Original Article

Clinical profile of congenital heart diseases in paediatric patients

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Abstract

Background: Congenital heart diseases (CHDs) are the most common congenital diseases and an important cause of mortality and morbidity in children representing a major global health burden.This study was undertaken to study the clinical profile of patients with CHD and to determine the current pattern of distribution of CHD in the paediatric patients. **Material and Methods:** This prospective study included 73 patients with symptoms suggestive of CHD attending Paediatrics IPD and OPD during the study period were screened and subjected to 2D ECHO examination to confirm the diagnosis. **Results:** Majority of patients in our study group were males 50 (68.5%) and in the age group of 1-5 years 25 (34%). The most common presenting complaint among the patients was dyspnoea in 64% cases followed by cyanosis (48%). VSD was the most common intracardiac anomaly, whereas, aortic arch anomalies were common among extracardiac anomalies. **Discussion:** Acyanotic CHDs are more common than cyanotic CHDs and in present study VSD was the commonest congenital cardiac anomaly. We noted that the profile of CHD in our population was similar to the published literature.

Keywords: Congenital heart diseases, paediatric patients, 2D ECHO, profile.

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INTRODUCTION

Congenital heart disease (CHD) is defined as structural malformation of heart or great vessels that is present by birth[1]. It includes the defects in the interior walls of the heart, septation of the chambers and their sequence, the valves inside the heart and/or the arteries and veins. Congenital heart defects are not only a fixed anatomic abnormality that appear at birth but instead are dynamic anomalies that originate in the early embryo, evolve during the course of extra uterine life. These are primarily seen in neonates, infants and children. The burden of congenital heart disease in India is likely to be enormous, due to very high birth rate. This heavy burden emphasizes the importance of this group of heart diseases. The prevalence of CHD greatly varies between regions. The worldwide prevalence of CHD is estimated to be eight to ten per 1000 live births[2]. The recent studies by Bhat *et al.*[3] and Smitha *et al.*[4] have suggested the prevalence to be between 8.5 and 13.6 and as many as 75 per 1000 live births have simple lesions like Ventricular Septal Defect (VSD). Its prevalence is more in pre-term neonates than in term neonates. It is the most common single group of congenital abnormalities accounting for about 30 percent of the total and has high mortality rate during infancy, depending on the type and severity of lesion[5]. With the advances in treatment modalities in recent times, over 75% of infants born with critical heart diseasecan survive beyond the first year of life and many can lead a near normal life thereafter. But in developing countries like India, with limited resources, meticulous clinical examination still forms a backbone of diagnosis and treatment. The clinical profile of CHD needs to be

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thoroughly studied and analyzed to facilitate early detection and diagnosis, later to be confirmed by echocardiography and to deliver the appropriate management at the right time. Thus, this study was undertaken to study the clinical profile of patients with CHD and to determine the current pattern of distribution of CHD in the paediatric patients.

MATERIAL AND METHOD

This prospective study included 73 patients with symptoms suggestive of CHD admitted in NICU, PICU, Postnatal wards, IPD or attending OPD with echocardiographic proof of CHD. The study was conducted at a tertiary care hospital after approval from institutional ethical committee over a period of two years.

Inclusion Criteria

All patients below the age of 12 years of either sex presenting to the hospital with symptoms suggestive of CHD (cyanotic spells, breathlessness, easy fatigability, feeding difficulties, failure to thrive, recurrent respiratory infections)were included, regardless of whether they were referred to or born in our hospital.

Exclusion Criteria

Patients above the age of 12 years and with acquired heart diseases (rheumatic fever, myocarditis etc.) were excluded. After inclusion in the study in each case a detailed history was taken followed by a thorough examination and the observations were recorded in a prescribed proforma. Clinical history and general physical examination revealed a‘ provisional clinical impression’ and subsequently patient was subjected to routine tests, Chest X-ray, ECG and 2D ECHO studies. After this the final diagnosis was assigned and designated termed clinical diagnosis.

RESULTS

Majority of patients in our study group were males 50 (68.5%) and in the age group of 1-5 years 25 (34%).

