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Skin Sensor Monitors Jaundice in Preterm Infants

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MedicalResearch.com Interview with:

Ichiro Morioka, M.D.

Professor of Pediatrics, Kobe University Graduate School of Medicine
Chuo-ku, Kobe, Japan

Medical Research: What is the background for this study? What are the main findings?

Dr. Morioka: Japan has the highest survival rate for preterm infants due to recent advanced medical treatment and the availability of Neonatal Intensive Care Units (NICU). Despite this, cases of [cerebral palsy](#) and hearing loss caused by neonatal jaundice continue (kernicterus) to occur, with cases reported for at least 2 in every 1000 infants born before the 30th week of gestation. It has also been established that cases of jaundice can worsen even two weeks after birth and thereafter, meaning that there is a need for continuous long-term jaundice monitoring of infants in the NICU. However, jaundice in preterm infants is difficult to detect through physical observations, and monitoring through a daily blood test is not a realistic option.

We focused on transcutaneous jaundice monitoring used in daily health tests for full term infants. The bilirubin levels of 85 infants with a birth weight of under 1500 grams were monitored in NICUs at Kobe University, Kakogawa City Hospital, Hyogo Prefectural Kobe Children's Hospital, Japanese Red Cross Society Himeji Hospital, and Takatsuki General Hospital, and were taken a total of 383 transcutaneous and blood bilirubin measurements at the same time. Through our results we were able to ascertain that the chest and back areas of preterm infants have the highest levels of sensitivity, and transcutaneous bilirubin levels in those areas were close to bilirubin levels in the blood. In addition to expanding the possibilities for transcutaneous monitoring of jaundice in preterm infants, we

discovered the optimum area of skin to monitor it.

Medical Research: What should clinicians and patients take away from your report?

Dr. Morioka: Our result means that neonatal jaundice levels can now be monitored continuously using this painless method over a long period of time in preterm infants. This discovery may contribute to a decrease kernicterus in preterm infants in Japan.

Medical Research: What recommendations do you have for future research as a result of this study?

Dr. Morioka: This transcutaneous jaundice monitoring is a tool and not a perfect method to prevent developing kernicterus for preterm infants. Even among Japanese pediatricians, many assume that neonatal jaundice is no longer an issue, but there are still many unknown factors regarding the effects of the bilirubin on developing brain. We should develop a more effective jaundice monitoring method using transcutaneous and blood bilirubin measurements and a newly specific marker for detecting neurotoxicity by bilirubin to prevent kernicterus in preterm infants.

Citation:

[Screening for Hyperbilirubinemia in Japanese Very Low Birthweight Infants Using Transcutaneous Bilirubinometry](#)

[Kurokawa, Daisuke et al. The Journal of Pediatrics](#)

<http://dx.doi.org/10.1016/j.jpeds.2015.08.038>

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