



Clinical Profile And Pattern Of Congenital Heart Disease Among Pediatric Patients Admitted In A Tertiary Care Hospital , Assam

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Abstract

Introduction : Congenital heart disease (CHD) is the commonest type of heart disease among children and accounts for nearly one third of all major congenital anomalies. ⁽¹⁾

Objectives: To study the patterns of congenital heart diseases, various clinical presentations and the associations of CHD with extra cardiac anomalies.

Methods: This is an observational study conducted in a tertiary care centre where 145 patients were enrolled. Relevant history and clinical examination was performed and findings were noted. Investigations like Chest X ray, ECG and Echocardiography were done. The data was recorded in a preformed and pretested proforma and analysed.

Results: Out of the 145 CHD cases, 58% were males and 42% females; with a male to female ratio of 1.38:1. Majority of patients presented during infancy (75%). The most common clinical presentations were breathing difficulty (71%) followed by feeding difficulty (69%), Acyanotic CHD was detected in 74 % and cyanotic CHD in 26% cases. Among ACHD, VSD was found in 46% , ASD in 11.7 % and PDA in 10.3% cases. Among cyanotic CHD, TOF accounted for 15.2%, TGA (3.5%) and complex cardiac lesion in 4.1% cases. 28% CHD cases had associated extracardiac anomalies like Down syndrome (11%) followed by polydactyly (5%) and others.

Conclusion: Congenital heart disease is one of the leading causes of childhood morbidities and mortality. Children with congenital heart disease need regular monitoring so as to permit optimal growth and development. Early diagnosis and timely surgical interventions will reduce the morbidity and mortality

Keywords: Congenital heart disease, pattern, clinical presentation

Introduction

Congenital heart disease (CHD) is the commonest type of heart disease among children and accounts for nearly one third of all major congenital anomalies. ⁽¹⁾

There is a gross structural abnormality of the heart or intrathoracic great vessels as described by Mitchell et al ⁽²⁾.

Congenital heart diseases (CHD) are major public health problem in both the developing and developed countries. It is one of the important causes of

mortality and morbidity during infancy. According to a status report on CHD in India, 10% of the present infant mortality may be accounted for by CHD.⁽⁵⁾ The prevalence of CHD is not uniform across our country and various studies done in India by different workers reported it ranging from 1.3 to 50.8 per 1000 live birth.⁽⁶⁾ Child having CHD may remains asymptomatic even it present right from birth . The clinical features and time of presentation depends on its type of defect and severity of the

lesion. CHD are divided in to three groups(a) Left to right shunts are Atrial septal defect , Ventricular septal defect , Patent Ductus Arteriosus etc (b) Right to left shunts are – Tetralogy of Fallot, Transposition of great arteries, Persistent truncus arteriosus etc (c) Obstructive lesions are Pulmonary Stenosis , Aortic Stenosis, Coarctation of Aorta . Early detection and timely surgical interventions of these defects is of paramount importance to improve the quality of life and to prevent the morbidity and mortality. There are very few studies done in the State of Assam in regard to different patterns of congenital heart diseases , its various clinical presentations and out come. Under this backdrop, the present study was undertaken with the following aims and objectives (1) To study the patterns of congenital heart diseases (2) To know the various clinical presentations of CHD (3) To study the associations of CHD with extra cardiac anomalies.

Materials and Methods

This hospital based observational study was conducted in the Department of Pediatrics, Gauhati Medical College and Hospital, Guwahati, over a period of one year from August 2019 to July 2020. The study was conducted after obtaining approval from the Institutional Ethics Committee of Gauhati Medical College and Hospital. Congenital heart disease was suspected in children having cardiac murmur, presence of cyanosis, feeding difficulties, cyanosis associated with feeding difficulties, clubbing, features of congestive cardiac failure, or failure to thrive. All children with this history suggestive of having congenital heart disease

admitted in pediatrics department during this study period were included in the study.

