

The diagnostic value of pulmonary near-infrared spectroscopy in the early distinction of neonatal pneumonia from transient tachypnea of the newborn*

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June 15, 2023

Abstract

Aim: Pulmonary near-infrared spectroscopy (NIRS) is a new and promising tool for diagnosis of neonatal respiratory diseases (RD). The study aimed to determine the role of pulmonary regional oxygen saturation (pRSO₂) values obtained by NIRS in the early distinction of neonatal pneumonia (NP) from transient tachypnea of the newborn (TTN). **Methods:** This prospective, observational, double-blind study was conducted in neonatal intensive care unit (NICU) between 2020-2021. Late preterm and term newborns hospitalized in the NICU due to the diagnosis of TTN and NP were included. Cerebral RSO₂ and pRSO₂ values were measured during the 1st, 24th, 48th and 72nd hours of hospitalization, using NIRS. **Results:** Of the eligible 40 infants, 65% (n:26) were diagnosed as TTN and 35% (n:16) as NP. The pRSO₂ values were significantly higher in the TTN group than the NP group for both apexes (75.3±8.7 vs. 69±5.4, p:0.018, respectively) and lateral lung (77.8±6 vs. 72.7±6.2, p:0.016, respectively) in the 1st hour of hospitalization. There were significant differences in pRSO₂apex and pRSO₂lateral values between the 1st and 24th hours of hospitalization and the 24th and 48th hours in the NP group (p²: 0.001 for both). The optimal pRSO₂apex cut-off value was >72% to predict the diagnosis of NP with a sensitivity of 78.6% and a specificity of 69.2%. **Conclusion:** Pulmonary NIRS may be considered as a feasible and promising diagnostic tool in late preterm and term infants with RD. It may also be helpful for the early differentiation of NP from TTN and the courses of these diseases.

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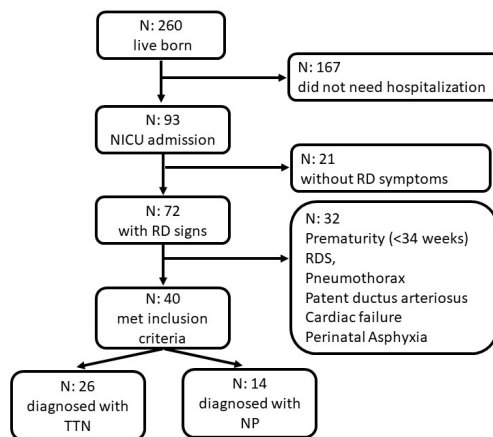


Figure 1. Flow diagram of the study population and diagnostic distribution of the newborns with RD.

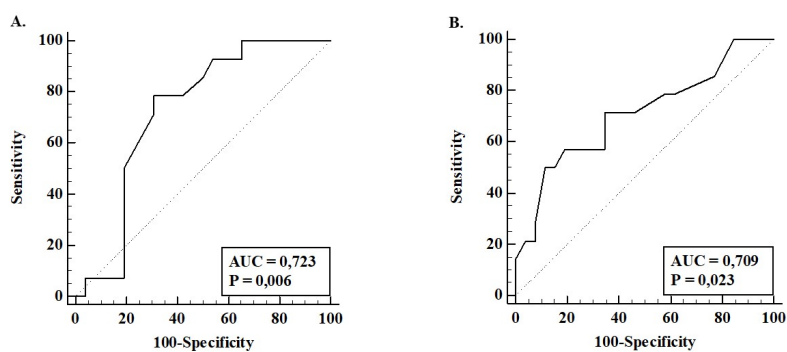


Figure 2. ROC curve for pRSO₂ apex (A) and pRSO₂ lateral (B) values to predict the diagnosis of NP.