Management of Thrombocytopenia in pregnancy and the Management of Gestational Thrombocytopenia

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Key Amendments

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Introduction

The platelet count falls during pregnancy with about 5% of pregnancies becoming thrombocytopenic (<150x10^9/L)(1). In the majority of cases the thrombocytopenia is benign (gestational thrombocytopenia) and no treatment is required for the mother or infant. Before a diagnosis of gestational thrombocytopenia can be made other causes of thrombocytopenia must be excluded as several of these require treatment. This guideline will discuss the diagnosis of thrombocytopenia in pregnancy and the management of gestational thrombocytopenia.

Screening, Diagnosis and Causes of Thrombocytopenia

Screening for thrombocytopenia

Routine bloods are taken at booking and 28 weeks gestation for full blood count (FBC). Other common indications for screening for thrombocytopenia would be bleeding, bruising, pre-eclampsia, the appearance of a petechial rash, and screening for heparin induced thrombocytopenia (FBC performed every fourth day on days 4, 8, 11 and 16 during **treatment** dose heparin).

Diagnosis of thrombocytopenia

Patients who are found to be thrombocytopenic (<150x10^9/L) should have a repeat full blood count together with blood film (marked FAO On-call Consultant Haematologist). A detailed history and examination should then be performed by medical staff looking for common causes of thrombocytopenia.

Causes of thrombocytopenia in pregnancy – see Appendix 1

Diagnosis of gestational thrombocytopenia

In patients found to be thrombocytopenic the diagnosis of gestational thrombocytopenia can be made if the following apply:

- Platelet count- greater than 70x10^9/L but less than 150 x10^9/L.
- No history of thrombocytopenia outside pregnancy or 6 weeks post-partum
- No history of bleeding/bruising.
- No family history of thrombocytopenia/bleeding/bruising.
- Normal blood film.
- No recent drugs that may cause thrombocytopenia.
- No other cause suspected for the thrombocytopenia.
- No evidence of pre-eclampsia.

Management of gestational thrombocytopenia

- Patients should have the diagnosis explained to them, with emphasis on the benign nature of the condition.
- Patients should be counselled to present immediately if they develop any problems with bleeding or bruising. Anaesthetic implications regarding epidurals should be discussed if platelet counts are <100 $x10^9$/L.
- FBC should be performed every month and the diagnosis rethought if the platelet count falls <70 $x10^9$/L.
- An FBC should be performed when the patient is admitted either in labour or for a planned delivery.
- Discharge information should be sent to the GP to request a repeat FBC 2-3 months after delivery to ensure resolution. Women with persistent thrombocytopenia should be referred to haematology outpatients.

Initial management of thrombocytopenia other than gestational thrombocytopenia

- The advice of a consultant haematologist should be sought for all women whose platelet count is <80 $x10^9$/L. Any patient presenting with bleeding/bruising/ thrombosis and/or a platelet count <50$x10^9$/L must be discussed immediately with the on-call consultant haematologist.
- All suspected thrombotic thrombocytopenia purpura (TTP), post-transfusion purpura and heparin-induced thrombocytopenia must be discussed immediately with the on-call consultant haematologist.
- All suspected pre-eclampsia/eclampsia and haemolysis, elevated liver enzymes and low platelets (HELLP) must be discussed immediately with the on-call consultant obstetrician.
- All suspected haemolytic uraemic syndrome (HUS) must be discussed with the on-call medical team.
- All suspected disseminated intravascular coagulation (DIC) cases must have an urgent coagulation screen performed and a cause for the DIC sought and management plan made with multi-disciplinary input (consultant haematologist, consultant microbiologist, consultant obstetrician, consultant anaesthetist).

Platelet count thresholds for anaesthetic procedures and mode of delivery

In conditions like DIC there can still be bleeding with a normal count. Ethanol, aspirin, non-steroidal anti-inflammatory drugs (NSAID) and steroids can all affect platelet function leading to a higher chance of bleeding. Therefore if there are additional risk factors then these thresholds may have to be raised. Usually NSAIDs and aspirin are contraindicated if the platelet count is <50 $x10^9$/L. Single or short courses of steroid (<2 weeks) should not affect the risk of bleeding.
Obstetric indications should determine the mode of delivery rather than the platelet count. Clinicians are encouraged to discuss cases with the on-call haematologist.
Platelet count >80 $x10^9$/L – safe for all procedures including regional anaesthesia[2-4].
Platelet count <80 $x10^9$/L – regional anaesthesia, must be discussed with a consultant anaesthetist.
Platelet count <50 $x10^9$/L – major operative procedures and anticoagulants contra-indicated.

Platelet count <30 x10^9/L – treatment to raise the platelet count needed before vaginal delivery or caesarean section[5].

Low molecular heparin use

Low molecular weight heparin is commonly used in pregnancy. It can be safely prescribed if the platelet count is >75x10^9/L, providing there is no excessive bleeding or bruising. Patients whose platelet count falls below this threshold and have an indication for anticoagulation should be discussed with a haematologist.

