

Spectrum of Congenital Heart Disease in a Tertiary Care Center

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Abstract

Background: Congenital heart disease (CHD) is not an uncommon entity in our country. The prevalence of CHD is 9.3 Per 1000 life birth in Asia which is found to be highest globally. Not much of Indian data is available particularly from south part of the country. So we conduct a retrospective study to know the spectrum of congenital heart disease in our set up.

Methods: This is a retrospective hospital based study carried out over a period of 12 months (2018 January – 2019 January) where all suspected children (< 12 years) of CHD were subjected to echocardiographic study. The age, sex, clinical presentation and echo findings were well documented.

Results: The total number CHD diagnosed were 124 and were more common among males (54.5%) with male to female ratio is 1.2:1. Congenital heart diseases were diagnosed more commonly between 1 month to 1 Year (45.9%). The commonest type of acyanotic CHD in our study was ventricular septal defect (VSD) (32.3%) and cyanotic CHD is tetralogy of Fallot (8.06%). The major clinical finding was a detection of a murmur (84.4%) followed by tachycardia (41.5%) and tachypnea (36.3%).

Conclusions: In this era of most accurate diagnostic modalities, any clinical suspicion of congenital heart disease should be confirmed by echocardiography to hasten the diagnosis, timely management and prevention of complications.

Key words: Congenital heart disease, Echocardiograph, Prevalence

INTRODUCTION

Congenital heart disease (CHD), 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 detection of congenital heart diseases in India is improved due to more accurate diagnostic modalities and awareness among parents. The reported incidence of CHD is 8–10/1000 live births.^[2,3] The frequency of different major forms of CHD also differs greatly in various studies. 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 heart diseases in children under 12 years of age.

MATERIALS AND METHODS

This is a retrospective study carried out in a teaching hospital to determine the spectrum of CHD. The cases included all patients attending the outpatient or inpatient of pediatric department as well as the neonatal and pediatric intensive care units within the age range of 0–12 years over a period of 12 months (January 2018–January 2019). All cases suspected of having a CHD on clinical examination were included in the study. Patients from the neonatal intensive care unit were subjected to echocardiography due to the appearance of murmur, cyanosis, and tachypnea. The usual presentation of patients from infancy was failure to thrive, breathlessness, cyanosis, presence of murmur, and arrhythmias. The presence or absence of CHD and its character were confirmed by echocardiography. The data of all patients regarding the age of presentation, gender, signs and symptoms, clinical features, and echo findings were documented.

RESULTS

The total number of CHD diagnosed was 124. CHD is more common among males (54.5%) with the

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male-to-female ratio is 1.2:1 [Figure 1]. CHD is diagnosed more commonly between 1 month and 1 year (45.9%) [Figure 2]. The most common CHD in our study was ventricular septal defect (VSD) (32.3%), followed by atrial septal defect (ASD), tetralogy of fallot (TOF), and patent ductus arteriosus (PDA) and in that order.

The most common cyanotic CHD is TOF (11.25%) and is the fourth in frequency in our study [Figure 3]. The major clinical finding was a detection of a murmur (84.8%), followed by tachycardia (41.5%) and tachypnea (36.3%) [Table 1].

DISCUSSION

A recent systemic review pointed out the highest prevalence of CHD reported from Asia (9.3/1000 live birth) and least from Africa (1.9/1000 live birth).^[4] Contrast to other developed countries, there are few Indian studies showing the prevalence of CHD. Available Indian studies had reported a wide variation in the prevalence of CHD from 2.25 to 26/1000 live birth.^[5,6]

There are few scattered studies from North and South part of country, but there is a paucity of data from this part of country. This is a hospital-based retrospective study having the prevalence of CHD 4.81/1000 live birth though it does not reflect the true prevalence in the community.

CHD is more common between 1 month and 1 year (45.9%) similar to the study at other parts of our country.^[7] In our study, highest number of cases were seen in infancy which could be explained because of a large number of referrals from peripheral health center. In the present study, 84.8% of the patients presented with murmur, followed by tachycardia (41.5%) and tachypnea (36.3%) unlike other studies where tachypnea is more common.^[8] Tachycardia, in our study, may be explained because of prevalence of anemia and malnutrition which are more common in children of this part of India. In this index study of total 124 cases, the isolated acyanotic heart disease is 76.1% and cyanotic is 20.34%.

