

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 B ₁₂) Deficiency	Folic Acid Deficiency
Etiology	blood loss usually GI	inadequate production of Hgb which ↓ RBC production d/t absent or ↓ genetic	gastric myxoid or decrease in H ₂ O secretion because of either gastric mucosal atrophy or autoimmune destruction of parietal cells familial diet deficiency intestinal malabsorption (celiac)	stomatitis, diet hemod dialysis, preg, malabsorption syndrome, meds (metformin)
Clinical Manifestations	pallor, burning of tongue, glossitis, cheilitis, fatigue, h/a, paresthesia, SOB/dyspnea	growth & development deficits, pale, asymptomatic jaundice, mild/mod anemia, splenomegaly, hepatomegaly, cardiomyopathy	sore/red/bumpy/shiny tongue, anorexia, abd. pain, weakness, ataxia, impaired cognition, paresthesia of feet/hands, vibration + position senses, sensitivity heat/pain	same as, cirrhosis, esophageal varices, stomatitis, cheilosis, diarrhea, glossitis, thiamine deficiency
Diagnostic Studies	labs (Hgb, Hct, RBC, Fe, stool occu, folate, ferritin, B ₁₂), EGD, colonoscopy, bone marrow bx	Hgb/Hct, reticulocytes, B ₁₂ , Fe, ferritin, TIBC, bilirubin, transferrin, folate	B ₁₂ levels, RBC - large + abnormal shapes, folate, anti-IF antibodies, MMA, homocysteine	folate low (5-25 normal), normal B ₁₂
Drug Therapy	Fe + Vit C together	deferasirox po, deferoxamine, Pexseral, Reblozyl, hematopoietic stem cell transplant	IM B ₁₂ 1000 Dns	folic acid 1-5 mg/day po, food high in folic acid
Nursing Management	Fe/hr, lab work, vit C, monitor Hgb + RBC, track for IM, IV infusion, monitor liver prob	monitor liver & lungs, selenium, Fe chelation therapy, gene trans, cure therapy	assess neuro + injury (prior), physical therapy	correct diet, ETOA ect, po folic acid + B ₁

Table 2	Anemia of Chronic Disease	Aplastic Anemia	Acute Anemia due to Blood Loss	Chronic Anemia due to Blood Loss
Etiology	CA, autoimmune, HIV, hep, infections, db, malaria, HF, chronic inflam, bleeding episodes, underproduction of RBC + life	peripheral blood pancytopenia (RBC, WBC, platelets), hypocellular bone marrow, autoimmune activity by auto reactive T lymphocytes, toxic injury to bone marrow stem cells or inherited	blood vessel rupture, trauma, splenic sequestration, surgery complications, S/S	gastritis, menstrual flow, hemorrhoids, depleted Fe stores
Clinical Manifestations	high ferritin + ↑ Fe stores, normal folate + B ₁₂ levels, SOB, pallor, fatigue, dyspnea	pancytopenia, hypocellular bone marrow, fatal bleedings, sepsis + cerebral response, fatigue, septic shock, death, retchiliae, bruising, nose bleed	hypovolemic shock, ↓ RBC, S/S more important than labs, syncope, ↑ CO, ↑ already SOB, orthostasis, air hunger, cool/cold clammy skin, ↑ RR, lactic acidosis, pain	same as Fe deficiency

Diagnostic Studies	Ferritin Fe Plate B12 Hbs	↓ High WBC platelets RBC-normal ↓ reticulocyte Fe → TIBC (total iron binding capacity) low narrow def. aspirate	Normal values when 2-3 d later ↓ RBC, Hgb, Hct	ID bleeding source & labs
Drug Therapy	Blood transfusions EPO therapy (renal, CH, ...)	EPO blood transfusion HSCT graft immunosuppressive therapy EATG + cyclosporine thromboplas Fe blockade	whole blood platelets plasma cryoprecipitate NS, LR Fe → IV	Fe supplements
Nursing Management	correct problem monitor transfusion reaction monitor thrombocytopenia & death	supportive care prevent complication from infection + bleeding	prevent shock replace blood promote coagulation prevent further bleed stop the bleed monitor blood loss	ID source supportive med edu

Table 3	Acquired Hemolytic Anemia	Hemochromatosis	Polycythemia
Etiology	hemolysis of RBC from physical destruction antibody reaction infections agents & toxins	Fe overload d/t ↑ intestinal Fe absorption -genetic sideroblastic anemia liver disease	production & presence of ↑ types - polycythemia vera - ↑ production RBC, WBC, platelets genetics = hypoxia driven - high altitude lung disease tissue hypoxia DNA mutations adrenal hypersecretion
Clinical Manifestations	↑ P jaundice dark urine fever weakness all 2/4 confusion & murmur enlarged spleen - liver ↓ activity	Arthralgia arthralgia impotence abd pain weight loss liver enlargement cirrhosis DM skin bronzing	splenomegaly hepatomegaly hypertension 60% itching & failure ↑ blood viscosity & volume w/ vertigo dizziness erythromelalgia tinnitus visual angina thrombophlebitis
Diagnostic Studies	H+H RBC BUN Creatinine	Fe ↑ TIBC ferritin genetic mutations MRI - measure liver & iron Liver Bx	RBC H+H WBC bone marrow exam platelets gene mutations EPO level alk phos uric acid cobalamin CT/US - ↓ spleen/liver size basophils/neutrophils
Drug Therapy	IV fluids w/ LR electrolyte replacement corticosteroids blood products folate immunosuppressants	Fe chelating drugs deferoxamine - IV deferasirox + deferiprone - PO	ASA myelosuppressive agents - Ruxolitinib - hydroxyurea - pegylated IFN alpha-2a
Nursing Management	supportive care monitor for hemolytic crisis hydration electrolyte replacement I/O IV therapy Fe ↓ from splenectomy	removing blood edu w/ vit C w/ Fe supplements D uncooked seafood + Fe-rich foods organ + - like normal	phlebotomy I/O avoid overload w/ dehydration edu meds monitor nutrition

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.