Management of the neonate born to a mother with thrombocytopenia

Neonates born to thrombocytopenic mothers are at risk of being thrombocytopenic and hence bleeding although this risk is very low [1,4,6]. Approximately 10% of babies born to thrombocytopenic mothers have a platelet count <50 x10^9/L with 4% having a count <20 x10^9/L[1].

However to reduce the theoretical risk to the baby high risk procedures (foetal blood sampling, foetal scalp electrodes, high forceps and ventouse) should be avoided in mothers with a platelet count <100 x10^9/L or a past history of immune thrombocytopenia purpura (ITP). These instructions should be clearly documented in the hospital and handheld record.

For all these women a paediatric alert form should be completed in the antenatal clinic for individual neonatal management after birth.

Glossary

TTP – Thrombotic Thrombocytopenia Purpura
HUS – Haemolytic Uraemic Syndrome
DIC – Disseminated Intravascular Coagulation
HELLP – Haemolysis, Elevated Liver Enzymes and Low Platelets
ITP – Immune Thrombocytopenia Purpura
EDTA - Ethylenediaminetetraacetic Acid
VWD – Von Willibrand Disease
NSAID - Non Steroidal Anti-Inflammatory Drugs

Appendix 1 – Causes of thrombocytopenia in pregnancy

Cause	Findings on history	Findings on examination	Laboratory findings	Notes
Alcohol	May be none	May be none	May be none	Ethanol excess, especially binge drinking, can cause thrombocytopenia.
Auto-immune disease	May be none but history of rash, autoimmune disease.	May be none but may have rash.	May be none	Several autoimmune diseases, especially antiphospholipid syndrome can cause thrombocytopenia.
DIC	Usually has a precipitating factor e.g. malignancy, infection, retained products.	May be none	Low platelet count, may have prolonged clotting times, low fibrinogen and raised d-dimers.	
Drug induced thrombocytopenia	History of drug (either prescription, over-the-counter, illict or herbal) use	May have none	Usually isolated thrombocytopenia	Large numbers of drugs have been described causing thrombocytopenia. BNF should be consulted. If a drug is still suspected and there is no information in the BNF contact Medicines Information on ext. 30235.
EDTA induced pseudothrombo-cytopenia	None	None	Platelet clumping on blood film	An in-vitro phenomenon where the patients platelets clump in EDTA giving falsely low readings. True count is usually normal. Repeating the platelet count using a citrate (light blue coag) tube may help.
Gestational thrombocytopenia	No bleeding/bruising, no history of thrombocytopenia outside pregnancy/ puerperium, no family history	None	Platelets >70 $x10^9$/L with normal blood film	Diagnosis made when all other causes are excluded
HELLP	Features of pre-eclampsia	Hypertension	Low platelet count, red cell fragments and abnormal liver function.	
Heparin-induced thrombocytopenia	History of heparin exposure, including low-molecular weight.	May have thrombosis	Isolated thrombocytopenia	Occurs classically 4-14 days into heparin treatment (or 24 hours if previous heparin exposure in the last 100 days), may be associated with thrombosis.
HUS	May have bloody diarrhoea	May have none	Low platelets, red cell fragments and severe renal dysfunction	

Cause	Findings on history	Findings on examination	Laboratory findings	Notes
Hypersplenism	May be none	Splenomegaly	May also have low Hb and white cells.	
Infections	May be at risk	May have features		HIV, Hepatitis C, rubella, varicella, H.pylori, CMV and EBV can all cause thrombocytopenia.
Inherited thrombocytopenias	May have history of bleeding/bruising, family history of low platelets/bleeding/ bruising/deafness	May have none but others have morphological abnormalities	Low platelets (often large or agranular) and may have white cell inclusions	
ITP	May have bleeding/bruising and/or thrombocytopenia outside pregnancy/puerpurum	None	Platelets may be <70 $x10^9$/L. Normal blood film.	Often indistinguishable from gestational thrombocytopenia.
Marrow failure syndromes	Variable	Variable	May have other cytopenias and usually have abnormal morphology	
Post-transfusion purpura	History of recent blood product.	Very haemorrhagic	Thombocytopenia may be only feature	Severe thrombocytopenia with haemorrhage presenting 5-10 days after blood products.
Pre-/eclampsia	May be none	Hypertension, proteinuria	Low platelet count, may have red cell fragments	
TTP	Neurological symptoms	Fever, neurological signs	Low platelets, red cell fragments and mild renal dysfunction	
Type 2B vWD	May have history of bleeding/bruising/ thrombocytopenia, family history of bleeding/ bruising/thrombocytopenia	May be none	Isolated thrombocytopenia	Platelet aggregation occurs when vW factor is released therefore periods of thrombocytopenia following trauma / surgery / pregnancy.