Principles of Clinical Management of Patent Ductus Arteriosus in Extremely Preterm Neonates

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**Graphical Abstract:**

Abstract:

The clinical management of a patent ductus arteriosus (PDA) in preterm newborns is a controversial topic, and despite nearly three decades of research, varying opinions remain. This dilemma stems from uncertain causal linkage between PDA and neonatal comorbidities, as well as the lack of clear evidence showing that benefits of treatment outweigh risks. There has been a general shift in the management of PDA in preterm newborns from early and aggressive closure to a more conservative approach of watchful waiting and spontaneous closure. However, a firm recommendation cannot be made due to a lack of randomized controlled trials validating either treatment strategies. Although cyclooxygenase inhibitors, namely indomethacin and ibuprofen, are approved pharmacological treatments for PDA, there is a need to explore alternative medical therapies in view of lack of clinical response in many newborns and concerns over adverse effects. One such recent interest is the use of acetaminophen as a pharmacological agent. This present review tries to address the questions at hand, integrate the current evidence, highlight the principles of PDA management in preterm newborns, and suggest areas for possible future research.