



## “Incidence of Congenital Heart Disease in children in Eastern Bihar : A Tertiary Care Hospital Experience”

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### ABSTRACT

**Background & Objectives:** Congenital Heart Disease (CHD) comprises one of the major diseases in pediatric age group. CHD are neglected especially in world's poorest nations and appear to be ignored and unexplored dimension of health.

**Aims and Objectives:** The present study was under taken to determine the incidence, clinical profile and spectrum of patients with congenital heart disease (CHD) admitted to a tertiary care hospital in Eastern Bihar.

**Materials and methods:** This is an observational study carried out in a tertiary care hospital in Eastern Bihar, conducted during January 2016 to December 2016. Out of 6735 admissions, 76 were cases of CHD. Only first time diagnosed CHD patients with echocardiographic proof of CHD were included in the study. Detailed clinical and laboratory findings of all cases were noted in pre-structured formats. Data was analyzed by software SPSS version 10.

**Results:** The incidence of CHD was 11.2 per 1000 hospitalized patients. Out of 76 CHD cases, 42 were males and 34 females; with a male to female ratio of 1.25:1. Majority of patients presented during infancy (60%). Acyanotic CHD was detected in 64% of cases while cyanotic CHD was detected in 36% cases. Among acyanotic heart disease, VSD was found in 36.8% ASD in 13.1%, PDA in 11.8% and dextrocardia was found in 2.5%. Among cyanotic heart disease, Tetralogy of Fallot (TOF) accounted for 16.6%, total anomalous pulmonary venous connection (TAPVC) 2.5%, transposition of great arteries (TGA) with VSD 3.9% and unspecified cases of heart disease was found in 11.8%. VSD and TOF were the most common lesions while other CHD like ASD, dextrocardia, TAPVC, ECD, TGA with VSD were encountered less frequently.

**Conclusion:** The incidence of CHD was 11.2 per thousand hospitalized children. VSD, TOF were the most common congenital cardiac lesion. VSD was observed either isolated or associated with other lesions like TGA. The mortality rate was 20%. The mortality usually occurred in those patients complicated with congestive cardiac failure, lower respiratory tract infection and infective endocarditis.

### KEYWORDS :

#### INTRODUCTION

Congenital heart disease (CHD) is one of the major causes of mortality and morbidity in the pediatric population of both the developing and developed countries. Congenital heart diseases (CHD) are major public health problem worldwide accounting for about one-third of all major congenital abnormalities.<sup>1</sup> It is one of the leading causes of mortality in the first year of life<sup>6-8</sup>. According to a status report on CHD in India, 10% of the present infant mortality may be accounted for by CHD. Atrial septal defect (ASD), Ventricular septal defect (VSD), Tetralogy of Fallot (TOF), Patent Ductus Arteriosus (PDA), Pulmonary Stenosis (PS), Aortic Stenosis (AS), Coarctation of Aorta (COA) and atrioventricular septal defect accounts for 85% of all CHDs.

#### MATERIAL AND METHODS

The present study was a hospital based observational study. Duration of study was 1 year starting from January 2016 to December 2017. The study was conducted after taking clearance from ethical committee. All children upto 12 years, admitted in pediatric department over a period of one year from January 2016 to December 2017 were included in the study. Informed consent was taken from parents or caregivers & a thorough history and clinical examination was carried out. Congenital heart disease was suspected in patient having cardiac murmur, presence of cyanosis, feeding difficulties, cyanosis associated with feeding difficulties, clubbing, features of congestive cardiac failure, or failure to thrive. Study group was first assessed clinically according to a preformed proforma including sex and age of presentation & undergone routine investigations, chest x-ray, ECG and Electrocardiography. Final diagnosis was confirmed by Echocardiography, then analysed to know pattern of congenital heart disease.

#### Inclusion Criteria-

1. Children of age upto 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. Unstable patients who died before the confirmation of diagnosis.

