

INDICATION CODES FOR TRANSFUSION – AN AUDIT TOOL

The indications for transfusion provided below are taken from UK national guidelines for the use of blood components (see references). Although it is accepted that clinical judgement plays an essential part in the decision to transfuse or not, the purpose of drawing available transfusion guidelines together into one short document is to help clinicians decide when blood transfusion is appropriate, and to minimise unnecessary exposure to transfusion.

Each indication has been assigned a number, which may be used by clinicians when requesting blood or for purposes of audit. Specific details regarding the patient's diagnosis and any relevant procedures to be undertaken should also be provided.

These are current guidelines and may change depending on new evidence.

Red cell concentrates

R1. *Acute blood loss* (British Committee for Standards in Haematology, 2001):-

Objective: to maintain circulating blood volume and haemoglobin (Hb) concentration > 7 g/dl in otherwise fit patients, and > 8g/dl in elderly patients and those with known cardiovascular disease.

15-30% loss of blood volume (800-1500ml in an adult): transfuse crystalloids or synthetic colloids. Red cell transfusion is unlikely to be necessary.

30-40% loss of blood volume (1500-2000ml in an adult): rapid volume replacement is required with crystalloids or synthetic colloids. Red cell transfusion will probably be required to maintain recommended Hb levels.

>40% loss of blood volume (>2000ml in an adult): rapid volume replacement including red cell transfusion is required.

Peri-operative transfusion (Association of Anaesthetists, 2001; British Committee for Standards in Haematology, 2001; Scottish Intercollegiate Guidelines Network, 2001):-

Many patients undergoing elective surgical operations should not require transfusion support if their Hb concentration is normal before surgery. Assuming normovolaemia has been maintained, the Hb can be used to guide the use of red cell transfusion.

R2. Hb concentration below 7g/dl.

R3. Hb concentration below 8g/dl in a patient with known cardiovascular disease, or those with significant risk factors for cardiovascular disease (e.g. elderly patients, and those with hypertension, diabetes mellitus, peripheral vascular disease).

Critical Care (British Committee for Standards in Haematology, 2001);

R4. Transfuse to maintain the Hb >7g/dl.

Post-chemotherapy

R5. There is no evidence-base to guide practice. Most hospitals use a transfusion threshold of a Hb of 8 or 9g/dl.

Radiotherapy

R6. Transfuse to maintain Hb above 10g/dl.

Chronic anaemia (British Committee for Standards in Haematology, 2001):-

R7. Transfuse to maintain the haemoglobin just above the lowest concentration which is not associated with symptoms of anaemia. Many patients with chronic anaemia may be asymptomatic with a haemoglobin concentration >8g/dl.

Fresh frozen plasma (British Committee for Standards in Haematology, 2004)

(Dose - 12-15 ml/kg body weight equivalent to 4 units for an adult)

F1. Replacement of single coagulation factor deficiencies, where a specific or combined factor concentrate is unavailable e.g. factor V.

F2. Immediate reversal of warfarin effect, in the presence of life-threatening bleeding. FFP only has a partial effect and is not the optimal treatment; prothrombin complex concentrates are preferred.

F3. Acute disseminated intravascular coagulation (DIC) in the presence of bleeding and abnormal coagulation results.

F4. Thrombotic thrombocytopenic purpura (TTP), usually in conjunction with plasma exchange.

F5. Massive transfusion and surgical bleeding; the use of FFP should be guided by timely tests of coagulation including near patient testing.

F6. Liver disease; patients with a PT within 4 seconds of the control value are unlikely to benefit from the use of FFP.

Cryoprecipitate (British Committee for Standards in Haematology, 2004)

(Dose - 1 unit/5kg body weight equivalent to 10 units for an adult)

C1. Acute disseminated intravascular coagulation (DIC), where there is bleeding and a fibrinogen level < 1g/l.

C2. Advanced liver disease, to correct bleeding or as prophylaxis before surgery, when the fibrinogen level <1g/l.

C3. Bleeding associated with thrombolytic therapy causing hypofibrinogenaemia.

C4. Hypofibrinogenaemia (fibrinogen level <1g/l) secondary to massive transfusion

C5. Renal failure or liver failure associated with abnormal bleeding where DDAVP is contraindicated or ineffective

Platelet concentrates (British Committee for Standards in Haematology, 2003; Consensus Conference on Platelet Transfusion, 1998; Schiffer et al for the American Society of Clinical Oncology, 2001)

(Dose - 15 ml/kg body weight for children <20kg; 1 adult therapeutic dose for adults and older children)

Bone marrow failure

P1. To prevent spontaneous bleeding when the platelet count <10 x 10⁹/l.

P2. To prevent spontaneous bleeding when the platelet count <20 x 10⁹/l in the presence of additional risk factors for bleeding such as sepsis or haemostatic abnormalities.

P3. To prevent bleeding associated with invasive procedures. The platelet count should be raised to >50 x 10⁹/l before lumbar puncture, epidural anaesthesia, insertion of intravascular lines, transbronchial and liver biopsy, and laparotomy, and to >100 x 10⁹/L before surgery in critical sites such as the brain or the eyes.

Critical care/surgery

P4. Massive blood transfusion. The platelet count can be anticipated to be $<50 \times 10^9 /l$ after 1.5-2 x blood volume replacement. Aim to maintain platelet count $>50 \times 10^9 /l$.

P5. Bleeding, not surgically correctable and associated acquired platelet dysfunction e.g. post-cardiopulmonary bypass, possibly combined with the use of potent anti-platelet agents such as clopidigrel.

P6. Acute disseminated intravascular coagulation (DIC) in the presence of bleeding and severe thrombocytopenia.

P7. Inherited platelet dysfunction e.g. Glanzmanns thrombasthenia with bleeding or as prophylaxis before surgery.

Immune thrombocytopenia

P8. Autoimmune thrombocytopenia, in the presence of major haemorrhage.

P9. Post-transfusion purpura, in the presence of major haemorrhage.

P10. Neonatal alloimmune thrombocytopenia, to treat bleeding or as prophylaxis to maintain the platelet count $>50 \times 10^9 /l$.

References

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