Perfusion Index-Bedside Diagnosis of Hemodynamically Significant Patent Ductus Arteriosus.

J Trop Pediatr. 2016 Aug;62(4):263-8. doi: 10.1093/tropej/fmv086. Epub 2016 Mar 10. Balla KC(1), John V(2), Rao Pn S(3), Varghese K(2).

BACKGROUND: Patent ductus arteriosus (PDA) is a significant problem in preterm babies <34 weeks old. Echocardiogram (echo) is the gold standard for diagnosing PDA. Perfusion index (PI) using a pulse oximeter could aid in diagnosing a hemodynamically significant PDA (HsPDA).

OBJECTIVE: To evaluate the accuracy of delta-PI (ΔPI; pre-ductal - post-ductal PI) in diagnosing HsPDA in preterm babies <34 weeks old.
DESIGN: Prospective analytical cross-sectional (observational) study.

METHODS: Preterm infants <34 weeks old (n = 27) were enrolled in the study after parental consent. ΔPI was calculated on Days 1 and 3. Babies are categorized into two groups-HsPDA and no HsPDA based on echo on Day 3.

RESULTS: The mean gestational ages were 30.4 ± 1.9 (HsPDA) and 31.7 ± 1.6 weeks (no HsPDA), and birth weights were 1.23 ± 0.32 kg and 1.43 ± 0.34 kg, respectively ($p > 0.05$). Ten infants had HsPDA. The ΔPI values in Groups A and B differed significantly on Days 1 and 3 (Day 1: 1.06 ± 0.3 vs. 0.54 ± 0.2 and Day 3: 1.11 ± 0.15 vs. 0.57 ± 0.3). The area under the receiver operating characteristic curve was significant for ΔPI on Days 1 and 3. The ΔPI > 0.85 on Day 1 and > 0.95 on Day 3 had a sensitivity and specificity of 80% and 94% and 80% and 88.2%, respectively, for diagnosing HsPDA.

CONCLUSION: ΔPI is a useful, simple parameter, which could help in the assessment of PDA in preterm babies.