Indications for transfusion/ transfusion triggers

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Objectives

- Cover indications and triggers for :
  - red cells
  - platelets
  - fresh frozen plasma
- Will you transfuse?
- Transfusion check list

By the end of this session

- Demonstrates a clear understanding for the use of red cells ,platelets, fresh frozen plasma
- Can make the decision for transfusion within best available evidence and local guidelines
- Can demonstrate in which conditions their use is not appropriate
- Knows when to consult with a Haematologist with responsibility for transfusion as required

RED CELLS

- Blood transfusion should not be performed where there are appropriate alternatives such as haematinic replacement (in iron deficiency) or erythropoiesis stimulating agents (in chronic kidney disease).

Triggers

- There is no universal transfusion trigger – ***the decision to transfuse should be based on clinical assessment of the patient, supported by the results of laboratory tests and informed by evidence-based guidelines.***

Triggers

- Haemodynamically stable haemato-oncology patients who are anaemic after intensive chemotherapy rarely need transfusion if the Hb is >80 g/L.
- When using a restrictive red blood cell transfusion threshold, consider a threshold of 70 g/land a haemoglobin concentration target of 70–90 g/l after transfusion.
- Treatment of patients dependent on long-term transfusion (e.g. myelodysplasia) should aim to minimise symptoms of anaemia and improve health-related quality of life rather than achieve an arbitrary Hb concentration.
- NO TRIGGERS for patients with massive haemorrhage

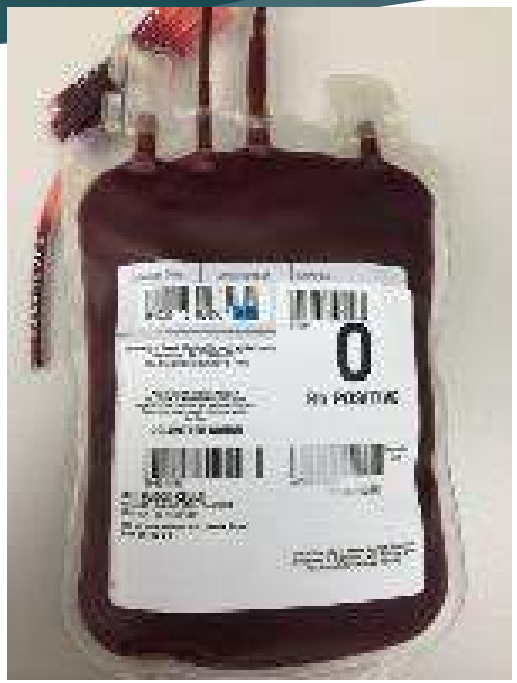
The NEW ENGLAND JOURNAL of MEDICINE

- Transfusion management has been strongly influenced by the 1999 Transfusion Requirements In Critical Care (TRICC) study (http://www.ncbi.nlm.nih.gov/pubmed/ 9971864)
- Randomised patients to an Hb 'transfusion trigger' of 100 g/L (liberal) or 70 g/L (restrictive).
- There was a trend to lower mortality in patients randomised to a restrictive policy (30% of whom received no transfusions). This was statistically significant in younger patients (<55 years) and those less severely ill. ***A restrictive transfusion policy was associated with lower rates of new organ failures and acute respiratory distress syndrome.***

Single Unit Blood Transfusions

The Patient Blood Management (PBM) recommendations endorsed by NHS England state (2014):

'Transfuse one dose of blood component at a time e.g. one unit of red cells or platelets in non-bleeding patients and reassess the patient clinically and with a further blood count to determine if further transfusion is needed.



Remember

- Children – weight calculation
- Low weight adults – you may over transfuse!
- Check your local guidelines!

