

Can Low Perfusion Index Predict the Treatment Need in Premature Infants with Patent Ductus Arteriosus?

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Background and Aims

Perfusion index (PI) shows real time changes in peripheral blood flow. Among critically ill infants, it predicts poor perfusion and the severity of the disease. Early diagnosis and treatment of PDA is important to prevent complications due hemodynamically significant patent ductus arteriosus (PDA). In this study, we aimed to compare the PI values of premature infants with and without hemodynamically significant PDA.

Methods

Forty one premature infants were evaluated with echocardiography at the postnatal days 0 and 3. Patients were grouped as: Group 1 (n=19): no - PDA; Group 2 (n=10) hemodynamically nonsignificant PDA; Group 3 (n=12) hemodynamically significant PDA. PI was measured during a quiet state at the postnatal days 0, 1, 2 and 3 by Masimo pulse oximeter. Clinical characteristics of the infants were recorded prospectively.

Results

All the study groups were similar with regard to birth weight (1473±51 grams) and gestational age (30±2.9 weeks). Group 3 had significantly lower day 0 PI values compared to Group 1 and 2 (p=0.008). PI values of Group 3 increased after ibuprofen treatment and became similar to Group 1 and 2 after PDA closure on the postnatal days 2 and 3.

Conclusion

PI values of infants with hemodynamically significant PDA were lower at postnatal day 0 and with ibuprofen treatment; PI values increased to levels of infants without significant PDA. Our data show that PI is an early and noninvasive parameter predicting poor perfusion and may be helpful in decision making for PDA closure.