

Optimal management approach for patent ductus arteriosus in preterm infants

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Abstract

Introduction: Hemodynamically significant patent ductus arteriosus (PDA) in preterm infants is known to be associated with greater mortality and substantial morbidity in the form of pulmonary oedema/haemorrhage, bronchopulmonary dysplasia (BPD) and potential end-organ ischaemic injury. Considerable practice variability exists regarding different PDA management approaches from supportive care alone to pharmacological closure to surgical ligation.

Method: A comprehensive search of PubMed & EMBASE from their inceptions to October 2019 was made using 3 search items: patent ductus arteriosus, preterm infants, & management approaches. The search items were combined using the Boolean operator. A further search was made of the Cochrane Central Register of Controlled Trials, & ClinicalTrials.gov with no language restriction.

Results: Literature review suggests that the most appropriate management approach is a step-wise strategy beginning with supportive care provided to all preterm infants including a neutral thermal environment, moderate fluid restriction (110-130 mL/kg/day) & adequate respiratory support (target SpO₂ 90-95%, PaCO₂ 55-65 mmHg, pH 7.3-7.4, & haematocrit above 35%).

Conclusion: Head-to-head comparison of different drugs used to attempt pharmacological closure of PDA (indomethacin, ibuprofen, & paracetamol) is particularly tricky due to variations of criteria used to define hemodynamically significant PDA and multiple treatment protocols used with variations in dosing & route of administration (enteral vs IV bolus vs IV continuous) across different studies. Because surgical ligation has become increasingly uncommon & published data is observational, it remains uncertain whether infants who fail pharmacological closure are more severely compromised to begin.



Biography:

Fazal-e-Rabi Subhani is currently working as a Pediatrician at The Rotunda Hospital in Rotunda, Dublin, Ireland. His main works are into the field of pediatrics and he has published many articles for the same.

Speaker Publications:

1. Mitra S, Florez ID, Tamayo ME, et al. Association of Placebo, Indomethacin, Ibuprofen, and Acetaminophen With Closure of Hemodynamically Significant Patent Ductus Arteriosus in Preterm Infants: A Systematic Review and Meta-analysis. *JAMA* 2018; 319:1221.
2. Dang D, Wang D, Zhang C, et al. Comparison of oral paracetamol versus ibuprofen in premature infants with patent ductus arteriosus: a randomized controlled trial. *PLoS One* 2013; 8:e77888.
3. Ohlsson A, Walia R, Shah SS. Ibuprofen for the treatment of patent ductus arteriosus in preterm or low birth weight (or both) infants. *Cochrane Database Syst Rev* 2015; :CD003481.
4. Terrin G, Conte F, Oncel MY, et al. Paracetamol for the treatment of patent ductus arteriosus in preterm neonates: a systematic review and meta-analysis. *Arch Dis Child Fetal Neonatal Ed* 2016; 101:F127.

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