Table 1: Age and sex distribution

Age	Males	Females	No. of Cases	Percentage
0-6 Months	4	4	8	11%
6-12 Months	4	2	6	8%
1-5 Years	16	9	25	34%
5-10 Years	10	4	14	19%
10-12 Years	16	4	20	28%
Total	**50**	**23**	**73**	**100%**

Table 2: Distribution of CHD by Modes of Presentation

Presenting Complaints	No. of Cases	Percentages
Dyspnea	47	64%
Cyanosis	35	48%
Congestive Heart Failure	26	36%
Respiratory infections	22	30%
Failure to Thrive	13	18%

The most common presenting complaint among the patients was dyspnoea in 64% cases followed by cyanosis (48%), congestive heart failure (36%), respiratory infections (30%) and failure to thrive in (18%) cases. A total of 208 cardiac anomalies found on ECHO examination. Out of these, 152 were intracardiac and 56 were extracardiac anomalies.

Table 3: Intracardiac Anomalies on ECHO

Intracardiac Anomalies	No. ofAnomalies
ASD	27
VSD	48
TOF	23
Atrio-Ventricular Canal Defect	2
Tricuspid Atresia	3
Ebstein’s Anomaly	1
Aortic Stenosis	3
Pulmonary Stenosis	36
POF	3
DORV	4
DOLV	1
DISV	1
Total	**152**

Table 4: Extracardiac anomalies on ECHO

Extracardiac Anomalies	No. of Anomalies
SVC Related	5
IVC Related	4
Aortic Arch Anomalies	19
Patent Ductus Arteriosus	8
Pulmonary Venous Drainage Anomalies	10
MAPCA’s	2
Pulmonary artery Anomalies	8
Total	**56**

The most common intracardiac anomaly found on 2D ECHO was VSD in 48 (31.6%), whereas, among extracardiac anomalies, aortic arch anomalies were common in 19 (33.92%) patients.

DISCUSSION

CHD was the most common congenital defect and had relatively higher mortality rate than other birth defects during first year of life. The incidence, prevalence and pattern of distribution of CHD types vary from region to region[6,7]. In the present study, the most common age group of patients presenting with CHD was in 1-5 years range constituting 34% of the cases followed by children of 10-12 years age group with 28% of cases. Males predominated in our study with 68.5% of total patients. The most common presenting complaint among the patients was Respiratory distress (dyspnea) in 64% of them followed by cyanosis in 48% patients. This is due to the fact that acyanotic congenital heart diseases are more

common than Cyanotic Congenital heart disease. This was similar to the observation recorded by Dillman and Hernandez *et al*[8]. Venkata Raghavaiah *et al*[9] and Gupte *et al*[10] also observed the similar complaints by CHD patients. Echocardiography performed on all the 73 patients revealed a total of 208 anomalies with 152 intracardiac anomalies and 56 extracardiac anomalies. Of the 152 intracardiac anomalies ventricular septal defect (VSD) was the most common finding seen in a total of 48 patients. Ventricular septal defects were seen in patients which included isolated VSD's and VSD's associated with other lesions like Tetralogy of Fallot (TOF), Atrio-ventricular canal defects, Tricuspid atresia, Double outlet right ventricle etc. VSD was followed by pulmonary stenosis (PS) as a 2nd most common finding, seen in a total of 36 patients. Pulmonary stenosis was seen in patients which included isolated PS and PS associated with Tetralogy of Fallot, Pentalogy of Fallot (POF), Double outlet right ventricle (DORV) etc. PS was followed by Tetralogy of Fallot seen in a total of 23 patients. The spectrum of Tetralogy of Fallot includes pulmonary valve anomalies like pulmonary atresia, hypoplasia and stenosis, Overriding Aorta and a VSD (Intracardiac) or PDA (extracardiac) to decompress the circulation on the right side of heart. Bhat *et al*[3] and Smitha *et al*[4] also found VSD in in 30.45% and 40.47% of cases respectively. A maximum of 56 extracardiac anomalies were detected of which Aortic arch anomalies (n=19) contributed the most, followed closely by Pulmonary Venous Drainage anomalies (n=10), followed by Patent Ductus Arteriosus (n=8). This information obtained by Echocardiography was inadequate for surgical repair. Similar results were also obtained in the studies done by Chen *et al*[11] and Bean MJ *et al*[12]. Congenital heart diseases are very common and early detection rate of CHD is increasing. Moreover, the general doctors and pediatrician diagnose CHD at an early age, and are becoming more aware of the complications of CHD that may develop if they refer late. Thus they are referring the CHD cases to cardiac centers for proper care at an early age.We noted that the profile of CHD in our population was similar to the published literature.

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