PLATELETS – indications and triggers

- Offer prophylactic platelet transfusions to patients with a platelet count below 10×10^9 /L who are not bleeding or having invasive procedures or surgery, and who do not have any of the following conditions:
- Ssepsis / other additional risk factor offer prophylactic transfusion at a count below 20×10^9 /L
- ***Single unit transfusion ONLY – 30-50 x10^9 /L***

TRIGGERS

- Platelet prophylaxis is not required for bone marrow aspiration or trephine, PICC line, traction removal of a central line and cataract surgery.
- Minor bleeding **>30 x10^9/L**
- Lumber punctures **>40 x10^9/L**
- Bleeding or major surgery/ procedures level of **>50×10^9/L**
- Insertion and removal of epidural catheter **> 80 x10^9/L**
- Brain bleeding /neurosurgery/ eye surgery/ major trauma **>100 x10^9/L**

Do NOT give routine platelet transfusion in:

- chronic bone marrow failure
- autoimmune thrombocytopenia
- heparin-induced thrombocytopenia
- thrombotic thrombocytopenic purpura

FRESH FROZEN PLASMA

- Do not offer fresh frozen plasma transfusions to correct abnormal coagulation in patients who:

- are not bleeding (unless they are having invasive procedures or surgery with a risk of clinically significant bleeding)
- need reversal of a vitamin K antagonist.
- Dose **10-15ml/kg** – 3 bags for 70Kg weight adult
- Discuss with haematologist

Would you transfuse?

- **For each patient:**
- **Would you transfuse ? YES / NO?**
- **Why ?**

Case 1

- **Mr Black – 60 year old male had an elective prostatectomy. Post OP his Hb was 85g/l (Pre op 112 g/L)?**

The recipient of the blood transfusion had received the blood in 1996 during an operation from a donor with no sign of vCJD. But the donor developed VCJD symptoms and died in 1999. The recipient became ill six and a half years after the transfusion and died in autumn 2003.

'Derek Kenny from Portsmouth died of new variant CJD six years ago after being given a contaminated blood transfusion.'

Case 2

- **Miss Red is 35. She attended for a pre-op assessment. She has heavy periods**
- **Her Hb is 70g/l MCV 65, MCH 25?**

Iron deficiency

- Oral iron
- IV iron
- Management of blood loss – referral to gynecology for further management
- Routine surgery an be deferred till Hb is optimized.

Case 3

- **Mr Orange is followed up in the renal clinic. He was admitted under the medical team with a chest infection**
- **His Hb is 72g/L, normal MCV and MCH**
- **He has a Cr of 300 (normal for him)**

Anaemia of renal disease

- IV Fe
- EPO

Case 4

- **You are asked to request blood for a patient on the Haematology ward with acute Leukaemia undergoing chemotherapy. His Hb is 65 g/L**

Chemotherapy patients

- Transfuse – bone marrow suppression Hb will not improve unless transfused.

Case 5

- **45 year old male admitted to A&E with upper GI bleeding. He has a Hb of 55g/L.**
- **Obs: Temp 37 degrees, BP 85/60, pulse 120, RR 20 sat 96% on air**

Massive haemorrhage

- No restriction to blood transfusion!

Case 6

- **A patient with long standing low platelets. He is admitted with abdominal pain and needs an urgent appendectomy.**
- **Hb 127 g/l**
- **WCC 17**
- **Plt 40**

- Needs platelet count >50 for surgery

Case 7

- 80 year old lady admitted following a fall, found to have a large subdural haematoma.
- Hb 90g/l
- WCC 8
- Plt 150
- On warfarin INR 14

- NOT for FFP – needs Beriplex (prothrombin complex)
- Need to discuss with haematology

Case 8

- **45 year old with alcohol excess and liver disease. He needs a PICC line insertion of IV access.**
- **Hb 70g/l**
- **WCC 6**
- **Plt 35**
- **MCV 108**

- Macrocytic anaemia – NO check b12 folate
- Platelets count ok for PICC line

Case 9

- **Patient admitted with a massive intra cranial bleed requiring neurosurgery**
- **Hb 60g/L**
- **WCC 14**
- **Plt 70**

- Red cells – major bleeding + urgent surgery
- Platelets – platelet > 100

Case 10

- **Patient under haematology with MDS on regular transfusions every 2-3 weeks. Attended with SOB, tachycardia and extreme fatigue.**
- **Hb 84g/l**

- Yes – symptomatic anaemia in the context of bone marrow failure, no trigger used.

HAVE YOU?

- Explained the reason for the transfusion
- Explained the risks and benefits
- Explained the transfusion process
- Identified any transfusion needs specific to them
- Considered any alternatives that are available, and how they might reduce their need for a transfusion
- Informed them that they are no longer eligible to donate blood
- Encouraged them to ask questions.