When to Close Patent Ductus arteriosus?The Ideal Time and Rationale

We were surprised with the results of the trial on closure of patent ductus arteriosus (PDA) in preterm neonates, recently published in Indian Pediatrics [1]. The closure rate of PDA was 100% and 94.6% in paracetamol group and indomethacin group, respectively, which is phenomenally higher than the expected closure rates. The reasons cited for the higher closure rates were higher mean gestational age and spontaneous closure of PDA, but this may not be true [2,3]. The mean gestational age was 28.5 weeks and 28.9 weeks for paracetamol and indomethacin groups, respectively. Although the enrolment criteria for 2D Echocardiography was within 48 hours, it was performed earlier (around 15 hours) which categorizes the intervention to early targeted therapy. Targeting the PDA early could result in unnecessary closures, even though it may be hemodynamically significant. Closing the duct without clinical consideration of its impact on the neonate may subject the neonate to hazardous interventions. This study has taken only echocardiographic evidence of ductus arteriosus without clinical consideration. Classifying the ductus as hemodynamically significant based on its size, irrespective of gestational age, is also questionable. The future studies should aim at timing of intervention (early targeted *versus* symptomatic) with single drug to answer when to treat. Similarly, the rationale to treat based on indications like need of ventilation, pulmonary hemorrhage, significant hypotension will address the issue of "to treat or not to treat the PDA".

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When to Close Patent Ductus Arteriosus? — *Author's Reply*

We thank the readers for highlighting clinically valid important points related to our trial on paracetamol in treatment of patent ductus arteriosus (PDA) [1] in preterm infant. The high closure rates of PDA in our study is direct reflection of adopting the "targeted treatment" strategy. It has been shown in the past that a ductal diameter of 1.5 mm or greater has a sensitivity of 81% and specificity of 85% in predicting subsequent development of clinically symptomatic PDA [2]. All three treatment strategies in treatment of PDA in preterm neonates have one or the other drawback. In prophylactic mode, we end up treating approximately 50% infants who are not destined to develop significant PDA. If we adopt therapeutic approach, we treat when infant becomes clinically symptomatic and the response to therapeutic interventions is expected to be 50 to 80% with risk of reopening in some cases. While adopting targeted therapy, we are doing the balancing act between the prophylactic and therapeutic strategies. We, however; may be over-treating approximately 20% cases not destined to develop symptomatic PDA later [2]

We believe that closing an echocardiographically proven significant PDA only when the child develops complications may be too late!

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