

Published online February 17, 2014

Pediatrics Vol. 133 No. 3 **March 1, 2014**

pp. 476–482

(doi: 10.1542/peds.2013-2175)

Article

Pulse Oximeter Sensor Application During Neonatal Resuscitation: A Randomized Controlled Trial

Deepak Louis, DM, Venkateshan Sundaram, DM, and Praveen Kumar, DM

+ Author Affiliations

ABSTRACT

OBJECTIVE: This study was done to compare 2 techniques of pulse oximeter sensor application during neonatal resuscitation for faster signal detection.

METHODS: Sensor to infant first (STIF) and then to oximeter was compared with sensor to oximeter first (STOF) and then to infant in ≥ 28 weeks gestations. The primary outcome was time from completion of sensor application to reliable signal, defined as stable display of heart rate and saturation. Time from birth to sensor application, time taken for sensor application, time from birth to reliable signal, and need to reapply sensor were secondary outcomes. An intention-to-treat analysis was done, and subgroup analysis was done for gestation and need for resuscitation.

RESULTS: One hundred fifty neonates were randomized with 75 to each technique. The median (IQR) time from sensor application to detection of reliable signal was longer in STIF group compared with STOF group (16 [15–17] vs. 10 [6–18] seconds; $P < 0.001$). Time taken for application of sensor was longer with STIF technique than with STOF technique (12 [10–16] vs. 11 [9–15] seconds; $P = 0.04$). Time from birth to reliable signal did not differ between the 2 methods (STIF: 61 [52–76] seconds; STOF: 58 [47–73] seconds [$P = .09$]). Time taken for signal acquisition was longer with STIF than with STOF in both subgroups.

CONCLUSIONS: In the delivery room setting, the STOF method recognized saturation and heart rate faster than the STIF method. The time from birth to reliable signal was similar with the 2 methods.

Key Words:

delivery room neonate pulse oximeter sensor signal acquisition

Accepted December 18, 2013.