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	May develop from inadequate diet intake, malabsorption, blood loss, or hemolysis.	A group of diseases involving inadequate production of normal Hgb, which decreases RBC production.	When your body is not getting enough/absorbing enough Vit B12 to function properly.	Loss of folic acid that is needed for DNA synthesis leading to RBC formation and maturation.
Clinical Manifestations	-Pallor -Glossitis -Cheilitis -Headache -Paresthesia -Burning sensation of the tongue	-mild splenomegaly -bronzed skin color -bone marrow hyperplasia -jaundice -cranium thickening	-sore, red, beefy, shiny tongue -anorexia -N/V -abdominal pain -weakness -ataxia -muscle weakness -impaired cognition	-cirrhosis -esophageal varices -stomatitis -cheilosis -dysphagia -flatulence -diarrhea
Diagnostic Studies	-Stool occult blood test -Endoscopy -Colonoscopy -Bone marrow biopsy	-CBC -Hgb/Hct -MCV -TIBC -Transferrin -Ferritin -Splenectomy	-CBC -folate levels -cobalamin levels -MMA -serum homocysteine	-Hgb/Hct -MCV -reticulocytes -serum iron -transferrin -ferritin -folate
Drug Therapy	-Oral: ferrous sulfate or ferrous gluconate -IM or IV: iron dextran, sodium ferrous gluconate, iron sucrose	-Oral: defersirox or deferiprone -IV or subq: deferoxamine -Subq: luspatercept-aamt	-cobalamin administration -parenteral Vit B12 -intranasal cyanocobalamin -cobalamin IM for 2 weeks	-replacement therapy (1-5 mg/day PO)
Nursing Management	-Teach the pt good sources of iron (lean beef, turkey, dark green leafy vegetables, etc) -IV iron supplements -Packed RBC transfusion -Identify and treat underlying cause	-Blood transfusions -Drug therapy -Chelating agents -monitor liver, hear, and lung function -HSCT	-assess for neurologic problems -reduce the risk of injury from decreased sensitivity to heat and pain -protect from falls, burns, and trauma -physical therapy	- educate on eating foods high in folic acid (green leafy vegetables, orange juice, avocado, peanuts) -educate on neurological symptoms

Table 2	Anemia of Chronic Disease	Aplastic Anemia	Acute Anemia due to Blood Loss	Chronic Anemia due to Blood Loss
Etiology	A deficiency in the number of RBC, the quantity or quality of Hgb and volume of packed RBC.	Due to autoimmune activity by autoreactive T lymphocytes. The cytotoxic T cells target and destroy the patient's own hematopoietic stem cells.	Occurs with sudden bleeding from trauma, surgery complications, and problems that disrupt vascular integrity.	Condition caused by the destruction or hemolysis of RBCs at a rate that exceeds production
Clinical Manifestations	- pallor -jaundice - itching -increased HR -angina pectoris -headache -dizziness -fatigue	-fatigue -dyspnea -bleeding -petechiae -nosebleeds -neutropenia	10% - rare vasovagal syncope 20% - increased HR with exercise, slight postural hypotension 30% - postural hypotension, increased HR with exercise 40% - low BP and CO at rest, air hunger, rapid thready pulse and cold clammy skin 50% - shock, lactic acidosis, potential death	-jaundice -enlarged spleen -enlarged liver
Diagnostic Studies	-presence of chronic inflammatory condition such as infection, autoimmune disease, kidney disease, or cancer -CBC -CRP/ESR	-Hgb -WBC -platelet levels - reticulocyte -serum iron - TIBC -bone marrow biopsy	-RBC in 2-3 days - Hgb - Hct	-Hgb -Hct -MCV -Reticulocytes -Bilirubin
Drug Therapy	-iron supplements -blood transfusions	-immunosuppressive therapy with antithymocyte globulin and cyclosporine -oral eltrombopag -cyclophosphamide, alemtuzumab, or androgens	-packed RBC - IV fluids (0.9% NaCl, lactated ringers -whole blood -platelets -plasma -cryoprecipitate -iron supplements	-rituximab alone or in combination with bendamustine
Nursing Management	-treat the underlying cause -prevent further complications -educate on drug therapy	-early consideration of HSCT -prevent complications from infection and bleeding	-carefully monitor the blood loss from drainage tubes and dressings -implement appropriate actions -replace fluid and blood volumes -find the source of the bleed	-maintain renal function -avoid acute tubular necrosis

Table 3	Acquired Hemolytic Anemia	Hemochromatosis	Polycythemia
Etiology	Results from hemolysis of RBCs from extrinsic factors which include physical destruction, antibody reactions, and infectious agents and toxins	An iron overload disorder characterized by increased intestinal iron absorption. Accumulate iron at an increased rate.	A chronic myeloproliferative disorder that involves increased production not only of RBCs but also WBCs and platelets.
Clinical Manifestations	-symptoms caused from autoimmune antibody reactions	-fatigue -arthralagia -impotence -abdominal pain -weight loss -liver enlargement -cirrhosis	- headache -vertigo -dizziness -tinnitus -visual changes -generalized itching -angina -HF -intermittent claudication -painful burning and redness of the hands and feet
Diagnostic Studies	-eliminate causative agent	-serum iron -TIBC -serum ferritin -genetic mutations testing -MRI -liver biopsy	- Hgb -Hct -RBC -Bone marrow exam -low EPO level -WBC -platelet count
Drug Therapy	-corticosteroids -blood products -folate replacement -glucocorticoids -rituximab	-iron-chelating drugs -IV or subq deferoxamine	-myelosuppressive agents (hydroxyurea, busulfan) -ruxolitinib
Nursing Management	-be ready to institute appropriate emergency therapy (aggressive hydration and electrolyte replacement	-educate on diet changes (avoid Vit C and iron supplements, uncooked seafood and iron-rich foods) -early diagnosis and treatment	-phlebotomy -assess I & O -assess nutrition status -assess for complications

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.