Neonatal Jaundice

Hyperbilirubinemia

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Neonatal Jaundice
What is Bilirubin?

- End product of catabolism of iron protoporphyrin (heme)
- Primarily from circulating hemoglobin
  - 75% from erythrocytes
  - 25% from heme in liver enzymes
Why in Newborns?

- Normal neonate produces ~ 6 to 8 mg/kg/day (2.5 X adult production)
- Significant amounts of unconjugated bilirubin absorbed from the intestine
- Decreased clearance of bilirubin from the plasma due to decrease levels of ligandin and uridine diphosphate glucuronosyl transferase (1% of activity found in adults) in the liver.
Why in Newborns?

- Premature neonates: born too soon and have extremely limited UDPGT (0.1% of adult activity at 30 weeks gestation).
- Term and near-term infants: only about 5% have pathologic cause for jaundice. Usually occurs in 1st two weeks of life.
Pathologic Causes of Jaundice

- Maternofetal blood incompatibilities
  - Rh may cause severe hemolysis
  - ABO incompatibility usually not severe
- Fetal or newborn hemorrhages
- Sepsis (cause of hemolysis)
- Infections may impair liver function
- Biliary atresia
Pathologic Causes of Jaundice

Identified by:
- early onset (within 24 hours of birth)
- Unconjugated (indirect) bilirubin >13 mg/dl
- Indirect levels rise by more than 5 mg/dl in a 24 hour period
- Direct bilirubin >1.5 mg/dl
- Persistent jaundice
  - >7 days in term newborn
  - >14 days in premature newborn
Complications and Treatment

Most serious complication is kernicterus (bilirubin pigment deposited in brain tissue) leading to neuronal injury.

Treatment

- Treat cause
- Phototherapy (blue lights)
- Exchange transfusion
- Infusion of phenobarbital and albumin