THROMBOCYTOPENIA IN PREGNANCY

1. AIM

- Appropriate assessment and management of thrombocytopenia (Platelets < 150 x 10^9/L) in pregnancy

2. PATIENT

- Pregnant woman with a platelet count < 150 x 10^9/L

3. STAFF

- Medical and midwifery staff

4. EQUIPMENT

- 21-gauge needle with vacutainer for blood collection
- Blood collection tubes:
  - EDTA blood tube(purple top) for full blood count (FBC)
  - Serum tube with gel blood tube (gold top) for :
    - Urea Electrolytes and Creatinine (UEC),
    - Liver Function Test (LFT),
    - Uric Acid

5. CLINICAL PRACTICE

- Perform and/or review full blood count (FBC) at booking visit and at 26-28 weeks. Diagnose thrombocytopenia if platelet count < 150 x 10^9/L at any gestation
- Review medical history noting bleeding disorders, co-morbidities, previous platelet count(s) prior to, and in any (previous) pregnancies
- Investigate thrombocytopenia by attending to:
  - maternal observations - blood pressure, pulse, temperature
  - Bloods - FBC, blood film (fragmentation, platelet size), UEC, LFT, uric acid
  - Urine sample - urinalysis, urine protein/creatinine ratio to exclude pre-eclampsia or related syndrome
- Assess additional risk factors for bleeding e.g. placenta praevia, low haemoglobin, previous postpartum haemorrhage
- Prevent and treat iron deficiency, and optimise haemoglobin
- Refer to haematologist (or obstetric physician if haematologist unavailable) any woman with:
  - moderate to severe thrombocytopenia (platelet count <100 x 10^9/L),
  - history of Immune Thrombocytopenia (ITP) or
  - previous severe thrombocytopenia in pregnancy (platelet count <100 x 10^9/L)
- Refer to obstetrician for counselling regarding intrapartum management and timing of delivery
- Monitor FBC regularly (frequency dependent on platelet count and gestation)
- Arrange antenatal anaesthetic consult if platelet count <100 x 10^9/L
- Consider induction/delivery in late gestation for falling platelet count in consultation with obstetric physician and/or haematologist if platelets <100 x 10^9/L
- Check FBC on admission in labour. If platelets are <100 x 10^9/L:
  - insert cannula
  - send coagulation studies
  - recommend active management of third stage of labour
  - manage labour in birth unit with medical and midwifery care
  - promptly manage postpartum haemorrhage (PPH) (if it occurs)
  - Consider tranexamic acid as an adjunct if PPH occurs

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- Avoid vacuum, rotational forceps or difficult instrumental delivery, where possible, for woman at risk of neonatal thrombocytopenia (e.g. mother with ITP)
- Avoid Intramuscular (IM) injections if platelets are <50x10^9/L. IM immunoglobulin anti-RhD should be replaced with intravenous (IV) Rhophylac[1]
- Undertake venous thromboembolism (VTE) risk assessment for any pregnant woman, including those with thrombocytopenia. If thromboprophylaxis is required, prophylactic low molecular weight heparin (LMWH) is recommended for a woman with platelet counts above 50x10^9/L, provided there is no active bleeding or severe bleeding risk factors[5]
- Recommend repeat FBC one to three months postpartum

