

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	Inadequate diet, malabsorption, blood loss, hemolysis	Inadequate production of normal Hgb causing decrease RBC production	Absence of intrinsic factor that is required for cobalamin absorption	Inadequate diet, drugs interfering with absorption, increased requirement (pregnancy), malabsorption syndromes (Chrohn's)
Clinical Manifestations	Pallor, glossitis (inflammation of tongue), cheilitis (inflammation of lips), headache, paresthesia, burning sensation of tongue	Often asymptomatic with mild to moderate anemia, microcytosis (small cells), hypochromia (pale cells), mild splenomegaly, bronze skin, and bone marrow hyperplasia	Sore, red, beefy, shiny tongue; anorexia, nausea, vomiting, abdominal pain, weakness, paresthesia of feet and hands, reduced senses, ataxia, muscle weakness, impaired cognition	Stomatitis, cheilosis, dysphagia, flatulence, diarrhea, thiamine deficiency
Diagnostic Studies	Decreased Hgb, Hct, MCV, Serum Iron.	Decreased Hgb, Hct, TIBC, transferrin, folate. Increased reticulocytes, serum iron, bilirubin	Decreased Hgb, Hct, Serum B12. Increased MCV, serum iron, transferrin, ferritin, bilirubin	Decreased Hgb, Hct, reticulocytes, folate. Increased MCV, serum iron, transferrin, ferritin, bilirubin
Drug Therapy	Oral iron Packed RBC IV/IM iron solution	Blood transfusions, oral deferasirox, deferi-prone, IV/SubQ deferoxamine	Parental vitamin B12, intranasal cyanocobalamin. Typical treatment is daily cobalamin IM for 2 weeks, then weekly until Hgb is normal, then monthly	Replacement therapy 1-5mg/day by mouth

Nursing Management	Treat underlying problem: replace iron, teach pt which foods are good sources, supplements, packed RBC infusion	Monitor liver, heart, and lung function. Monitor hemoglobin levels.	Monitor Hgb levels, protect pt from decreased sensitivity to heat and pain, falls, burns, trauma	Teach pt to eat foods high in folic acid. Monitor folic acid levels and monitor underlying condition
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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	Underproduction of RBCs and mild shortening of RBC survival, usually mild unless underlying condition is left untreated	Cytotoxic T cells target and destroy pt's own hematopoietic stem cells. Other causes: toxic injury to bone marrow from stem cell defect	Occurs with sudden bleeding. Trauma, surgery complications, disruption in vascular integrity	Bleeding ulcer, hemorrhoids, menstrual, postmenopausal blood loss due to depleted iron stores
Clinical Manifestations	Increased HR, pulse pressure, angina, HF, MI, blurred vision, anorexia, hepatomegaly, sore mouth, lethargy, glossitis (painful tongue), tachycardia, headache, vertigo, pallor, jaundice, itching	Manifest abruptly or over weeks to months. Vary in severity. Fatigue, dyspnea, neutropenia, septic shock, death, bleeding	Volume loss: 10%-none or rare syncope, 20%-increased HR with exercise and slight postural hypotension, 30% normal supine BP and pulse at rest and increasing at postural hypotension, 40%-thready pulse, cold/clammy skin, air hunger, 50%-shock, lactic acidosis	Increased HR, pulse pressure, angina, HF, MI, blurred vision, anorexia, hepatomegaly, sore mouth, lethargy, glossitis (painful tongue), tachycardia, headache, vertigo, pallor, jaundice, itching
Diagnostic Studies	Decreased Hgb, Hct, MCV, reticulocytes, serum iron, TIBC, transferrin. Increased ferritin.	Decreased Hgb, Hct, reticulocytes. Increased MCV, serum iron, TIBC	Decreased Hgb, Hct, MCV. Increased reticulocytes	Decreased Hgb, Hct, serum iron, TIBC, bilirubin. Increased reticulocytes
Drug Therapy	Treat underlying problem. If anemia is severe, blood transfusions are available.	Cyclophosphamide, alemtuzumab, eltrombopag, blood transfusions, immunosuppressants	IV fluids, blood transfusions, iron supplements	Iron supplements
Nursing Management	Monitor Hgb levels, monitor underlying condition and the affect it has on pt	Removing and identifying causative agent and providing supportive cause. Blood transfusions,	Replace blood volume to prevent shock, promote coagulation to prevent further	Identifying the cause, stopping the bleeding

		immunosuppressive therapy	bleeding, and find source of bleeding to stop the blood loss	
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Table 3	Acquired Hemolytic Anemia	Hemochromatosis	Polycythemia
Etiology	Destruction of hemolysis of RBCs at a rate that exceeds production (results from defects in RBCs themselves)	Increased intestinal iron absorption usually caused by a genetic defect	Presence and production of increased numbers of RBCs and cause increased viscosity and volume of blood
Clinical Manifestations	Increased HR, pulse pressure, angina, HF, MI, blurred vision, anorexia, hepatomegaly, sore mouth, lethargy, glossitis (painful tongue), tachycardia, headache, vertigo, pallor, jaundice, itching	Symptoms usually do not develop until 40 years old in men and 50 in woman. Fatigue, arthralgia, impotence, abdominal pain, weight loss, liver enlargement, cirrhosis, bronze skin, heart problems, testicular atrophy	HTN, headache, vertigo, dizziness, tinnitus, visual changes, itching (usually after hot bath), paresthesia, erythromelalgia, angina, HF, intermittent claudication, thrombophlebitis
Diagnostic Studies	Decreased Hgb, Hct, TIBC. Increased MCV, reticulocytes, serum iron, ferritin, bilirubin	Increased serum iron, TIBC, and serum ferritin. Testing for genetic mutations confirms diagnosis.	Increased Hgb, Hct, RBC mass. Bone marrow examination showing hypercellularity of RBCs, WBCs, and platelets. Presence of mutation
Drug Therapy	Blood transfusions, dialysis, fluids	Remove excess iron by removing 500 mL of blood each week until iron stores are depleted. Then blood is removed less often.	Remove 300-500 mL of blood every few days to reduce blood viscosity. Then followed by every few months.
Nursing Management	Monitor kidney function, monitor RBCs	Monitor liver function, kidney function, heart function, iron levels, blood levels	Monitor blood levels, iron levels, electrolyte levels

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.