**Red cell concentrates**

Dose – in the absence of active bleeding, use the minimum number of units required to achieve a target Hb. Consider the size of the patient; assume an increment of 10g/L per unit for an average 70kg 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. Use an Hb threshold of 70g/L and a target Hb of 70-90g/L to guide red cell transfusion. Follow local-specific protocols for indications such as post cardiac surgery, traumatic brain injury, acute cerebral ischaemia.

**R3. Hb > 80g/L if cardiovascular disease**

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 ≥110g/L**

There is limited evidence for maintaining an Hb of 110g/L in patients receiving radiotherapy for cervical and possibly other tumours.

**R6. Exchange transfusion**

Fresh frozen plasma (FFP)

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

**F1. Major haemorrhage**

Early infusion of FFP is recommended in a ratio of 1 unit FFP:1 unit red cells for trauma and at least 1 unit FFP:2 units red cells in other major haemorrhage settings. Once bleeding is under control, FFP use should be guided by timely tests for coagulopathy as indicated below.

**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.

**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 with risk of clinically significant bleeding.

**F4. Liver disease with PT Ratio/INR ≥2 and pre-procedure**

FFP should not be routinely administered to non-bleeding patients or before invasive procedures when the PT ratio/INR is ≤2.

**F5. TTP/plasma exchange**

**F6. Replacement of single coagulation factor**

**Prothrombin complex concentrate**

Dose should be determined by the situation and INR. Local guidelines should be followed.

**PCC1. Emergency reversal of VKA for severe bleeding**

Emergency reversal of VKA pre emergency surgery

**PCC2. Emergency reversal of VKA pre emergency surgery**

Cryoprecipitate

Dose – 2 pooled units, equivalent to 10 individual units, will increase fibrinogen by approximately 1g/L.

**C1. Clinically significant bleeding and fibrinogen <1.5g/L (<2g/L in obstetric bleeding)**

**C2. Fibrinogen <1g/L and pre procedure**

**C3. Bleeding associated with thrombotic 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 or to treat bleeding, consider the size of the patient, previous increments and the target count.

**P1. Prophylactic platelet transfusion**

**P1a. Platelet transfusion**

To prevent bleeding associated with invasive procedures. Platelets should be transfused if:
- 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 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.

**P2. Platelet transfusion prior to bone marrow surgery**

**Specific clinical conditions**

**P5a. DIC**

**P5b. Primary immune thrombocytopenia**

**Platelet dysfunction**

**P6a. Consider if critical bleeding on anti-platelet medication.**

**P6b. Inherited platelet disorders directed by specialist in haemostasis.**

**References**


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Further information on blood transfusion will be available on hospital intranet sites or from the blood transfusion laboratory.