The most common type of acyanotic heart disease is VSD (32.3%) which is quite similar to other Indian data.^[9] We have also observed an increase in the number of ASD (27.41%) as the second common CHD. This may be attributable to overdiagnosis of patent foramen ovale as ASD. PDA is the fourth in the list (7.44%) of CHD in our study.

TOF is the most common type of cyanotic CHD (18.06%) as reported by several studies.^[9] Some studies show the

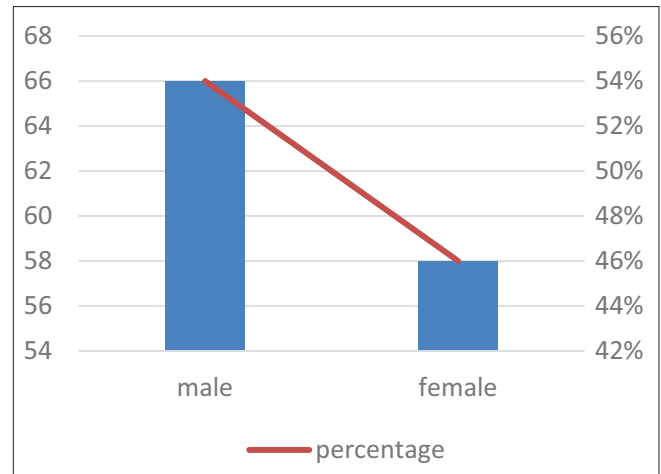


Figure 1: Sex-wise distribution of congenital heart disease

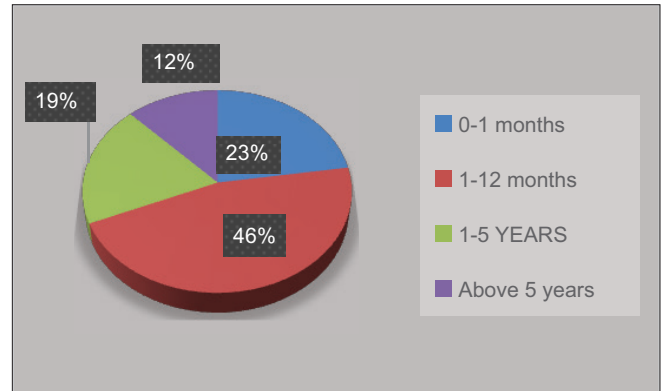


Figure 2: Age-wise distribution of congenital heart disease

Table 1: Clinical findings of the congenital heart disease cases (n=124)

Clinical findings	Number of cases	Percentage
Murmur	104	84.8
Tachycardia	51	41.5
Tachypnea	45	36.3
Cyanosis	23	19.04
Enlarged liver	21	17.7
Crepitations	17	14.7
Anemia	18	15.5
Clubbing	14	12.1
Rhonchi	13	11.2
Edema	11	9.09

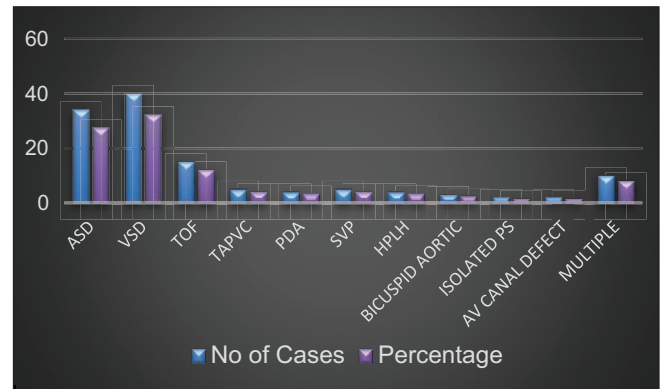


Figure 3: Types of congenital heart disease

male preponderance of 2.08:1 and 1.78:1, but we did not get a significant gender disparity (1.2:1).^[10,11] This small disparity may be explained on the basis of social issue in our country, which may be due to high health-seeking behavior in parents for male child.

CONCLUSION

In this era where we have the most accurate diagnostic modalities, any clinical suspicion of CHD should be confirmed by echocardiography. More doctors should be trained in diagnosing CHD by echocardiograph, so that children can be treated earlier there by reducing morbidity and mortality. Fetal echocardiography should be advised liberally to the expectant mothers when one of the siblings is known to have complex CHD.

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