

Re: Chang's Score Is Only Helpful Within the First 4 to 5 Days of Life

The American Academy of Pediatrics Subcommittee on Hyperbilirubinemia acknowledged the fact that there is no standard for discontinuing phototherapy.¹ For infants who are readmitted after birth, it recommends that phototherapy may be discontinued when the total serum bilirubin level (TSB) falls to <13 to 14 mg/dL (239–239 $\mu\text{mol/L}$).¹

On the basis of a huge cohort of newborns treated for hyperbilirubinemia, Chang et al² thankfully provided an evidence-based prediction tool (score) to help clinicians decide when to stop phototherapy in birth-hospitalized infants with rebound hyperbilirubinemia to avoid readmission and retreatment.

However, applying this prediction score (Score = 15 [if gestational age <38 weeks] – 7 × [age in days at phototherapy initiation] – 4 × [AAP phototherapy threshold (TSBth)] – total serum bilirubin at phototherapy termination [TSBtm] + 50) is only sensible in newborns that need phototherapy within the first 4 to 5 days of life.

This is because when applying the score for a mature infant on its sixth day of life with an initial TSB of 20 mg/dL, the rebound likelihood according to the Chang score would be 0 when the TSB came only down to 18 mg/dL (50 – [7 × 6] – 4 × [20 mg/dL – 18 mg/dL] = 50 – [42] – 8 = 0). From the seventh day onward, virtually no more phototherapy would be necessary at all, irrespective of the bilirubin levels.

In the case of the recent 100 mature newborns referred to our communal children's hospital in Cologne, Germany, for treatment of hyperbilirubinemia, 35.2% of infants were ≥ 6 days of age.

Most of these ≥ 6 days of age infants were breastfed, with huge problems in the initiation of the nursing management in combination with weakness of drinking, which was documented in the weight loss (up to 15% of the birth weight) in these infants.

In our experience, a sufficient milk supply is essential in an effective therapy of hyperbilirubinemia, and it is necessary to apply the Chang rule even in the first days of life.

In summary, I want to emphasize that Chang's score is only helpful to decide when to terminate a first phototherapy within the first 4 to 5 days of life and, importantly, only if a safe milk supply is established.

Eckhard Korsch
*Pediatric Neonatologist, Children's Hospital of the
City of Cologne, Cologne, Germany*
E-mail: korsche@kliniken-koeln.de

CONFLICT OF INTEREST: The author has indicated he has no potential conflicts of interest to disclose.

REFERENCES

1. American Academy of Pediatrics, Subcommittee on Hyperbilirubinemia. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. *Pediatrics*. 2004;114(1):297–316
2. Chang PW, Kuzniewicz MW, McCulloch CE, Newman TB. A clinical prediction rule for rebound hyperbilirubinemia following inpatient phototherapy. *Pediatrics*. 2017; 139(3):e20162896

doi:10.1542/peds.2017-1694A

Authors' Response

We thank Dr Korsch for his insightful comments. The study cohort in which we developed and validated our prediction rule is younger than the one Dr Korsch describes. Of the infants in our cohort, 96.5% started their first inpatient phototherapy before age 5 days, and we agree that the prediction rule did not capture the probability of rebound hyperbilirubinemia in older infants who undergo their first inpatient phototherapy. For these older infants with significant weight loss, presumably once their feeding difficulties are resolved, their probability of rebound hyperbilirubinemia would be low, although certainly not 0.

In addition, we agree with Dr Korsch that adequate feeding is an essential part of the treatment of hyperbilirubinemia. We do not believe, however, that a sufficient milk supply is necessary to apply the prediction rule. Given the young age of our study cohort (average age of 2.3 days at phototherapy initiation), it is likely that breastfeeding was not well established for many of these infants, and 70% of our cohort received at least 1 formula feeding during phototherapy hospitalization. The senior authors of this article are currently investigating weight loss and feeding in more detail as predictors of readmission for phototherapy.

Pearl W. Chang
*Pediatric Hospitalist, Seattle Children's Hospital,
Seattle, Washington*
E-mail: pearlchangmd@gmail.com

CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

doi:10.1542/peds.2017-1694B

Re: Chang's Score Is Only Helpful Within the First 4 to 5 Days of Life

Eckhard Korsch

Pediatrics 2017;140;

DOI: 10.1542/peds.2017-1694A originally published online July 31, 2017;

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/140/2/e20171694A
References	This article cites 2 articles, 2 of which you can access for free at: http://pediatrics.aappublications.org/content/140/2/e20171694A#BIBL
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Administration/Practice Management http://www.aappublications.org/cgi/collection/administration:practice_management_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



PEDIATRICS[®]

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Re: Chang's Score Is Only Helpful Within the First 4 to 5 Days of Life

Eckhard Korsch

Pediatrics 2017;140;

DOI: 10.1542/peds.2017-1694A originally published online July 31, 2017;

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://pediatrics.aappublications.org/content/140/2/e20171694A>

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2017 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN[®]

