Transcutaneous Bilirubin in Exclusively Breastfed Healthy Term Newborns Up to 12 Days of Life

AUTHORS: Cecilia Maria Draque, MD, PhD,[a] Adriana Sañudo, MS,[b] Clovis de Araujo Peres, PhD,[b] and Maria Fernanda Branco de Almeida, MD, PhD[a]

Departments of [a]Pediatrics and [b]Preventive Medicine, Universidade Federal de São Paulo, São Paulo, Brazil

KEY WORDS
bilirubin, breastfeeding, hyperbilirubinemia, jaundice, infant, newborn

ABBREVIATIONS
SB—serum bilirubin
TcB—transcutaneous bilirubin

All authors participated in study design, analysis, and manuscript preparation.

www.pediatrics.org/cgi/doi/10.1542/peds.2010-3878

doi:10.1542/peds.2010-3878

Accepted for publication May 24, 2011

Address correspondence to Maria Fernanda Branco de Almeida, MD, PhD, Rua Los Angeles, 40, 04564-030, São Paulo, SP, Brazil. E-mail: fernandaalmeida@uol.com.br

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: *The authors have indicated they have no financial relationships relevant to this article to disclose.*

WHAT'S KNOWN ON THIS SUBJECT: Total bilirubin values increase up to the fourth to sixth days of life in breastfed term newborns, but it is not known when the decrement occurs.

WHAT THIS STUDY ADDS: In half of exclusively breastfed term newborns, transcutaneous bilirubin values returned to the 24-hour level of 4.8 mg/dL on the sixth day, but values higher than 8.5 mg/dL were still seen in 5% of neonates at day 12 after birth.

abstract

OBJECTIVE: To determine the curve of transcutaneous bilirubin in breastfed term neonates up to 12 days of life.

METHODS: In a prospective cohort study, we performed a 12-day evaluation of 223 healthy, exclusively breastfed, appropriate-for-gestational-age neonates who roomed-in for at least 48 hours. Each newborn had forehead transcutaneous bilirubin and body weight measured at the end of 1, 2, 3, 4, 5, 6, 8, 10, and 12 days. Regression analysis was used with bilirubin as a third-degree polynomial function of time. The 25th, 50th, 75th, 90th, and 95th percentile curves were constructed by using the residual mean square for each day.

RESULTS: Patients were 46% white, 34% mixed race, and 20% black, the mean birth weight was 3260 g (range: 2560–4090 g), the mean gestational age was 39.4 weeks (range: 37.0–41.9 weeks), 51% were male, 74% were born by vaginal delivery, and 66% had been breastfed since delivery. The mean highest weight loss was 4.7% (range: 1%–12%) at the second or third day, and in most infants the weight returned to the birth weight at the fifth day. With 2007 total bilirubin measurements, bilirubin concentrations reached the 50th percentile level (5.6 mg/dL) at the third and fourth days and returned to the 24-hour level (4.8 mg/dL) at the sixth day. The 95th percentile bilirubin level was 8.2 mg/dL at 24 hours of life, reached 12.2 mg/dL on the fourth day, and declined to 8.5 mg/dL on the 12th day.

CONCLUSIONS: The transcutaneous bilirubin curve represents the natural history of bilirubinemia in exclusively breastfed healthy term newborns in the first 12 days of life. *Pediatrics* 2011;128:e565–e571