from headache to coma)
- renal dysfunction;
- fever

6.2 Diagnosis:
- ADAMTS13 levels;
- Low platelet count,
- Abnormal U&E

6.3 Management:
- Multidisciplinary management with Haematologist
- Urgent plasma exchange may be required until platelet count is normal;
- High doses of steroids
- Platelet transfusion – CONTRAINDIATED
- Anaesthetic involvement
- Central line
- Delivery does not improve outcome unless poor response to treatment
7. Haemolytic Uraemic Syndrome (HUS)

7.1 Presentation / Diagnosis:
- Associated with *E.coli* infection
- Microangiopathic haemolytic anaemia
- Thrombocytopenia
- Renal involvement
- Often postpartum

7.2 Management:
- Supportive management
- Renal dialysis
- Red cell transfusion
- Caesarean section for obstetric reasons

8. Drug induced

8.1 Diagnosis:
- History of the use of the drug (heparin)

8.2 Management:
- Stop use of the drug
- Use the alternative for Heparin – Danaparoid;
- Check platelet count weekly for the first 3 weeks after commencing heparin in pregnancy.

9. Pre-eclampsia, Eclampsia, Haemolysis, Elevated liver enzymes and low platelet count syndrome (PET, HELLP)

See Hypertension guideline (GL952)

10. Safe levels for interventions:

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Platelet count</th>
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<tbody>
<tr>
<td>Antenatal, no invasive procedures planned</td>
<td>&gt;20</td>
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<tr>
<td>Vaginal delivery</td>
<td>&gt;40</td>
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<tr>
<td>Operative or instrumental delivery</td>
<td>&gt;50</td>
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<tr>
<td>Epidural anaesthesia</td>
<td>&gt;80</td>
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11. Management of the neonate:
Neonate: antibodies IgG can cross placenta and cause neonatal thrombocytopenia – 14-37%, so avoid FSE, FBS, high or mid-cavity operative delivery, alert neonatal team, cord blood sample should be taken at delivery and neonatal platelet counts on days 1 & 4. Avoid Vitamin K IM until the count is known.

12. References:
12.1 Bethan Myers. Review Thrombocytopenia in pregnancy. TOG 2009;11:177-183
Process Chart for Thrombocytopenia in Pregnancy Management

Platelet count < 150,000/µL

- Medical Disorders
  - Drug ingestion
- No h/o ITP, drug or medical disorders
- Previous h/o ITP

- Treat disorders or stop medication
- Peripheral smear
- Haematology consultation
- Only low platelets

- MAHA
  - HTN
  - Pre-eclampsia HELLP
  - MgSO4
  - Delivery
- Renal Disease
  - Purpura
  - Post partum
- Fever
  - Neurologic signs
  - Purpura
  - 2nd Trimester
  - TTP
  - Supportive Mix Dialysis
  - Steroids
  - Plasmapheresis

- Medical Disorders
  - Symptoms & signs investigate
- Probable GTP
  - Probable TTP
  - PGp limited use
  - A by history
  - A by exclusion

Follow monthly or earlier as decided

- Platelets < 80,000/µL
  - Yes
  - 37 weeks

Plan Delivery
- Anaesthetist
- Haematologist
- Neonatologist

- Avoid FSE, FAS
- Avoid difficult instrumental delivery
- Caesarian does not have additional benefit:

Abbreviations:
- MAHA: Microangiopathic Haemolytic Anemia
- HUS: Haemolytic Uraemic Syndrome
- TTP: Thrombotic Thrombocytopenic Purpura