

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

Complete the worksheet and submit in the Unit 7: Hematology dropbox by March 18, 2024 at 0800. Please be sure to bring a copy to class on March 18, 2024.

Table 1	Iron Deficiency Anemia	Thalassemia	Cobalamin (Vitamin B₁₂) Deficiency	Folic Acid Deficiency
Etiology	Blood loss decreased iron in normal body stores of iron and hemoglobin, inadequate storage of iron.	Commonly caused by two missing alpha globin genes. Inherited mutations in the DNA of cells that make hemoglobin. (Beta-globin gene)	Inability to use vitamin B12. Absorption is impaired and has poor oxygen carrying capacity. Deformed RBC's.	Inadequate dietary intake increased folic acid absorption by the jejunum, elevated PH, congenital deficiencies of folate metabolism, alcoholism, pregnancy, hemolytic anemia, and dialysis.
Clinical Manifestations	Some are asymptomatic. Others, leg cramps, fatigue, exercise intolerance, craving for ice or cold foods. Sclera-inspect for pearly white or bluish. Brittle fingernails or hair. Breathlessness or Rapid breathing.	Fatigue, weakness, failure to thrive, iron overload, pallor, SOB, jaundice, facial deformities, slow growth, abdominal swelling, dark urine.	Elicit a complete medical history. Ask about numbness, tingling, lack of coordination, memory lapse, irritability, and paranoia. Central nervous system findings are a hallmark. May present with premature gray or white hair, pale lips, beefy red tongue, and weight loss. Enlarged spleen or liver. Neurological symptoms.	Painful, beefy red tongue. Anorexia, cognitive impairment, depression, and dementia. Also pt. can show similar manifestations as B12 deficiency.
Diagnostic Studies	Bone marrow biopsy, CBC, Serum ferritin, Serum iron.	CBC, hemoglobin analysis, genetic testing, iron studies, ECG.	RBC count, B12 level, Peripheral blood smear, Serum antibodies to intrinsic factor, CBC, Bilirubin, Evaluation of gastric secretions.	CBC, Peripheral smear.
Drug Therapy	Oral-Ferrous Sulfate IV/IM-Iron dextran	Vitamin, iron reducer, blood	B12-IM, SC. Other-Multivitamin,	Supplemental folic acid, B12.

	complex.	transfusions, or donor stem-cell transplant. Antipyretics, Antihistamines, chelating agents, corticosteroids, Vaccines.	antidysrhythmic, cardiotonic, diuretics, or vasodilators.	
Nursing Management	Well-balanced diet rich in both iron and iron supplements. Importance of meticulous wound care, hand hygiene, and dental check-ups. Report signs of infection such as fever or chills to PCP. Educate on periods of rest and bleeding. Avoid milk and antacids. Stools change color. Iron-rich foods.	Keep pt. active while having frequent rest periods. Educate on blood transfusions. Adherence to therapy. Reduction of exposure to infection. Reduce risk of bleeding.	Correct underlying cause, undisturbed rest periods, prevent injury, assistance with ADL's, alternative means to communication r/t sore mouth/gums. Encourage fluid intake. Avoid extreme temperatures. Referrals necessary.	Eat a diet rich in green leafy vegetables. Abstain from alcohol. Dietary counseling, Education for pregnant women. Focus is on prevention.

Table 2	Anemia of Chronic Disease	Aplastic Anemia	Acute Anemia due to Blood Loss	Chronic Anemia due to Blood Loss
Etiology	Presence of a chronic inflammatory condition-infection, autoimmune disease, kidney disease or cancer. Low reticulocyte count and -cytic anemia.	Bone Marrow failure. Decrease in all formed elements of peripheral blood and its marrow. Acquired-Injury or damage to cells. Auto-immune response. Also, ATB's, anti-convulsant, and other toxic agents.	Sudden reduction in RBC's due to hemolysis or hemorrhage.	Results from stomach ulcer, endometriosis, cancer, tumor, GI conditions. May also be from inflammation and low levels of EPO.
Clinical Manifestations	Infection, obesity, fatigue, SOB, pallor, diaphoresis, dizziness, headaches.	Headache, palpitations, SOB, fatigue, Pallor or Jaundice. Ecchymosis.	SOB, hypotension, weakness, dizziness, fatigue, irregular heartbeat, cold hands/feet.	SOB, pale clammy skin, tachycardia, fatigue, irritability, chest pain.
	Blood tests-HGB, Iron, Serum Ferritin level,	CBC with Diff., platelets, serum	CBC, stool, and urine, HGB,	CBC, blood smear, transferrin, ferritin.

Diagnostic Studies	Bone Marrow Biopsy	iron, coagulation tests, bone marrow biopsy, BUN, creatinine, MRI	hematocrit.	
Drug Therapy	Blood transfusion, EPO therapy, Iron supplements.	Immunosuppressive therapy, Drug causing agent withdrawal. Corticosteroids, Antithymocyte globulin, Cyclosporin. ATB's, antifungals/virals. Bone marrow stimulants.	Packed RBC's, fluids, oxygen, and possibly iron.	ESA's, iron supplements, B12, folic acid, possible hemodialysis, blood transfusions.
Nursing Management	Teach about a healthy diet. Exercise, and lifestyle changes.	Frequent rest periods. Teach pt. to avoid exposure to infections. Report all episodes of fever. Prevent trauma. Maintain good nutritional intake. Soft toothbrush. Avoid enemas and rectal thermometers.	Education on medication compliance, avoidance of triggers-alcohol, NSAIDS, and understanding of underlying cause for prevention-if possible.	Healthy eating and nutrition, pain control, educate on need for blood transfusions.

Table 3	Acquired Hemolytic Anemia	Hemochromatosis	Polycythemia
Etiology	Production of antibodies from disorders, burns, or medications mediates red cell destruction.	Genetic condition in which the body stores too much iron. Can also be secondary from medical treatments and conditions.	Cause unknown. Disease caused by a genetic mutation that affects intracellular signaling, stem cell hypersensitivity, or mutations related to erythropoietin production.
Clinical Manifestations	Cardiovascular symptoms (dyspnea, angina, tachycardia), malaise, dizziness, fever, abdominal pain, pallor, jaundice. Dark urine, renal failure.	Fatigue, general weakness heart palpitations, pain in the knuckles of the pointer and middle fingers, joint pain, stomach pain, unexplained weight loss.	Headache, Diaphoresis, Tinnitus, Visual Changes, Dizziness. Red or purple tinge. Enlarged liver or spleen. Spoon or clubbed fingers. Bleeding.
Diagnostic Studies	Blood tests, Coombs test, LDH, bilirubin, AST, bone marrow	Blood tests, genetic testing, liver biopsy, MRI.	Bone marrow biopsy, CBC, B12, US or CT to evaluate pt.

Drug Therapy	Blood transfusion, Corticosteroids, Tx to strengthen immune system.	Phlebotomy. Chelation agents.	Chemotherapy, Phlebotomies, Rehydration, Antimetabolites, JAK1/JAK2 kinase inhibitors, Aspirin, Allopurinol, Antihistamines.
Nursing Management	Provide adequate O2, manage fatigue and activity intolerance, identify nutritional deficiencies, and monitor blood transfusions.	Diet management, iron chelation therapy, therapeutic phlebotomy, foods to avoid, limit alcohol,	Reduce the risk of thrombosis, prevent bleeding. Frequent periods of rest yet maintain mobility. Safe environment. Avoid crossing legs, understand medications, diet and fluid therapy, genetic counseling.

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.