

Unit 7: Hematology
Chapter 33 & 34
ONLINE CONTENT (2H)

Complete the worksheet and submit in the Unit 7: Hematology dropbox by March 17, 2025 at 0800. Please be sure to bring a copy to class on March 17, 2025.

Table 1	Iron Deficiency Anemia	Thalassemia	Cobalamin (Vitamin B₁₂) Deficiency	Folic Acid Deficiency
Etiology	May develop from inadequate diet intake, malabsorption, blood loss or hemolysis	Group of diseases from inadequate production of normal hgb due to an absent globulin protein	Gastric mucosa doesn't produce IF. At risk patients include GI surgery, chrons disease, ileitis, celiac, or diverticula of small intestine	Folic acid needed for DNA synthesis leading to RBC formation and maturation
Clinical Manifestations	Early stages may not have any S/S. Pallor is most common, along with glossitis, cheilitis and headache, paresthesia, burning sensation of tongue.	Pallor with general s/s of anemia Jaundiced, splenomegaly, hepatomegaly and cardiomyopathy, pulmonary HTN, thrombosis	Tissue hypoxia, sore, red beefy tongue, anorexia, nausea, vomiting, abd pain, weakness and paresthesia of feet and hands	Cirrhosis, esophageal varices, gi problems, neurologic symptoms
Diagnostic Studies	Lab values, occult stool, endoscopy, colonoscopy, bone marrow biopsy	Lab values: decreased hgb, increased bilirubin	Lab values show deficiency Rbcs appear large and abnormally shaped	Serum folate will be low
Drug Therapy	Iron supplements with vitamin C are best treatment	Blood transfusions or exchange transfusions along with chelating agents that bind iron. Hematopoietic stem cell transplant only cure	Parenteral B12 or intranasal cyanocobalamin for life	Replacement therapy 1-5 mg/day & eat rich folic acid foods
Nursing Management	Treat underlying cause & treat symptoms Patient education, monitor labs, ensure patient has follow up appts	Monitor liver, heart, and lungs and provide treatment as needed	Assess neurologic problems Reduce risk of injury Treat symptoms	Correct cause, educate patient, monitor labs

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Table 2	Anemia of Chronic Disease	Aplastic Anemia	Acute Anemia due to Blood Loss	Chronic Anemia due to Blood Loss
Etiology	1-2 months of disease activity caused by cancer, autoimmune and infectious disorders, HF, chronic inflammation Underproduction of RBCs	Patient has peripheral blood pancytopenia and hypocellular bone marrow due to autoimmune activity	Occurs with sudden blood loss, can lead to hypovolemic shock, RBCs ability to carry O ₂ will be decreased	Usually due to depleted iron stores Can be caused by hemolytic anemia RBCs normal but external factors causing damage
Clinical Manifestations	Bleeding episodes, underproduction of RBCs and RBCs usually normocytic, normochromic, hypoproliferative	Can happen abruptly, fatigue, dyspnea, cardiovascular and cerebral responses	HGB and HCT values Postural hypotension, numbness and pain in lower extremities, major complication is shock	General manifestations of anemia with jaundice, spleen and liver enlargement
Diagnostic Studies	Serum ferritin will be high Normal cobalamin and folate	Lab values: rbc, wbc, and platelets all decreased Bone marrow biopsy	Lab values will remain normal for a few days then reflect the disease. RBC, HGB and HCT will all be low	Increased RBC Increased bilirubin
Drug Therapy	Correct underlying problem, blood transfusions, EPO therapy	EPO therapy, blood transfusions	Replace blood loss, promote coagulation and stop bleeding	Iron supplements
Nursing Management	Treat underlying cause & educate patient Protect from injury	Neutropenic precautions Protect from injury Treat cause & monitor labs	Assess pain frequently Monitor for bleeding Manage symptoms Educate patient	Maintain renal function Manage symptoms Educate patient

Table 3	Acquired Hemolytic Anemia	Hemochromatosis	Polycythemia
Etiology	Hemolysis of RBCs from extrinsic factors such as physical destruction, antibody reactions and infectious agents	Iron overload disorder by increased intestinal iron absorption	Production and presence of increased numbers of RBCs, blood circulation impaired because of increased blood viscosity and volume
Clinical Manifestations	Fatigue and weakness, pallor, jaundice enlarged spleen and liver	Fatigue, arthralgia, impotence, abd pain and weight loss, liver enlargement and cirrhosis	HTN caused by hypervolemia and hyperviscosity Vertigo, dizziness, tinnitus, visual changes, generalized itching

Diagnostic Studies	Decreased rbc Increased bilirubin Increased Ferritin	Lab values show high serum iron, TIBC and serum ferritin MRI to measure liver and cardiac iron	High HGB, HCT and RBC mass bone marrow shows hypercellularity of RBCs, WBCs and platelets high WBC's
Drug Therapy	Aggressive hydration Electrolyte replacement Corticosteroids Blood products Removing spleen Folate replacement	Remove excess iron so remove 500 mL blood per week until iron stores depleted Maintain iron levels within normal	Reduce blood volume and viscosity and bone marrow activity Phlebotomy every 2-3 months 500 mL each time Low dose aspirin
Nursing Management	Aggressive hydration Administer medication therapy as needed Manage symptoms Educate patient	Early diagnosis and treatment Manage symptoms Educate patient	Assist with phlebotomy Assess I & O Assess nutrition status and educate patient

In order to receive full credit (2H class time) for this assignment, it must be completed in its entirety by the due date/time assigned. Any assignment not completed in its entirety by the due date and time will result in missed class time and must be completed by the end of the semester to pass the course.