

Perfusion Index and its Dynamic Changes in Preterm Neonates with Patent Ductus Arteriosus.

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Aim

The perfusion index (PI) and its dynamic change during respiration, and suppressed the plethysmographic variability index (PVI), are calculated from pulse oximetry, and these indexes were recently proposed for continuous and noninvasive assessment of peripheral perfusion in neonates. We aimed to assess the effect of patent ductus arteriosus (PDA) on PI and PVI, according to ductal Doppler flow pattern.

Methods

Forty-five neonates with median (Q25-75) gestational age (GA) and birthweight of 27 (25-28) weeks and 857 (750-1080) grams, respectively, were assessed prospectively using serial echocardiography and pulse oximetry during the first postnatal week.

Results

Perfusion index increased from 0.70 (0.50-1.05) at day 1 to 1.50 (1.0-2.00) at day 7 ($p < 0.01$) and was not influenced by ductal flow pattern. PVI was 22 (18-27) and did not vary during the study period but differed according to ductal flow pattern, with lower values in the growing and pulsatile groups compared with the pulmonary hypertension ($p < 0.05$), closing and closed groups ($p < 0.01$).

Conclusions

Ductal persistence and flow pattern did not affect PI but did affect PVI in preterm neonates of less than 29 weeks of GA. Future studies are needed to establish the usefulness of PVI in the early detection and management of PDA in preterm neonates.