NHS Blood and Transplant

Summary of Guidelines for the Use of Platelet Transfusions in a Platelet Shortage

British Society for Haematology Guideline (2016) Adults

British Society for Haematology Guideline (2016 & 2020 addendum) Children, Neonates

Platelet transfusion: principles, risks, alternatives and best practice

Platelet transfusions are an essential component in the management of selected patients with thrombocytopenia. However, they need to be used judiciously as they are a limited resource and are not risk free

Prior to prescribing a platelet transfusion consider:

- What is the indication for transfusion in this patient?
- Are there any alternatives which could be used instead?
- Is the patient aware of the benefits, harms and alternatives to a platelet transfusion?

Possible alternatives to platelet transfusion:

- Apply surface pressure after superficial procedures and correct surgical causes for bleeding
- Surgical patients expected to have at least a 500 ml blood loss (or >10% blood volume in children), use tranexamic acid (TXA) unless contraindicated
- Trauma patients who are bleeding or at risk of bleeding, early use of TXA
- Severe bleeding replace fibrinogen if plasma concentration less than 1.5 g/L
- Anti-platelet agents - discontinue or if urgent procedure/bleeding use TXA if risk/benefit would support
- Uraemia with bleeding or pre-procedure – dialyse, correct anaemia, consider desmopressin
- Inherited platelet function disorders - specialist haematology advice required. Consider desmopressin
- Chronic Bone Marrow Failure (BMF) with bleeding – consider TXA

Indications for use of platelet transfusions in adults and children (AMBER ALERT)

Indication	Transfusion indicated (threshold)/ not indicated
Prophylactic use (No bleeding or WHO grade 1) - one adult dose required (or weight-based paediatric equivalent)	
• Reversible Bone Marrow Failure, including allogeneic stem cell transplant	10 x 10^9/L
• Critical illness	10 x 10^9/L
• Reversible and Chronic Bone Marrow Failure receiving intensive therapy	10 x 10^9/L
• Chronic Bone Marrow Failure to prevent persistent bleeding of grade > 2	Count variable
• Chronic stable Bone Marrow Failure, abnormal platelet function, platelet consumption/ destruction (e.g. DIC, TTP) or immune thrombocytopenia (ITP, HIT, PTP)	NOT INDICATED
• Reversible BMF with autologous stem cell transplant (patient stable)	NOT INDICATED
Prophylactic use in presence of risk factors for bleeding (e.g. sepsis, abnormalities of haemostasis)	
• Reversible/chronic bone marrow failure, or critical care	10 to 20 x 10^9/L
• Abnormal platelet function, platelet consumption/destruction (e.g. TTP), immune thrombocytopenia	NOT INDICATED
Pre-procedure	
• Central venous catheter (CVC) tunnelled or untunnelled (excluding PICC line)	20 x 10^9/l
• Lumbar puncture*	40 x 10^9/l
• Percutaneous liver biopsy	50 x 10^9/l
• Major surgery	50 x 10^9/l
• Epidural anaesthesia, insertion & removal	80 x 10^9/l
• Neurosurgery or ophthalmic surgery involving the posterior segment of the eye	100 x 10^9/l
• Bone marrow aspirate or trephine biopsies, PICC line insertion, traction removal of central venous catheters (CVCs), cataract surgery, other procedures with low-risk of bleeding	NOT INDICATED
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding	50 x 10^9/L
• Multiple trauma, brain or eye injury, spontaneous intracerebral haemorrhage	100 x 10^9/L
• Bleeding (WHO grade >2) but not severe	30 x 10^9/L
• Bleeding in specific clinical conditions – see table next page for indications	

Indications for use of platelet transfusions in neonates (AMBER ALERT)

Indication	Transfusion indicated (threshold)/ not indicated
Prophylactic use (No bleeding or WHO grade 1)	
• Neonate (including very pre-term) • Neonate with NAIT (no family history of ICH)	25 x 10^9/L 25 x 10^9/L
Prophylactic use in presence of risk factors for bleeding (e.g. sepsis)	
• Preterm neonate with sepsis • Neonate with NAIT (Family history of ICH)	25 x 10^9/L 50 x 10^9/L
Pre-procedure	
• Lumbar puncture* • Major surgery • Neurosurgery	40 x 10^9/l 100 x 10^9/l 100 x 10^9/l
Procedures with low-risk of bleeding	NOT INDICATED
Therapeutic use (Bleeding WHO grade 2 or above)	
• Severe bleeding	100 x 10^9/L

Specific clinical conditions	
Platelet function defect	
• Congenital – Pre-procedure or therapeutic use. When alternative therapy contraindicated or ineffective. Directed by specialist in haemostasis. • Acquired (anti-platelet agents, uraemia)- only indicated for severe bleeding	Count Variable
Disseminated intravascular bleeding	
• Pre-procedure or therapeutic use. Consider threshold counts above but may not be achievable and individual case review required	Use pre-procedure or therapeutic threshold as guide
Thrombotic thrombocytopenic purpura	
• Platelet transfusion contraindicated unless life-threatening bleeding	
Immune thrombocytopenia (excluding NAIT)	
• (ITP, HIT, PTP) Pre-procedure when other therapy ineffective or procedure urgent or to treat severe bleeding. Consider threshold counts above but may be unachievable or unnecessary and individual case review required	Use pre-procedure or therapeutic threshold as guide
Footnotes	
*It is accepted that prior to lumbar puncture some clinicians will transfuse platelets at higher counts (e.g. 50 x 10^9 /L) in clinically unstable children, non ALL patients, or for the first LP in newly-diagnosed ALL patients to avoid haemorrhage and cerebrospinal fluid contamination with blasts, or at lower counts (≤ 20 x 10^9 /L) in stable patients with ALL, depending on the clinical situation. These practices emphasise the importance of considering the clinical setting and patient factors.	
Abbreviations	
ALL acute lymphocytic leukaemia; BMF bone marrow failure; DIC Disseminated intravascular coagulation; HIT heparin-induced thrombocytopenia; ICH intracranial haemorrhage; ITP primary immune thrombocytopenia; LP lumbar puncture; NAIT neonatal alloimmune thrombocytopenia; PICC peripherally inserted central catheter; PTP post-transfusion purpura; TTP thrombotic thrombocytopenic purpura:	