#### RESULTS

The incidence of congenital heart disease observed in our study is 11.2 per thousand children. This study showed that congenital heart disease presented more frequently during infancy. There were 55.3% males and 44.7% females with a male to female ratio of 1.25:1. Among the acyanotic congenital heart disease 36.8% were VSD, 13.1% ASD, 11.8% PDA, 2.5% Dextrocardia. Among cyanotic heart disease TOF accounted for 16.6%, TAPVC 2.5%, TGA with VSD 3.9%. Our study showed VSD and TOF was the most common congenital cardiac lesions. Common presentations were failure to thrive and developmental delay, breathlessness, LRTI, FTT, CCF and cyanotic spell. Mortality rate was 20.2%. Death usually occurred due to its complications.

**Table 1: Age and sex distribution of Congenital Heart Disease (N = 76)**

	Number	Percentage (%)
Sex		
Male	42	55.3
Female	34	44.7
Age		
< 1 month	14	18.4
1 month – 1 year	32	42.2
1 – 5 year	20	26.3
6 – 9 year	6	7.8
≥10 years	4	5.3

**Table 2: Clinical Presentation of various cases of Congenital Heart Diseases**

Symptoms	Number	Percentage (%)
Cyanosis	15	19.7
Breathlessness	53	69.7
LRTI	36	47.3
Cyanotic spell	7	9.2
CCF	40	52.6
FTT	16	21

**Table 3: Echocardiographic diagnosis of various Congenital Heart Disease**

Diagnosis		Number	Percentage (%)
Acyanotic CHD	VSD	28	36.8
	ASD	10	13.1
	PDA	09	11.8
	Dextrocardia	02	2.5
	Total:	49	64.4
Cyanotic CHD	TOF	13	16.6
	TAPVC	02	2.5
	TGA with VSD	03	3.9
	Unspecified	09	11.8
	Total:	27	35.5

**DISCUSSION:**

CHD comprises one of the major diseases in the paediatric age group<sup>1</sup>. It has become an important cause of morbidity and mortality in infancy. Seventy six patients aged below 12 years presenting with sign and symptoms of CHD were evaluated in this study. Our study showed a male preponderance, which is in accordance with studies by Chadha et al<sup>1</sup>, Bidwai et al<sup>2</sup> and Jain et al<sup>3</sup>. There are gender differences in the occurrence of specific heart lesions. TGA and left sided obstructive lesions are slightly more common in boys (around 65%), whereas VSD, PDA and PS are more common in girls<sup>5</sup>. When symptoms were taken into consideration we found breathlessness in 69.7%, LRTI in 47.3%, CCF in 42.6%, cyanosis in 19.7%, cyanotic spell in 9.2% and failure to thrive in 21% of cases. Among acyanotic congenital heart disease we found VSD in 36.8%, ASD in 13.1%, PDA in 11.8% and dextrocardia in 2.5%. Among the cyanotic congenital heart disease we found TOF in 16.6%, TAPVC in 2.5%, TGA with VSD 3.9% and unspecified heart disease in 11.8%. When considering the age at presentation, we found maximum number of children were picked up in infancy. Breathlessness was the commonest symptom both in cyanotic and acyanotic heart disease. LRTI and FTT were maximally seen in cases of VSD. Cyanosis was found in 19.7% cases and this was commonest among patients with TOF.

**CONCLUSION**

The incidence of congenital heart disease observed in our study was 11.2 per 1000 children. In our study, ACHD comprised 49 cases of which VSD with or without associated defect accounted for about 40% cases. Cyanotic CHD comprised 27 cases, TOF was the commonest, accounting for 16.6%. Growth and development is markedly affected in cases of CHD. The mortality rate in our study was 20% causes being refractory failure, complex congenital heart disease and infective endocarditis. Therefore we recommend that all murmur should be screened unless thought to be physiological. Cardiac evaluation should be done in all cases of repeated chest infection and FTT. CHD needs regular monitoring so as to permit optimal growth and development. Early diagnosis and timely intervention will reduce the morbidity and mortality to a large extent

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