NIRS cerebral patterns in healthy late preterm and term infants are gender- and gestational age-dependent.


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Abstract

AIM: Near-infrared spectroscopy (NIRS) has been proposed to provide reliable information concerning brain oximetry and tissue activation level in the perinatal period. We aimed to investigate whether NIRS brain patterns in healthy preterm (PT) and term (T) infants were gender- and gestational age (GA)-dependent.

METHODS: We conducted an observational study in 74 newborns, from consecutive singleton pregnancies, of whom 37 were born at term (male: n = 19 female: n = 18) and 37 (male: n = 18 female: n = 19) were PT. Cerebral oximetry (crSO₂) and fractional tissue oxygen extraction (cFTOE), were recorded on the 5th day from birth.

RESULTS: crSO₂ was significantly higher and cFTOE lower (p < 0.001, for both) in the PT female than male group. At term, crSO₂ was significantly higher and cFTOE lower (p < 0.001, for both) in males. crSO₂ (male: R = 0.84, p < 0.001; female: R = 0.74, p < 0.001) and cFTOE (male: R = 0.72, p < 0.001; female: R = 0.72, p < 0.001) in male and female groups correlated positively with GA at recording.
**CONCLUSION:**
Different brain oximetry between males and females in PT a T infants, may suggest that in the perinatal period brain development is gender- and time-dependent. Data support the use of NIRS as a feasible tool for non-invasive cerebral monitoring.

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**KEYWORDS:**
NIRS; Brain development; Gender; Newborn