Inclusion Criteria-

1. Children of age up to to 12 yrs,
2. First time diagnosed for CHD

Exclusion Criteria

1. Old cases already evaluated by echocardiography and came for follow up.
2. Children with acquired heart disease.
3. Critical patients who died before the confirmation of diagnosis.

We enrolled 145 congenital heart diseases patients as per above mentioned inclusion criteria after obtaining informed consent from parents for the study. Parents were explained about the study in local languages. Relevant history and clinical examination was performed and findings were noted. Next, Investigations like Chest X ray, ECG and Echocardiography were done . Other laboratory tests were done as indicated. The data was recorded in a preformed and pretested proforma and analysed.

Final diagnosis was made by colour flow Doppler Echo machine in the department of Cardiology, Gauhati Medical College and analysed thoroughly to know the pattern of congenital heart disease.

Results

The study was conducted with 145 children diagnosed as congenital heart diseases up to 12 years of age.

Table 1: Age and sex distribution of congenital heart disease cases (n=145)

	Number	Percentage
SEX		
Male	84	57.9%
Female	61	42.1%
AGE		
Below 1month	30	20.5 %
1 month – 1 year	79	54.5%

1 year- 5 years	28	19.3%
6years-12 years	8	5.5%

In regard to gender distribution, 84 patients were males comprising of 58% and 61 patients were female comprising of 42% patients and male to female ratio of 1.38:1 . Majority of the CHD cases were infant (75 %) followed by 1 – 5years group (19%) and 6-12 years group (5%). This study showed that congenital heart disease presented more frequently during infancy. **(Table 1)**

Table 2: Clinical Presentation of various cases of congenital heart diseases (n=145)

Symptoms	Number of patients	Percentage (%)
Breathing difficulty	104	71.7%
Cough and fever	86	59.3%
Feeding difficulty	101	69.6%
Recurrent LRTI	68	46.9%
Easy fatiguability	96	66.2%
Poor weight gain	100	68.8%
Cyanotic spell	23	15.8%
CCF	31	21.4%

Table 2 shows that breathing difficulty (72%) and feeding difficulty (69%) were the most common presentation in this study. This was followed by poor weight gain (68%) , easy fatigue (66%), cough and fever (59%), recurrent LRTI (46%), CCF (21%) and cyanotic spell(15%).

Table 3: Showing Physical findings in CHD in the study group. (n=145)

Physical findings	Number of patients	Percentage (%)
Tachypnoea	112	77.2%
Tachycardia	96	66.2%
Cyanosis	38	26.2%
Clubbing	26	17.9%
Enlarged tender Liver	31	21.4%

Wheeze	39	26.9%
crepitations	54	37.2%
Murmur	122	84.1%
cardiomegaly	67	46.2%

Major physical examination findings of CHD cases were Murmur (84%), tachypnoea (77%), cardiomegaly in 46%, crepitations in 37% , cyanosis in 26%, clubbing (17%) and enlarged tender liver was found in 21% cases .(Table 3)

Table 4: Associated dysmorphic feature and extracardiac congenital anomalies in CHD cases(n=42).

Dysmorphic features /extracardiac anomalies	Number of patients	Percentage(%)
Down syndrome	16	11.3%
Anorectal malformation	4	2.7%
Polydactyly/syndactyly	8	5.5%
Hypothyroidism	2	1.4%
*Others	12	8.3%

*Others: low set ear, microcephaly, depressed nasal bridge, cleft lip and palate.

In this study, out of 145 CHD cases 42 (28.9%) cases had associated extracardiac anomalies. Down syndrome (11%) followed by polydactyly and syndactyly (5%) were seen among this cases.(Table 4)

Table 5: Echocardiographic diagnosis of various Congenital Heart Diseases (n= 145)

In the present study, it is observed that 107 (73.8%) cases had acyanotic heart disease (ACHD) and 38 (26.2%) cases had cyanotic heart disease (CCHD).

