

Updated Look at Neonatal Hyperbilirubinemia

Objectives

- Describe the study presented regarding the development of a new hour-specific serum bilirubin nomogram for neonates of 35 weeks or greater gestation
- Compare and contrast the 1999 Butani nomogram with the Bahr et al. nomogram focusing on strengths, weaknesses, and similarities
- Summarize the wide range of clinical findings recognized as manifestations of bilirubin neurotoxicity
- Describe the concerns presented regarding the safety of phototherapy use and relate these concerns to available evidence
- Explain the potential neuroprotective aspects of unconjugated bilirubin in relation to its antioxidant properties at mild physiologic neonatal hyperbilirubinemia levels

Content Outline

1. Development of a New Hour-Specific Serum Bilirubin Nomogram for Neonates of 35 weeks or Greater Gestation
 - 1.1 Summary of study design, methods, results, application, and indications
2. Re-Evaluation of What is Known About Hyperbilirubinemia in Term Infants
 - 2.1 Kernicterus spectrum disorder (KSD)
 - 2.2 Etiologies of extreme hyperbilirubinemia/KSD
 - 2.3 Approaches to prevent KDS
 - 2.3.1 Pre-discharge surveillance with hour-specific bilirubin nomogram use
 - 2.3.2 Postdischarge surveillance and structured follow-up
 - 2.4 Factors related to hyperbilirubinemia
 - 2.4.1 Genetic control of bilirubin metabolism
 - 2.4.2 Impact of race, ethnicity, and geography
 - 2.5 Newer technologies for assessing neonatal hyperbilirubinemia
 - 2.5.1 End-tidal carbon monoxide
 - 2.5.2 Next-generation sequencing
 - 2.6 Treatment of hyperbilirubinemia
 - 2.6.1 Phototherapy devices
 - 2.6.1.1 Irradiance and dose-response
 - 2.6.1.2 Subclinical carcinogenicity and genotoxicity
 - 2.6.2 Exchange transfusion
 - 2.7 Unconjugated bilirubin as a protective antioxidant in early newborn period

Reading Material Resources- Page 2

Module WB2444: Updated Look at Neonatal Hyperbilirubinemia is based on the resources listed below. A copy of each resource is included with the module.

Reading Material Resources

A New Hour-Specific Serum Bilirubin Nomogram for Neonates \geq 35 Weeks of Gestation, Bahr TM et al., *The Journal of Pediatrics*, 236 (2021), 28-33

Hyperbilirubinemia in the Term Infant-Re-evaluating What We Think We Know, Hammerman C and Kaplan M, *Clinics in Perinatology*, 48 (2021), 533-554