Reply to the correspondence letter: “Transcutaneous bilirubinometry: comparison of two devices in healthy term newborns”

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Received: 19 May 2011 / Accepted: 1 June 2011 / Published online: 10 June 2011
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Dear Editor,

We would like to thank Teran C et al. for their comment on our article. We and Varvarigou et al. chose different transcutaneous bilirubinometers (JM-103 and BiliCheck, respectively), provided data on transcutaneous bilirubin (TcB) levels of neonates after birth and developed two different hour-specific TcB nomograms to predict significant hyperbilirubinemia [3, 4]. It is difficult for physicians to decide which device should be used to determine TcB levels, whereas the JM-103 (a two-wavelength measurement) and the BiliCheck (a multiwavelength measurement) are both approved by the U.S. Food and Drug Administration for estimating bilirubin concentrations in neonates. So, it is important to study simultaneous TcB by the two devices and total serum bilirubin (TSB) measurements from the same neonatal population in order to assess the different TcB nomograms for predicting significant hyperbilirubinemia. Carlos et al. have offered a novel perspective with a small study, which show that the two devices (JM-103 and BiliCheck) are both reliable, accurate and the measurements can be assessed on the basis of these nomograms with high accuracy to predict significant hyperbilirubinemia. Their results have further supplemented our study.

Application of the two devices could both allow us for a noninvasive, risk-based approach for neonatal hyperbilirubinemia, but we should notice that TcB readings above 250 $\mu\text{mol/L}$ should be interpreted with care because of the observed underestimation at high concentrations; all TcB values above the levels should be confirmed with a TSB measurement [2].

In addition, when we analyzed the sensitivity of TcB measurement to predict significant hyperbilirubinemia, we should consider the risk zone of TcB values in the hour-specific TcB nomogram. The TcB values in the different risk zone showed different detection sensitivity. In our study, when the TcB values by JM-103 were in high-risk zone (HRZ), intermediate-risk zone (IRZ), and low-risk zone (LRZ), the sensitivity was 26.9%, 78.7%, and 100%, separately. In the study by Dalal et al., when the TcB values by BiliCheck were in HRZ, IRZ, and LRZ, the sensitivity was 39.2%, 80.4%, and 98%, separately [1], which was consistent with our results. So, both devices (JM-103 and BiliCheck) are reliable, accurate, and suitable screening tools to identify jaundiced infants; in order to improve the detection sensitivity of TcB devices, we should combine the use of these devices with using the hour-specific TcB nomogram.

Conflict of interest I declare that I have no conflict of interest.

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