

Disorders of the Platelets - 2023

Thrombocytopenia- (low platelet count)

- Review of normal hemostasis
 - Involves the vascular endothelium, platelets, and coagulation factors
 - Function together to stop hemorrhage and repair vascular injury
 - Disruption in any component may result in bleeding or clotting disorders.

Etiology and Pathophysiology

- Reduction of platelets below 150,000/mcL *
 - Results prolonged or spontaneous bleeding
 - Primarily an acquired disorder
 - Commonly from ingestion of certain drugs (Baby ASA, chemo)
- Causes of Thrombocytopenia
 - Immune thrombocytopenia purpura (ITP)
 - Thrombotic thrombocytopenic purpura (TTP)
 - Heparin-induced thrombocytopenia (HIT)

1. Immune Thrombocytopenic Purpura (ITP)

- Abnormal destruction of circulating platelets
- Autoimmune disease
 - Platelets coated with antibodies
 - So spleen recognizes as foreign and macrophages destroy them
 - Normal platelet lifespan is 8-10d, with ITP: 1-3d
 - Destruction exceeds production
- Gradual onset with transient remissions

2. Thrombotic Thrombocytopenic Purpura (TTP)

- Platelets clump in capillaries -> microthrombi
 - o Insufficient quantity in circulation
- Autoimmune disease vs. drug toxicities
- Can lead to kidney failure, MI, CVA
- *Bleeding and clotting occur simultaneously* - **medical emergency!**



3. Heparin-Induced Thrombocytopenia (HIT)

- Immune-mediated response to heparin
- Can be life-threatening!
- Develops 5 to 10 days after heparin therapy is started
 - Platelet count drops by more than 50%
 - VTE is major clinical problem
 - o Arterial thrombosis can also develop
 - o VTE and PE often result

Thrombocytopenia

- **Clinical Manifestations**
 - Patients often asymptomatic
 - Most common symptom = mucosal or cutaneous (skin) bleeding
 - o Bleeding gums or nosebleeds (epistaxis)
 - o Oozing from incisions, injection sites, IVs
 - o Petechiae, purpura & ecchymoses
 - o Hematuria
 - o Melena/hematochezia
 - o Tachycardia, hypotension, diaphoresis (severe cases!)

- Diagnostic Studies
 - H & P
 - ↓ Platelet count
 - Prolonged bleeding < 50,000/mcL
 - Hemorrhage ↓ 20,000/mcL
 - Morphology
 - Bone Marrow Biopsy

Thrombocytopenia

Interprofessional Care

- Based on cause of the disorder
- Removal or treatment of the underlying cause or disorder may be sufficient
- Avoid aspirin and other medications that affect platelet function or production

Immune Thrombocytopenic Purpura (ITP)

Interprofessional Care

- Corticosteroids
 - Alters spleen's recognition of a "foreign" platelet
 - Suppresses phagocytic response of macrophages
 - Less antibody formation
 - Platelet lives longer, normal life
- Immunosuppressive therapy
- Thrombopoietin injections
 - Increase platelet production
- Splenectomy
 - Indicated if patients do not respond to medical management
 - 2/3 achieve sustained remission

Thrombotic Thrombocytopenic Purpura (TTP)

Interprofessional Care

- Treat underlying disorder/remove cause
- Plasmapheresis
- Corticosteroids
- Immunosuppressive therapy
 - Rituximab, cyclosporine, or cyclophosphamide
- Splenectomy considered
- Platelet administration usually contraindicated

Heparin-Induced Thrombocytopenia (HIT)

Interprofessional Care

- Discontinue all forms of Heparin!
 - Note clearly on medical record
- Different anticoagulant prn
- For severe clotting
 - Plasmapheresis
 - Protamine Sulfate
 - Stop Heparin effect
 - Thrombolytic Agents
 - Destroy clots
 - Surgery
 - Remove clots

Nursing Management

Thrombocytopenia

- Nursing Implementation
 - Detailed head to toe assessment every shift
 - Any bleeding needs evaluation and treatment
 - Educate on injury prevention!
 - If sub-q injections unavoidable, use small-gauge needles use small-gauge needles and application of pressure or ice packs after
 - Avoid IM injections (risk of bleeding)
 - Closely monitor the platelet count, coagulation studies, Hgb, and Hct.
 - Administer platelet transfusions
- Client Education/Home Care
 - Teach the client to avoid injury or trauma during these periods:
 - 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
 - Avoid NSAIDs or other OTC meds unless cleared by healthcare provider
 - Teach clinical signs and symptoms of bleeding to client (head-to-toe)

Thrombocytosis

- Excess circulating platelets
- May lead to clot formation
- Primary
 - Elevated platelet production in bone marrow
- Secondary
 - Due to: Cancer, infection, inflammation, splenectomy, polycythemia vera
- Clinical Manifestations
 - Asymptomatic
 - Clotting
- Diagnostic Studies
 - Plats >400,000 /mCL
 - Bone marrow aspiration
- Collaborative Care
 - Asymptomatic and stable – monitor
 - Treat underlying condition
 - Aspirin to prevent clots
 - Meds to suppress platelet production
 - Plateletpheresis

Clinical Relevance

Top 2 Patient Problems (Nursing Diagnoses) for patient with Thrombocytopenia?

1)

2)

Goal/EO for (1) Patient Problem?

1)

3 Nursing Interventions that will help your patient meet the goal.

1)

2)

3)