Hyperbilirubinemia remains a challenge for all who care for newborns. Despite the wonders of transcutaneous bilirubin (TcB) measures, when the TcB is high (and we can debate exactly which number is the trigger) a blood level is likely appropriate. None of us ever want to miss that one infant who goes on to develop kernicterus. We and the parents must balance the annoyance and burden of frequent visits and frequent testing with the risk of failing to identify an infant with a dangerously rising serum bilirubin. The beauty of the new data presented by Norman et al is that many of the identified risk factors are clinically intuitive, and likely have been long suspected as important by practicing physicians.

At first blush it might not seem that the experience of an entire Swedish birth cohort as captured in a new study by Norman et al. (doi/10.1542/peds.2015-2001) would be highly applicable to cohorts outside Scandinavia. The relative homogeneity of the population studied, with virtually no infants of African-American race or Hispanic ethnicity, present challenges for generalization to other populations including the US. However the sheer size of the cohort, the completeness of the data set, and the virtual absence of excluded infants are noteworthy. You may be aware (though I certainly was not) that prior studies that contributed to the current American Academy of Pediatrics (AAP) guidelines, while based on available evidence, include comparatively small numbers of infants and are from several decades ago.

The authors reasonably limited their investigation to infants with non-hemolytic hyperbilirubinemia, since infants with identified hemolysis will receive appropriately heightened attention early on, and are not the ones whom we struggle to triage in terms of risk. The cohort with non-hemolytic hyperbilirubinemia included 1.88% (n=23,711) of the entire birth cohort, a sample size that adds greatly to the strength of the study. In their analysis, Norman et al considered (1) maternal covariates including maternal body mass index (BMI), which has been increasingly linked to a wide range of maternal and infant outcomes, (2) obstetrical risk factors such as delivery type and gestational age, and (3) infant factors not previously well investigated with relation to hyperbilirubinemia, specifically birth weight, and LGA (large for gestational age) and SGA (small for gestational age) status. Although LGA and SGA are defined with respect to a Swedish cohort, there is no reason to think that this is a major limitation. Guidelines for initiation of treatment in Sweden suggest a bilirubin level of 20.6 mg/dL (and 20.0 mg/dL prior to 2008); although most US physicians likely use the Bhutani nomogram 4, a level of 20 mg/dL is not far enough from our practice to interfere with the relevance of this study.

Risk factors with an adjusted odds ratio (aOR) for neonatal hyperbilirubinemia equal to or exceeding 1.5 (medium sized effect or more) were identified. Newly recognized factors that resonated with me, and intrigued me, included infant gestational age of 38 (not just 37) weeks, infant LGA or SGA status, and obese maternal BMI (>30); this new information will be interesting to "try out" in my own practice to see if it aids or complicates my approach to the infant with hyperbilirubinemia. Please read the article and see what you think. Have the authors identified any potential new risk factors for increased non-hemolytic hyperbilirubinemia that will help you manage your patients?

1. Normal et al Predicting Nonhemolytic Neonatal Hyperbilirubinemia. Pediatr
Hyperbilirubinemia


Further Reading

- [Trends of Transcutaneous Bilirubin in Neonates Who Develop Significant Hyperbilirubinemia](#)
- [Management of Neonates With Hyperbilirubinemia: Improving Timeliness of Care Using a Clinical Pathway](#)
- [Trends of Transcutaneous Bilirubin in Neonates Who Develop Significant Hyperbilirubinemia](#)
- [Extreme Neonatal Hyperbilirubinemia and a Specific Genotype: A Population-Based Case-Control Study](#)
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