6. DOCUMENTATION

- Antenatal card
- Medical record

7. EDUCATIONAL NOTES

- Physiological thrombocytopenia occurs in normal pregnancy, with an average decrease in platelet count of 10%, occurring mostly in the 3rd trimester[1]. It is due to haemodilution or accelerated platelet destruction and normalises 24 -72 hours post-partum
- Up to 10% of pregnancies are complicated with thrombocytopenia, characterised as[2]:
  - Mild 100-150 x 10^9/L
  - Moderate 50-100 x 10^9/L
  - Severe < 50 x 10^9/L
- Gestational and ITP are the most common causes of thrombocytopenia in pregnancy[1,7]
- **Gestational thrombocytopenia[1,3,4]:**
  - Occurs in 5-9% of pregnancies
  - Accounts for 70-80% of pregnancy-associated thrombocytopenia
  - Asymptomatic (usually), occurs in third trimester (rarely late 2nd trimester)
  - Platelet count > 70 x 10^9/L, normalises post-partum
  - No specific diagnostic test available, diagnosis of exclusion
  - Is **not** associated with increased maternal haemorrhage nor fetal thrombocytopenia
- **Immune thrombocytopenia (ITP)** (also known as Idiopathic thrombocytopenia purpura or autoimmune thrombocytopenia purpura)[3,4]:
  - Rare, 3% of pregnancy-associated thrombocytopenia
  - Associated with risk of maternal and fetal haemorrhage
  - Thrombocytopenia occurs at any gestation, and may be < 50 x 10^9/L
  - Is the most common cause of thrombocytopenia in first and second trimesters
  - Requires multi-disciplinary management, including obstetrician, anaesthetist, haematologist / physician and neonatologist/paediatrician
- **Causes of thrombocytopenia in pregnancy[2,3,7]**:
  - <u>Pregnancy specific</u>:
    - Gestational thrombocytopenia
    - Pre-eclampsia
    - Haemolysis, Elevated Liver enzymes Low platelets (HELLP), Acute fatty liver of pregnancy
  - <u>Non-pregnancy specific – increased destruction</u>:
    - ITP
    - Thrombotic thrombocytopenia purpura
    - Haemolytic uremic syndrome
    - Disseminated intravascular coagulation
    - Drug induced
    - Viral infections e.g. HIV, HCV, EBV, CMV
    - Hypersplenism

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- Non-pregnancy specific – Decreased production:
  - Bone marrow disease
  - Nutritional deficiency: B12, folate
  - Liver disease
  - Congenital thrombocytopenia

- Regional anaesthesia/analgesia is generally considered low risk in the context of gestational thrombocytopenia with stable platelet counts greater than 70 x 10^9 /L. Regional anaesthesia/analgesia should be considered on a case by case basis when platelet counts are between 50-70[10] x 10^9/L[1]
- Neuraxial anaesthesia can be considered for women with stable platelet counts >70 x 10^9/L and a normal coagulation profile[9,10]
  - The incidence of spinal epidural haematoma is < 1:150 000 following epidural and < 1: 200 000 following spinal anaesthesia but increases in the setting of maternal thrombocytopenia[9]
- Mode of delivery in women with ITP is based on obstetric indication[3]:
  - minimise vacuum delivery, rotational forceps delivery or difficult instrumental delivery when fetal thrombocytopenia is suspected due to the risk of intracranial haemorrhage
- Possible adverse effects of instrumental birth (e.g. neonatal haemorrhage/ intraventricular haemorrhage) must be weighed against the consequences of awaiting vaginal birth or alternatively of performing a caesarean with the head deep in the pelvis[3]
- Decisions about fetal scalp blood sampling for lactate or pH should take into account the likelihood of vaginal birth, maternal risks of caesarean, and probability of neonatal thrombocytopenia[3,8]. Fetal haemorrhage is rare after fetal scalp blood sampling[8]
- In women affected by ITP, the strongest predictor of neonatal thrombocytopenia is a previously affected sibling[3]
- Aspirin is commonly prescribed in pregnancy and should not be withheld unless the platelet count is <50x10^9/L or the risk of bleeding is high[3]
- A platelet count of ≥50x10^9/L is considered adequate for caesarean and vaginal birth with minimal risk of maternal haemorrhage[3]

8. RELATED POLICIES / PROCEDURES / GUIDELINES

- Antenatal Shared Care Protocol
- Hypertension in Pregnancy
- Severe and/or urgent Hypertension in Pregnancy Guideline
- Epidural Analgesia Guideline
- Epidural Analgesia Programmed Intermittent Epidural Bolus (PIEB) and patient Controlled Analgesia (PCEA) – Delivery Suite
- Neuraxial (intrathecal or epidural) Opioid – single Does Morphine only
- Pre-eclampsia – Intrapartum Care of Women
- Australian College of Midwives (ACM) Guidelines for consultation and referral

9. RISK RATING

- Medium

10. NATIONAL STANDARD

- Comprehensive Care – standard 5
- Recognising and responding to clinical deterioration – standard 8

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11. REFERENCES

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