Hemolytic Anemias: Membrane and Enzyme Defects
Learning Objectives

At the end of this unit, the student should be able to:

1. Discuss the treatment for hereditary spherocytosis.
2. Estimate the prognosis for a patient with hereditary elliptocytosis.
3. Describe the pathophysiology and recognize laboratory features associated with hereditary spherocytosis, hereditary elliptocytosis, and hereditary pyropoikilocytosis.
4. Describe the etiology, clinical features and lab findings of paroxysmal nocturnal hemoglobinuria.
5. State the confirmatory test for paroxysmal nocturnal hemoglobinuria.
6. Discuss the treatment protocol of paroxysmal nocturnal hemoglobinuria.
7. Explain the sugar water test and interpret its results.
8. Evaluate a clinical case study and determine the type of membrane disorder present by correlating clinical history and laboratory findings.
9. Identify the two main pathways by which erythrocytes catabolize glucose.
10. Explain the role of erythrocyte enzymes in maintaining the cell's integrity, and describe how deficiencies in these enzymes lead to anemia.
11. Identify the most common erythrocyte enzyme deficiency.
12. Recognize erythrocyte morphology in a Romanowsky-stained blood smear associated with G6PD deficiency.
13. Identify compounds that induce anemia in G6PD deficiency.
14. Describe the mechanism that results in Heinz Body formation.
15. Recognize and describe a Heinz body.
16. Recognize erythrocyte morphology in a Romanowsky-stained blood smear associated with pyruvate kinase deficiency.
17. Explain how a defect of pyruvate kinase can cause decreased cell energy.
18. List the functions of glutathione reductase or GSH.

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