Thrombocytosis and Therapeutic Plateletpheresis
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I. Thrombocytosis and the Rationale for Therapeutic Plateletpheresis (TP)

- Thrombocytosis may occur in 3 settings
  - Reactive thrombocytosis in response to splenectomy, Fe deficiency, acute hemorrhage, chronic inflammation, and malignancy
  - In myeloproliferative disorders such as CML or essential thrombocytethemia
  - Rare inherited forms
- Symptoms are only seen in patients with myeloproliferative disorders, including both thrombosis and hemorrhage
- Hemorrhage: due to abnormal platelet function; thrombosis maybe arterial or venous
- Cerebrovascular events most common clinical finding
- Complications not directly related to platelet count, can be seen with platelet counts between 500,000 to 5,000,000 /µL. Many patients are asymptomatic despite high counts.
- Thromboses more common in the elderly (>60) or those with cardiovascular risk factors, including previous episodes
- TP achieves rapid reduction of platelet count, and is usually reserved for patients with acute serious thrombotic or hemorrhagic events, or high risk patients with very high platelet counts (> 1,000,000/µL) (ASFA/AABB Category I Indication)
- Follow up procedures can help maintain the lower count until pharmacologic agents start to take effect
- Pharmacotherapy (hydroxyurea, anagrelide) eventually required to lower platelet count

II. Practical Considerations of TP

- Can be performed with any centrifugal apheresis instrument
- In emergent cases, peripheral venous access can be used instead of central venous catheter (and avoid the attendant risks of catheter placement)
- Instrument configuration, anticoagulation, etc same as in a platelet donation, however a higher flow rate in the removal line may be desirable
- Large volume of cells must be removed. Available data suggest that 30-50% of circulating platelets can be removed after processing ~ 1.2 blood volumes over a wide range of platelet counts. STAT intraprocedural count may be helpful
- No consensus on the target platelet count after procedure