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Commentary

Developmental Evaluation of Newborns with Congenital Heart Dysfunction

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DESCRIPTION

Congenital Heart Disease (CHD) is one of the most prevalent congenital disorders in newborns with a birth incidence of 8–12/1000 live births. Infants who survive suffer a high chance of developmental delay. This developmental delay is associated with a number of risk factors, including poor perfusion, shock, acid-base imbalances, hypoxia, and failure to thrive. Additionally, there are biological risk factors such as underlying syndromes, genetic/developmental diseases, the requisite medical and surgical treatments, and the circulation irregularities unique to the heart defect.

Developmental disability can be caused by things that happen during pregnancy, surgery, or the formative years. In recent years, concerns about brain integrity, developmental outcomes, and neurological outcomes rather than heart-related illness and mortality have been linked to rising survival rates in children with CHD. They have a pattern of developmental and behavioral disability marked by a minor cognitive impairment, hampered social interaction, and compromised communication abilities. Additionally, they have a negative impact on maladjustment, intellect, academic success, language (development, expressive, and receptive), visual construction and perception, attention, and gross and fine motor skills. To confirm developmental delay, highly skilled personnel must employ developmental screening methods. In order to identify the developmental delay and manage it, these instruments must be accurate, dependable, and sensitive. To have a beneficial impact on these infants' development and their future academic success, preventive measures and early intervention programmers must be implemented.

A change in attention from heart-related morbidity and death to concerns for brain integrity and developmental outcomes has been linked to higher survival rates in children with Congenital Heart Disorders (CHD) and neurological outcomes have come under increasing scrutiny. Due to events that occur during intrauterine life, during surgery, or during the growing years, such as inadequate perfusion, shock, acid-base disturbances, these children are at risk of developmental issues, hypoxia, and failure to thrive. Neurodevelopmental delay is more common in children with cyanotic CHD and people who require surgical treatment. A prospective cross-sectional study employing VABS has been conducted with the goal of identifying developmental delay in infants with CHD and its risk variables.

At the Pediatric Cardiology Unit, 100 patients voluntarily agreed to participate in this study during their routine follow-up visits. Infants with CHD who are non-syndromic and who are between the ages of 6 and 24 months must meet the inclusion criteria before undergoing cardiac catheterization or surgical treatment. Newborns with neurological impairments, clinically recognized genetic diseases, or infants who have recently undergone cardiac surgery are excluded. In infants with CHD, prematurity was found to be a significant risk factor for developmental delay, particularly in receptive behavior ($p=0.021$), total motor skills ($p=0.035$), and average equivalent age ($p=0.035$). It happens for a variety of reasons, including the fact that the brain is still developing and may be more susceptible to damage than in fully developed infants. This is because the conditions under which the brain grows are different from those of pregnancy, and the events that take place during this period include the development of neurons and glia as well as cellular and molecular organization.

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