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Synopsis

Title:

To Study the Present Landscape of Congenital Heart Disease in India: Epidemiology, Diagnostic Developments, and Policy Directions

Introduction:

Congenital Heart Disease (CHD) remains a critical health issue in India, where the combination of a high birth rate and disparate healthcare resources presents unique challenges. This dissertation aims to analyse the current landscape of CHD in India, with a specific focus on epidemiology, advancements in diagnostic technologies, and policy interventions. By reviewing existing literature and data, this research seeks to understand how these elements impact the management and outcomes of CHD in the country.

Methodology:

Research Design: This study adopts a secondary research design to explore the impact of advanced cardiac diagnostic technologies on the treatment of CHD in India. This approach enables a thorough understanding of the issue through a review of existing data and literature, avoiding the ethical and logistical complexities of primary data collection.

Research Question: What are the current trends in diagnostic technologies and policy interventions for managing congenital heart disease in India?

Objective: To analyse the current landscape of CHD in India.

Data Sources: Data was derived from credible sources including PubMed, Google Scholar, WHO Reports, and the Indian Paediatric Journal.

Results:

Epidemiology and Healthcare Infrastructure: The burden of CHD in India is significant, with an estimated prevalence of 9 per 1,000 live births. However, the distribution of healthcare

resources is uneven, with rural areas often lacking access to specialized cardiac care. Strengthening healthcare infrastructure and increasing the number of specialized cardiac centers are essential to address this disparity.

Clinical Presentation and Diagnosis: Early diagnosis and timely intervention are crucial for improving CHD outcomes. Advanced imaging modalities such as echocardiography, CT scans, and MRI have significantly improved diagnostic accuracy. The development of 3D and 4D echocardiography has enhanced the ability to assess heart structure and function in detail.

Technological Innovations: Recent advancements in cardiac imaging technologies, such as cardiac magnetic resonance imaging (CMR) and cardiac computed tomography (CCT), have improved diagnostic precision and management outcomes for CHD patients. The integration of deep learning algorithms with traditional imaging techniques shows promise for enhancing the detection of foetal CHD.

Guidelines and Policy Initiatives: Evidence-based guidelines emphasize early diagnosis, timely interventions, and structured follow-up protocols for managing CHD. Policy initiatives focusing on multidisciplinary approaches and telehealth solutions are crucial for improving access to quality care, particularly in rural areas.

Conclusion:

The study highlights the need for continuous advancements in diagnostic technologies, robust healthcare infrastructure, and strategic policy interventions to manage the growing burden of CHD in India. Ensuring equitable access to healthcare and incorporating new diagnostic modalities are essential for improving CHD management and patient outcomes.

Keywords:

Congenital Heart Disease, Diagnostic Technologies, Healthcare Infrastructure, Policy Interventions, India