



ECHOCARDIOGRAPHIC PROFILE OF CONGENITAL HEART DISEASE IN PEDIATRIC PATIENTS IN A TERTIARY HOSPITAL

Paediatrics

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ABSTRACT

Congenital Heart Disease (CHD) comprises one of the major diseases in pediatric age group and is one of the leading causes of death in children with congenital malformations. This is a retrospective hospital based study carried out over a period of 15 months (June 2017 - August 2018) where all suspected children (< 12 years) with CHD were subjected to echocardiographic study. The age, sex and echo findings were well documented. Clinico-echocardiographic correlation was present in 364 out of 890 suspected cases of congenital heart disease (40.89%). So high index of suspicion, history, physical examination, chest x-ray and ECG along with 2-D Echocardiography & Color Doppler helps to diagnose most of the Congenital Heart Diseases.

KEYWORDS

Congenital heart disease, echocardiography

INTRODUCTION

Congenital heart disease, in a definition proposed by Mitchell et al, is "a gross structural abnormality of the heart or intra-thoracic great vessels that is actually or potentially of functional significance".[1] The incidence of Congenital heart disease in India is increasing, probably due to increase of birth rate, earlier and more accurate diagnostic modalities, more awareness amongst parents due to social media. The reported incidence of congenital heart disease (CHD) is 8-10/1000 live births.[2,3] The clinical presentation of CHD varies according to the type and severity of the defect. The purpose of this study was to know the burden of congenital heart diseases in children under 12 years of age at this tertiary centre in South India.

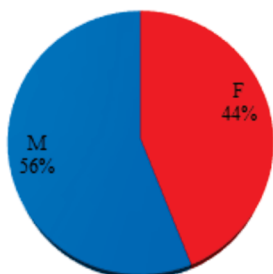
METHODOLOGY

This is a retrospective study carried out in a teaching hospital to determine the spectrum of congenital heart disease. The cases included are the patients admitted in pediatric department in the neonatal and pediatric intensive care units within the age range of (0-12 years) over a period of 15 months (June 2017 - August 2018). All cases suspected of having a heart disease on clinical examination were included in the study. Patients from neonatal intensive care unit were subjected to echocardiography due to the appearance of murmur, cyanosis, tachypnea, isolated tachycardia. The usual presentation of patients from infancy was failure to thrive, breathlessness, recurrent respiratory tract infections, cyanosis, presence of murmur and arrhythmias. The children with the features of congestive cardiac failure (excessive sweating, tachycardia, tachypnea, dependent edema, decreased urine output) in all pediatric age groups were also subjected to screening. The presence or absence of heart disease and its character was confirmed by echocardiography. The data of all patients regarding age of presentation, gender and echo findings were documented.

RESULTS

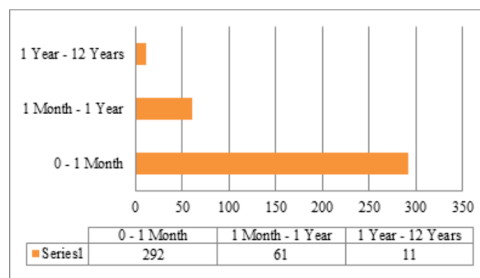
The total number CHD diagnosed was 364 (40.89%) out of 890 suspected cases. CHD are more common among males (56.04%) with the male to female ratio is 1.2:1 (Figure 1).

Figure 1: Sex Distribution



The diagnosis of CHD was most common in neonates (80.22%), followed by the age group of 1 month to 1 year (16.75%) and then in >1 year age group (3.02%) as shown in figure 2.

Figure 2: Age Distribution



The commonest CHD in our study was PDA (Patent Ductus Arteriosus) which constitutes to 23.6% of all CHD. Multiple CHD include ASD+VSD, ASD+PDA, VSD+PDA, VSD+PFO, PDA+PFO. The commonest cyanotic CHD is Total Anomalous Pulmonary Venous Circulation (TAPVC) (5.21%).

Table 1: Classification of Diagnosis

Diagnosis classification	No. of cases
Patent Ductus Arteriosus (PDA)	86
Multiple CHD	81
Ventricular Septal Defect (VSD)	57
Atrial Septal Defect (ASD)	30
Patent Foramen Ovale (PFO)	24
Total Anomalous Pulmonary Venous Circulation (TAPVC)	19
Transposition of Great Arteries	17
AV Canal Defect	11
Coarctation of Aorta	10
Tetralogy of Fallot	9
Double Outlet Right Ventricle	4
Dextrocardia	4
Pulmonary Atresia	3
Tricuspid Atresia	2
Persistent Pulmonary Hypertension	2
Aortopulmonary Window	2
Truncus Arteriosus	1
Ebstein Anomaly	1
ALCAPA*	1
Total	364
Note: Anomalous Origin of Left Coronary Artery from Pulmonary Artery (ALCAPA)*	

DISCUSSION

Determining the impact of echocardiography in ICU has long been of interest to research and clinical studies.[4,5] Various studies assessed the use of echocardiograms in adult ICU patients, yet few dealt with the pediatric population.[6,7] The present study has clearly demonstrated the significance of echocardiography in approximately 40.89% of the cases. This illustrates how ambiguous the cardiac condition could be in the eyes of the clinician were it not for the echocardiography.

CONCLUSION

CHD should be suspected in all cases of recurrent chest infection and failure to thrive. A high index of suspicion, a detailed history, physical examination, chest x-ray and electrocardiogram along with the use of 2-D Echocardiography & Color Doppler helps us to diagnose most of the Congenital Heart Diseases.

Future Scope

In this era where we have the most accurate diagnostic modalities, any clinical suspicion of congenital heart disease should be confirmed by echocardiography. Fetal echocardiography should be advised liberally to the expectant mothers when one of the siblings is known to have complex congenital heart disease.

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