

Original Paper

Effect of oral Ibuprofen in ductus arteriosus closure in preterm infants

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Abstract

Background and Objective: Patent ductus arteriosus (PDA) is a common problem in preterm infants which can result in serious hemodynamic changes causing respiratory and cardiac morbidities if not treated in the first week of life. The treatment options available are pharmacological treatment with cyclo-oxygenase (COX) inhibitors and surgical ligation. The cyclo-oxygenase inhibitors approved for use are indomethacin and ibuprofen which have been used with different routes of administration and dosages. This study was conducted to evaluate the lower and standard dose of oral ibuprofen in patent ductus arteriosus closure in preterm infants.

Materials and Methods: In this clinical trial study, 44 preterm infants (<35 weeks gestational age) were randomly assigned to receive either a low dose (0.2mg/kg/dose for 3 doses, 24 hours apart) ibuprofen or a standard dose (10mg/kg/dose for the first dose, followed if needed, at 24hours interval by one or two additional doses of 5mg/kg each). These premature neonates either had clinical signs of patent ductus arteriosus or were diagnosed by echocardiography before stabilization of clinical signs. Patent ductus arteriosus closure was confirmed by echocardiography. They were under observe for drug's side effects (oliguria/anuria, GI bleeding, serum creatinin, intraventricular hemorrhage) and their clinical course was recorded.

Results: The patent ductus arteriosus closure rates were the same with both doses (74% in case group vs.76% in control), 5 infants in the case group (22%) and 3 infants in the control group (14%) did not respond to the first course of therapy and needed a new course. There was a significant more rate of reducing renal output with the standard dose 33% vs. 4% (P<0.05), but the serum creatinin level was not different between two groups. One infant (4%) in the case group and 3 infants (14%) in the control group had GI bleeding. There was not any difference in intraventricular hemorrhage grading between two groups.

Conclusion: This study showed that inspite of lower renal side effect, the low dose oral ibuprofen in comparison to standard dosage did not have any meaningful difference in closure of PDA in preterm infant.

Keywords: Patent ductus arteriosus, Ibuprofen, Preterm infants

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