Diagnosis	Type of defects	Number of patients	Percentage(%)
Acyanotic CHD	VSD	67	46.2%
	ASD	17	11.7%
	PDA	15	10.3%
	PS	2	1.4%
	Dextrocardia	2	1.4%
	AVSD	4	2.7%
	Total	107	73.8%
Cyanotic	TOF	22	15.2%
	TGA	5	3.5%
	DORV	3	2.1%

CHD	TAPVC	1	0.69%
	Ebstein anomaly	1	0.69%
	Complex Lesion	6	4.1%
	Total	38	26.2%

Among the acyanotic congenital heart disease (ACHD) cases, 46.% were VSD, 11% ASD, 10% PDA, 1.4% pulmonary stenosis. Among cyanotic heart disease(CCHD) cases ,TOF accounted for 15%, TGA (3%) and complex lesion in 4 % patients. This study showed VSD and TOF were the most common congenital cardiac lesions. (Table 5)

Discussion:

This study was undertaken to evaluate the patterns , various clinical presentations and associated extracardiac anomalies present among the CHD cases. CHD comprises one of the major diseases in the paediatric age group . It has become an important cause of morbidity and mortality in infancy. One hundred and forty five patients aged below 12 years of age with CHD were evaluated in this study. This study showed a male preponderance (1.38: 1), which is in accordance with studies done by various workers from different parts of the world .^(3,4 ,8,9,10, 11). This study showed that majority (75%) of congenital heart disease cases presented during infancy. This might be due to the fact that the hemodynamic changes due to structural defect becomes established resulting in symptoms during infancy .This early diagnosis helps in proper management of the patients in regard to surgical corrections. This findings was concordant with the findings in the studies reviewed.(Kumar A et al⁽⁴⁾ , Priyadarshi A et al⁽⁹⁾, Salah A et al⁽³⁾, Bhat NK et al⁽⁶⁾).With reference to the symptoms and signs of CHD cases, we observed that breathing difficulty (72%) and feeding difficulty (69%) were the most common presentation in this study. This was followed by cough and fever (59%), recurrent LRTI (46%), CCF (21%) and cyanotic spell (15%). Major physical examination findings of CHD cases were Murmur (84%), tachypnoea (77%), cardiomegaly in 46%, crepitations in 37% , clubbing (17%) and enlarged tender liver was found in 21% cases. Other studies showed nearly similar results as of the present study in respect to clinical presentations.^(3,4,8,9) Breathing difficulty was the commonest symptom both in cyanotic and acyanotic heart disease. LRTI and CCF were maximally seen in cases of VSD.

Cyanosis was found in 26% cases and this was commonest among patients with TOF. On analysis of the echocardiographic diagnosis of the cases, the present study showed that Acyanotic CHD was more common than the Cyanotic CHD, 73.8% and 26.2% respectively. Among acyanotic congenital heart disease cases, it was found VSD in 46%, ASD in 11.7%, and PDA in 10.3% which is similar to the other studies reviewed.(3,4,8,9,10) . Further, Among cyanotic congenital heart disease group it was found that TOF was the most common CCHD (15.2%) followed by complex lesion (4.1%), TGA(3.5%) and DORV(2.1%) which is also similar to described in the other studies .(3,4,8,10). This study showed that complex cardiac lesion was seen in 4.1% patients . Other workers also reported similar results like Memon et al⁽¹⁵⁾ 2.5% , Hajela et al⁽¹³⁾5% and Borzouee et al⁽¹⁴⁾ 6.9% patients of complex cardiac lesions.

Conclusion

Congenita heart disease is one of the leading causes of childhood morbidities and mortality. Growth and development is markedly affected in cases of CHD. Therefore, all children with history of repeated LRTI, feeding difficulty, failure to gain weight and presence of cyanosis should be thoroughly evaluated to exclude presence of congenital heart disease. Moreover, any child having murmur should be screened to rule out CHD. Children with congenital heart disease need regular monitoring so as to permit optimal growth and development. Early diagnosis and timely surgical intervention will reduce the morbidity and mortality to a large extent.

Limitations : It was a observational study, sample size was small and conducted in a short period of time. Moreover , further studies are needed in this

area of congenital heart disease for long period to know the quality of life and long term outcome of the patients.

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