

GUIDELINES FOR PLATELET TRANSFUSION

BACKGROUND:

Platelets play a critical role in normal hemostasis. They are activated when exposed to disrupted endothelium leading to platelet aggregation and formation of a hemostatic plug. In addition, the platelet membrane acts as a binding surface for the initiation and perpetuation of the coagulation cascade. Both quantitative and qualitative platelet disorders can lead to an increased risk of bleeding that can be potentially life threatening.

QUANTITATIVE PLATLET DISORDERS:

- ❖ Bone marrow failure – chemotherapy, infiltrative marrow disorders, aplastic anemia
 - Transfuse prophylactically for platelets < 10,000
 - Transfuse prophylactically for platelets < 20,000 if patient febrile or septic
 - Transfuse prophylactically if platelets < 50,000 for surgery or invasive procedures
 - Transfuse therapeutically if patient bleeding and platelet count < 50,000
- ❖ Immune thrombocytopenic purpura (including drug induced)
 - Transfuse prophylactically for platelets < 5,000 and wet purpura (mucosal membrane bleeding)
 - Transfuse therapeutically if poorly controlled bleeding and platelets < 50,000

SPECIFICS OF PLATELET TRANSFUSION:

- ❖ One unit of single donor platelets is preferred (equivalent to 6 units random donor platelets). A one unit transfusion should raise the platelet count by 50,000 1 hour after infusion
- ❖ Platelets should be leukodepleted or irradiated to prevent immunization
- ❖ Platelets should be irradiated if patients are severely immuno suppressed (lymphoma, leukemia, transplant) or the donor is

- a first or second degree relative to prevent graft vs. host disease
- ❖ In patients refractory to platelet transfusion because of immunization HLA matched donor platelets should be used
 - ❖ Do not transfuse platelets from 1st or 2nd degree relative donors if patient a candidate for allogenic transplant
 - ❖ Cytokine mediated febrile reactions occur in 15-20% of patients
 - ❖ Bacterial contamination and subsequent sepsis in 1 in ~ 8,000 units, especially after prolonged storage

QUALITATIVE PLATELET DISORDERS:

- ❖ Hereditary disorders such as Glanzman's Thrombasthenia and Bernard Soullier Syndrome are treated with platelet transfusion for active bleeding
- ❖ Acquired disorders characterized by abnormalities in the vascular space (uremia, macroglobulinemia, essential thrombocytosis) do not respond to platelet transfusions and are best managed by treatment of the underlying disease
- ❖ Bleeding related to drug induced platelet dysfunction (ASA, NSAIDS, Clopidogrel) are appropriately treated with platelet transfusion

CONTRAINDICATIONS TO PLATELET TRANSFUSION:

- ❖ Thrombotic thrombocytopenic purpura
- ❖ Heparin induced thrombocytopenia
- ❖ Antiphospholipid antibody syndrome

In these diseases the thrombocytopenia is due to platelet activation and consumption. Clotting catastrophes have been reported after platelet transfusion in these entities and should only be given for life threatening bleeding (CNS)