NHS

National Blood Transfusion Committee

Indications for the use of Blood Components in Adults

This guidance is based on the NBTC Indication Codes for Transfusion (January 2020).

Red cell concentrates

Dose: in the absence of active bleeding, use the minimum number of units to achieve a target Hb. Assume an increment of 10g/L per unit for an average adult.

- **R1 Acute Bleeding** Acute blood loss with haemodynamic instability. After normovolaemia has been achieved/maintained, frequent measurement of Hb (including by near patient testing) should be used to guide the use of red cell transfusion – see suggested thresholds below
- **R2 Hb ≤70g/L stable patient** Acute anaemia. Consider an Hb threshold of 70g/L and a target Hb of 70-90g/L to guide red cell transfusion. There are different recommendations (based on weak evidence) from other organisations e.g. Association of Anaesthetists
- **R3 Hb ≤80g/L stable patient and acute coronary syndrome** Use an Hb threshold of 80g/L and a target Hb of 80-100g/L
- **R4 Chronic transfusion dependent anaemia** Transfuse to maintain an Hb which prevents symptoms. Suggest an Hb threshold of 80g/L initially and adjust as required. Haemoglobinopathy patients require individualised Hb thresholds depending on age and diagnosis
- **R5 Radiotherapy – maintain Hb ≥ 100g/L** There is some evidence for maintaining an Hb of 100g/L in patients receiving radiotherapy for cervical, and possibly other tumours
- **R6 Exchange transfusion**

Fresh frozen plasma

Dose: 15-20ml/kg body weight, often equivalent to 4 units in adults.

- **F1 Major haemorrhage** In the trauma setting transfuse empirically in a 1:1 ratio with red cells. Other settings give FFP in at least a 1 unit:2 unit ratio with red cells until results from coagulation monitoring are available. Once bleeding is controlled, further FFP should be guided by abnormalities in PT and APTT (keep PT/APTT ratio of <1.5x mean normal), or by the use of viscoelastic haemostatic assays in a near-patient setting
- **F2 PT Ratio/INR >1.5 with bleeding** Clinically significant bleeding without major haemorrhage. FFP required if coagulopathy. Aim for a PT and APTT ratio of ≤1.5, or local protocol range for near-patient viscoelastic assays
- **F3 PT Ratio/INR >1.5 and pre-procedure** Prophylactic use when coagulation results are abnormal e.g. disseminated intravascular coagulation and invasive procedure is planned
- **F4 Liver disease with PT Ratio/INR >2 and pre-procedure** FFP not usually required before invasive procedure if PT ratio/INR is <2 and there is no significant risk of bleeding
- **F5 TTP/plasma exchange**
- **F6 Replacement of single coagulation factor**

Prothrombin complex concentrate

Dose determined by situation and INR. Follow local guidelines.

- **PCC1 Emergency reversal of VKA for severe bleeding** or head injury with suspected intracerebral haemorrhage
- **PCC2 Emergency reversal of VKA pre-emergency surgery**

Reference:

National Blood Transfusion Committee Indication Codes

http://www.transfusionguidelines.org.uk/uk-transfusion-committees/national-blood-transfusion-committee/responses-and-recommendations

PTO

Cryoprecipitate

Dose: 2 pooled units, equivalent to 10 individual units, will increase fibrinogen by approximately 1g/L in an average sized adult. Cryoprecipitate should be used with FFP wherever there is a requirement for volume, except in the rare setting of isolated deficiency of fibrinogen.

- **C1 Clinically significant bleeding and fibrinogen <1.5g/L (<2g/L in obstetric bleeding)**
- **C2 Fibrinogen <1g/L and pre-procedure, with a risk of bleeding**
- **C3 Bleeding associated with thrombolytic therapy**
- **C4 Inherited hypofibrinogenaemia, fibrinogen concentrate not available**

Platelet concentrates

Dose: for prophylaxis, do not routinely transfuse more than 1 adult therapeutic dose. Prior to invasive procedure/to treat bleeding, consider patient size, previous increments and target count.

Prophylactic platelet transfusion

- **P1 Plt <10 x 10^9/L reversible bone marrow failure**
  Not indicated in chronic bone marrow failure if not on intensive treatment, and not bleeding.
- **P2 Plt 10 – 20 x 10^9/L with sepsis/haemostatic abnormality, or other additional risk factor for bleeding**

Prior to invasive procedure or surgery:

To prevent bleeding associated with invasive procedures

- **P3a Plt ≤20 x 10^9/L central venous line**
- **P3b Plt ≤40 x 10^9/L pre lumbar puncture/spinal anaesthesia**
- **P3c Plt ≤50 x 10^9/L pre-percutaneous liver biopsy/major surgery**
- **P3d Plt ≤80 x 10^9/L epidural anaesthesia**
- **P3e Plt ≤100 x 10^9/L pre critical site surgery e.g. CNS/eye**

Transfusion prior to bone marrow biopsy not required

Therapeutic use to treat bleeding (WHO bleeding grade 2 or above)

- **P4a Plt <50 x 10^9/L – major haemorrhage**
- **P4b Empirically in a major haemorrhage pack/protocol**
- **P4c Plt <100 x 10^9/L – Critical site bleeding e.g. CNS**
- **P4d Plt <30 x 10^9/L – Clinically significant bleeding**

Specific clinical conditions

- **P5a DIC pre procedure or if bleeding**
- **P5b Immune thrombocytopenia (emergency pre-procedure/severe bleeding)**

Platelet dysfunction

- **P6a Consider if critical bleeding on anti-platelet medication**
- **P6b Inherited platelet disorders directed by haemostasis specialist**

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