Objectives

- Review important aspects of clotting system
- Describe problems associated with clotting tendencies
- Identify conditions associated with increased clotting
Increased risk for thrombosis
  ◦ Especially on high risk situations
Spontaneous thrombosis
Thrombosis at earlier age
Pregnancy related complications
May be acquired or congenital
Thrombus

- Formation of clot at site
- Increased under certain conditions
  - Obesity
  - Immobility
  - Trauma
  - Neoplasm
  - Pregnancy
- Anticoagulant deficiencies
- Antiphospholipid syndrome
- Heparin induced thrombocytopenia
Emboli

- Preformed collection of tissue or debris travels through circulation

- Collection
  - Blood clot
  - Atherosclerotic debris
  - Vegetations from endocarditis
Inherited Anticoagulation factor deficiency

- Factor V von Leiden
- Protein C deficiency
- Protein S deficiency
- Antithrombin III deficiency
- Hyperhomocystinemia (HHS)
Acquired thrombophilia

- Antiphospholipid antibody syndrome
- Hyperhomocystinemia
- Pregnancy
- Cancer
- Inflammatory bowel disease
- Birth control pills
Antiphospholipid syndrome

- Elevated Lupus antibody
- Hypercoagulability
- Pregnancy complications
  - Miscarriage
  - Pre-eclampsia
  - DVT
Platelets

- Arachidonic acid → Thromboxane TxA₂ → Aggregation
- Prostacyclin PGI₂ → Antiphospholipid antibodies
- Antiphospholipid antibodies
- Thrombomodulin
- Thrombin
- Protein C → Activation → Coagulation
- Va, VIIIa → Inactive
- Protein S

Vascular endothelium
Hyperhomocystinemia

- **Congenital**
  - In severe form associated with mental retardation, early atherosclerosis, and thrombophilia

- **Acquired**
  - Decreased folate, B12, B6 intake
  - Smoking
  - Excessive coffee drinking
  - Pregnancy
  - Advancing age
  - Gender
  - Meds: methotrexate, cyclosporine, steroids, some anticonvulsants

- **Combined**
Hyperhomocystinemia

- Increased risk for DVT
- Pregnancy
  - Neural tube defects
  - Pre-eclampsia
  - Pregnancy loss
  - Placental abruption