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Unit 7: Hematology
Chapter 29 & 30
ONLINE CONTENT (1.5 H)

Complete the worksheet and submit in the Unit 7: Hematology dropbox by March 20, 2023 at 0800. Please be sure to bring a copy to class on March 20, 2023.

Table 1	**Iron Deficiency Anemia**	**Thalassemia**	**Cobalamin (Vitamin B_{12}) Deficiency**	**Folic Acid Deficiency**
Etiology	It is a nutritional disorder. Can develop because of poor diet intake, hemolysis, or blood loss	Group of diseases that cause inadequate production of normal hemoglobin. It is caused by an absent and or reduced globin protein. There is two kinds minor and major.	Most commonly caused by pernicious anemia. Lack of intrinsic factor does not allow for absorption of Cobalamin.	The deficiency of folic acid which is needed for RBC formation.
Clinical Manifestations	May not have any symptoms. Pallor, glossitis, cheilitis, headache, burning feeling of the tongue or paresthesia.	Patients are asymptomatic. The patient will have anemia with small cells, that are pale in color. They might have splenomegaly, bronzed color of the skin and bone marrow hyperplasia.	Sore, red, beefy, and or shiny tongue, anorexia, nausea, vomiting and abdominal pain. Weakness, paresthesia of feet and hands, confusion and or dementia.	GI problems may develop such as stomatitis, cheilosis, dysphagia, flatulence, diarrhea,. There is also thiamine deficiency.
Diagnostic Studies	Blood testing will show low Hgb/Hct, MCV, decreased serum iron, increased TIBC, decreased Ferritin or Transferrin.	Blood testing will show decreased Hgb/Hct, normal or decreased MCV, Increased reticulocytes, decreased TIBC, Transferrin or ferritin. Increased bilirubin.	The red blood cells can appear big and abnormal in shape. There will be a decrease in Hgb or Hct. There will be an increase MCV. Decreased reticulocyte. Increased serum iron.	Decreased Hgb/Hct, increased mcv, decreased or normal reticulocytes, slight increase of transferrin or ferritin. Normal or slight increase of bilirubin. The serum folate level will be low.
Drug Therapy	Give iron supplementation	Minor does not require treatment. The body will adapt. Major will need blood transfusions. Also Defasirox, deferiprone, sub q	Cobalamin administration via parenteral route.	Replacement of folic acid.

		deferoxamine.		
Nursing Management	Determine the cause of the iron deficiency (i.e. diet or alcohol use). Educate on foods high in iron. Iron supplementation, or blood transfusions	The patient may need a splenectomy. Monitoring hepatic, lung and heart functions. Administering medications and blood transfusions.	Administration of medications to correct the deficiency. In addition assess for neurological difficulties and reduce the risk for injury.	Teach the patient to eat foods high in folic acid. Find the reason for the deficiency.

Table 2	**Anemia of Chronic Disease**	**Aplastic Anemia**	**Acute Anemia due to blood loss**	**Chronic Anemia due to blood loss**
Etiology	Also called anemia of inflammation. It is the underproduction of RBCs and short RBC survival.	There is a decrease in all blood cell types. It is caused by underactive T lymphocytes.	There is a hemorrhage causing blood loss.	Caused by bleeding ulcer, hemorrhoids, menstrual and postmenopausal blood loss.
Clinical Manifestations	Depends on the underlying disorder	Can be mild to severe, abrupt or over time. There will be fatigue and dyspnea as well as petechiae, bruising, nosebleeds.	Manifestations are based on amount of blood loss. These symptoms can range from none or vasovagal syndrome to Tachycardia, postural hypotension, to reduced cardiac output, air hunger, thready pulse, cold and clammy skin, shock and even death.	Depends on the severity and amount of blood loss and from where it is lost.
Diagnostic Studies	Blood testing will show high serum ferritin and increased iron stores.	Hemoglobin, hematocrit, white blood cells, platelets will all be decreased. Reticulocyte count will be low. Bone marrow biopsy, aspiration, may also be done to test.	Hemoglobin, and hematocrit levels and RBC's will be low.	Decreased iron stores, decreased hemoglobin, hematocrit, RBC.
Drug Therapy	Depends on the cause of the underlying	ATG, steroids, cyclosporine,	IV fluids such as dextran, hetastarch,	Dependent on the cause of the blood

	disorder.	cyclophosphamaide. Supportive blood transfusions.	albumin, LR, PRBCs	loss and treat based on severity of symptoms.
Nursing Management	Want to correct the underlying disorder.	Need to remove causative agent. Providing supportive care until it is reversed. Need to protect from bleeding and infection.	Replace the fluid volume to prevent shock. Finding the source of the hemorrhage and stopping blood loss. This will include the replacement of IV fluids or blood products. Monitoring for blood loss and signs/ symptoms of shock.	Monitor patients for signs and symptoms of shock. Treat the blood loss with IV fluids or blood loss.

Table 3	**Acquired Hemolytic Anemia**	**Hemochromatosis**	**Polycythemia**
Etiology	The RBC are normal but there are extrinsic factors causing damage.	Iron overload. It can be caused by genetic defect or disease.	Production of excess RBCs. This increase can increase the viscosity of blood.
Clinical Manifestations	Tachycardia, pallor, lethargy, headache all the normal signs and symptoms of anemia. Will be jaundice from high rate of RBC breakdown.	Symptoms do not develop until after age 40- 50 depending on gender. Early symptoms include fatigue, arthralgia, impotence, abdominal pain and weight loss. Later symptoms include cirrhosis and enlargement of liver.	Headache, vertigo, dizziness, tinnitus, visual changes and generalized pruritus. Can have GI symptoms.
Diagnostic Studies	Lab tests to check blood including a CBC. You want to also check liver function since the breakdown of RBC can be damaging to liver.	High serum iron, TIBC, and Ferritin. Need to test for genetic mutations and a liver biopsy can show the damage from iron deposits.	High hemoglobin and RBC count and normal to low EPO level and High WBC count with neutrophilia and basophilia. High platelet count and dysfunction. High levels of uric acid, leukocyte alkaline phosphatase, cobalamin. High histamine levels.
Drug Therapy	Corticosteroids,	Iron chelating agents such as deferoxamine. Blood removal.	Myelosupressive agents such as hydroxyurea, busulfan, and chlorambcil.
		Remove excess iron from	Removal of excess blood to

Nursing Management	Correction of whatever is causing the acquired hemolytic anemia.	the body and minimize symptoms. Education on dieting and supplementation avoidance. Treatment of underlying conditions such as diabetes and heart failure.	keep blood viscosity normal. Assess fluid intake and output and avoiding fluid overload/ fluid deficit. Teach patient about medication compliance and side effects. Assess nutritional status.