Transfusion Camp 2021-2022
Day 1: Seminar 1A, September 17, 2021
Triggers for RBC and platelet transfusions, Dr. Katerina Pavenski

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Case 1
27 yo male with acute myeloid leukemia is admitted for induction chemotherapy. He is afebrile. He denies bleeding but examination reveals numerous petechiae on his lower extremities and a few large ecchymoses on his extremities and trunk. Morning CBC reveals Hb 73g/L and platelets $5x10^9$/L. Review of his recent CBC results indicates that his platelet count has not been above 10 for at least a week, despite daily or sometimes twice daily platelet transfusions.

1) In addition to investigating the lack of post-transfusion count increment, which one of the following is the most appropriate transfusion strategy for this patient?
   A) No point in transfusing him as platelet count doesn't go up
   B) Order a slow drip of platelets to continue throughout the day
   C) Transfuse 1 adult dose of platelets today
   D) Transfuse 2 adult doses of platelets today

2) You suspect that he has developed platelet transfusion refractoriness. Which one of the following investigations is least likely to help you determine the cause of the refractoriness?
   A) Bone marrow aspirate and biopsy
   B) HLA antibody screen
   C) Panculture to look for occult infection
   D) Platelet count measured one hour post platelet transfusion

3) His investigations are consistent with alloimmune refractoriness and you request HLA-selected platelets. Which one of the following is the least appropriate management strategy while awaiting arrival of HLA-selected platelets?
   A) Give IVIg 1g/kg daily
   B) Give oral tranexamic acid to treat minor bleeding
   C) Transfuse ABO compatible and freshest available platelets
   D) Transfuse platelets only to treat clinically significant bleeding

Case 2a
69 year old male is admitted via ER with acute subdural hematoma following a fall. He is known to have liver cirrhosis due to alcohol. His CBC revealed Hgb 125g/L and platelets $75x10^9$/L. His INR was 1.3. He is scheduled for a burr hole surgery later this evening.

4) Which one of the following represents the most appropriate transfusion strategy?
   A) No need for platelet transfusion
   B) Transfuse 1 adult dose of platelets and repeat CBC
   C) Transfuse 1 adult dose of platelets only if significant intra-operative bleeding
   D) Transfuse 2 adult doses of platelets

Case 2b
80 year old male on aspirin and clopidogrel presents with spontaneous ICH. His GCS is 15 and no surgical intervention is planned. His platelet count is 249 x 10^9/L and INR and aPTT are normal.

5) Which one of the following is the most appropriate therapy?
   A. 1 adult dose of platelets
   B. 2 adult doses of platelets
   C. PCC 50IU/kg IV and Vitamin K 10 mg IV
   D. None of the above

Case 3
70 year old male is admitted to the ICU with respiratory failure due to pneumococcal pneumonia. His past medical history is significant for coronary artery disease but he has been asymptomatic since CABG approximately 5 years ago. He is on antibiotics and hemodynamically stable. He is intubated and ventilated (PS10, PEEP 8, FiO2 0.5, oxygen saturation 94%). There is no evidence of bleeding or hemolysis, however, over the last few days his hemoglobin concentration has drifted down to 79 g/L.

6) Which of the following represents the most appropriate RBC transfusion strategy for this patient?
   A) Transfuse RBCs if Hgb <100 g/L
   B) Transfuse RBCs if Hgb <90 g/L
   C) Transfuse RBCs if Hgb <80 g/L
   D) Transfuse RBCs if Hgb <70 g/L

7) Which of the following strategies may minimize the patient's need for future RBC transfusion?
   A) Minimize unnecessary diagnostic phlebotomy
   B) Start an erythropoiesis stimulating agent
   C) Start B12 supplementation
   D) Start iron supplementation

8) You review the patient's laboratory results and notice that his troponin is significantly elevated. Troponin was ordered to further investigate an episode of rapid atrial fibrillation and ST changes earlier in the morning. Which one of the following represents the best transfusion strategy for this patient?

   A) No transfusion is needed at this time
   B) Transfuse 1 unit RBC rapidly
   C) Transfuse 1 unit RBC over 3 hours
   D) Transfuse 2 units RBC rapidly

Case 4

25 year old female with no significant past medical history, is seen in the emergency room with "a critically abnormal laboratory result", a hemoglobin of 60g/L. She has a long-standing history of menorrhagia and was sent to the ER by her family MD. On questioning, she endorses fatigue and reduced stamina but is still able to keep up in her spinning class. Her CBC reveals Hgb 60 g/L, MCV 65fL, platelets 487 x 10(9)/L; coagulation studies are normal.

9) Which of the following represents the least appropriate intervention?
   A) Intravenous iron
   B) Oral iron
   C) Referral to gynecology
   D) Transfusion of RBC

Case 5.

A 2.5 year old female is seen because of pallor and her mother feels that she is less active than the other toddlers. Nutritional history indicates that the child is a fussy eater and continues to drink as many as 6 bottles of homogenized milk per day. CBC shows hemoglobin 79 g/L, MCV 72 fL, WBC 7.9 x 10^9/L, platelets 475 x 10^9/L.

10) Which of the following is the most appropriate management of this child's anemia?
   A) Administer IV iron weekly for 6 weeks
   B) Increase dietary iron intake
   C) Provide nutritional intervention and oral iron supplementation
   D) Transfuse a weight-based dose of RBCs