

Anemia 2

Friday, October 31, 2014
12:12 PM

Learning Objectives:

- etiology, risk factors, symptoms, & treatment for the following anemias:
 - critical illness
 - sickle cell
 - G6PD

HEMOLYSIS - premature destruction of RBCs

	Risk Factors	Etiology (Causes)	Signs/Symptoms	Diagnosis	Tx
Critical Illness/ Blood Loss (hospitals)	- hospitalizations	- blood loss (sx, trauma) - sepsis (inflammation, cytokines) - phlebotomy (blood samples) - malnutrition	- heart issues - death - ischemia (brain, heart) - AKI, liver damage	↓ BP ↑ HR	- transfusion - improve symptoms & lab findings
Sickle Cell (recessive)	- black	- recessive - point mutation in Hb β -chain (Glu \rightarrow Val) - blocks circulation (clot) - premature destruction (10-20 days)	- onset: 4 months old - vessel occlusion (clot) - pain: (lungs, abs, bones/joints) - "crisis" - infarctions: - lung - liver/spleen (RBCs) - heart - kidneys - retina	- "heel-stick" newborn screening - ACS: pulmonary infiltrate + - dyspnea (SOB) - cough - fever - chest pain - hypoxia - pulmonary HTN - asplenia \rightarrow bacterial infections ↓ MVC ↑ BR	Prevention: - avoid high altitude & cold air - fluid intake - yearly eye exam - vaccinations (pneumonia, flu, meningitis)
G6PD (X-linked)	- black - males	- X-linked - ↓ G6PD \rightarrow premature destruction - fava beans (oxidative) - oxidative drugs - infections (streptococci, E.coli, flu, salmonella)	- onset: 24-72 hrs after trigger - duration: 4-7 days - HoTN - palpitations - abdominal pain (big spleen) - jaundice - dark urine	*varying degrees	Prevention: - avoid fava beans - avoid oxidative drugs

*inflammatory cytokines inhibit EPO synth

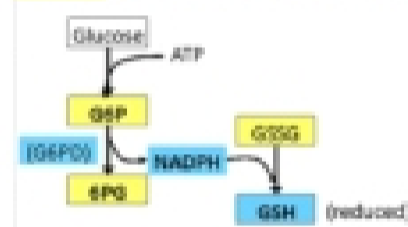
SICKLE CELLS - block circulation; sickling occurs when RBC is deoxygenated; premature destruction = 10-20 days

"HEEL-STICK" BLOOD TEST - newborn testing: required

SPLenic INJURY - usually asymp; due to low O_2 , congestion, functional asplenia

G6PD - enzyme for RBC metabolism; (NADP⁺ \rightarrow NADPH)

NADPH - protects cell from oxidative damage by keeping GSH in reduced form



Oxidative Drugs: (SAMPDR)

- sulfa
- aspirin
- nitrofurantoin
- phenazopyridine
- Dapsone
- Rasburicase