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Original Research Article

Spectrum of congenital heart disease in a tertiary care centre of Eastern India

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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 this 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 20 months (2015 March - 2016 November) where all suspected children (< 14 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 231 and were more common among males (54.5%) with male to female ratio is 1.2:1. CHD were diagnosed more commonly between 1 month to 1 Year (40.25%). The commonest type of acyanotic CHD in our study was ventricular septal defect (VSD) (36.3%) and cyanotic CHD is tetralogy of Fallot (11.25%). The major clinical finding was a detection of a murmur (84.8%) 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.

Keywords: Congenital heart disease, Echocardiograph, Eastern India

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 frequency of different major forms of CHD also differs greatly in various study. 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 14 years of age as there are no studies from eastern India regarding spectrum and clinical profile of CHD.

METHODS

This is a retrospective study carried out in a teaching hospital to determine the spectrum of congenital heart disease. The cases included all patients attending the out-patient or inpatient of paediatrics department as well as the neonatal and paediatric intensive care units within the

age range of (0-14 years) over a period of 20 months (2015 March - 2016 November). All cases suspected of having a CHD 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. 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 was confirmed by echocardiography. The data of all patients regarding age of presentation, gender, signs and symptoms, clinical features and echo findings were documented.

RESULTS

The total number CHD diagnosed was 231. CHD are more common among males (54.5%) with the male to female ratio is 1.2:1 (Figure 1). CHD were diagnosed more commonly between 1 months to 1 Year (40.25%) (Figure 2). The commonest CHD in our study was ventricular septal defect (VSD) (36.3%), followed by atrial septal defect (ASD), patent ductus arteriosus (PDA) and tetralogy of Fallot (TOF) in that order.

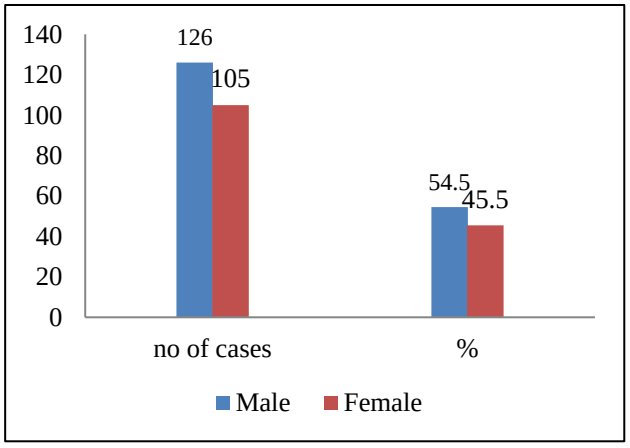

Figure 1: Sex wise distribution of congenital heart disease.

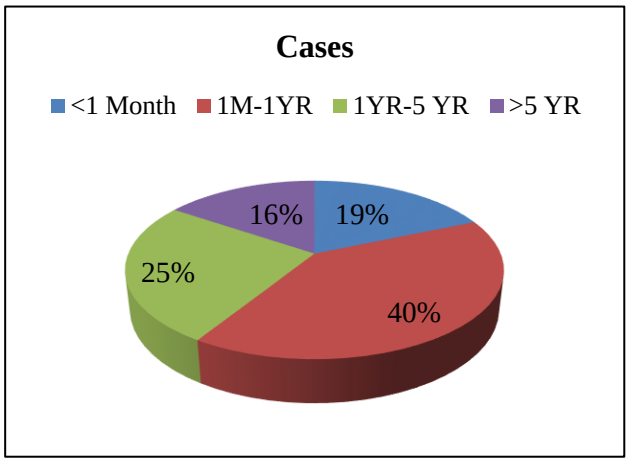

Figure 2: Age wise distribution of CHD.

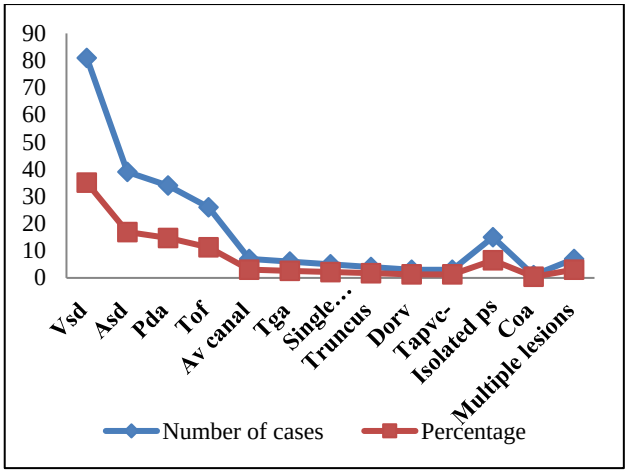

Figure 3: Types of congenital heart disease.

The commonest cyanotic CHD is tetralogy of fallot (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).

Table 1: Clinical findings of the CHD cases.

Clinical findings	Number of cases (n = 231)	Percentage
Murmur	196	84.8
Tachycardia	96	41.5
Tacyhpnea	84	36.3
Cyanosis	44	19.04
Enlarged liver	41	17.7
Crepitations	34	14.7
Anemia	36	15.5
Clubbing	28	12.1
Ronchi	26	11.2
Oedema	21	9.09
Hypertension	1	0.43

DISCUSSION

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

There are few scattered study 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 prevalence of CHD 4.81 per 1000 live birth though it does not reflect the true prevalence in the community.

Congenital heart disease were more common between 1 month-1year (40.25%) 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 centre. In the present study 84.8% of the patients presented with murmur followed by tachycardia (41.5%) and tachypnoea (36.3%) unlike other studies where tachypnoea is more common.[8] Tachycardia in our study may be explained because of prevalence of anaemia and malnutrition which are more common in children of this part of India. In this index study out of total 231 cases, the isolated acyanotic heart disease is 76.1% and cyanotic is 20.34%.

The commonest type of acyanotic heart disease is ventricular septal defect (36.3%) which is quite similar to other Indian data.[9] We have also observed an increase in the number of ASD (16.88%) as the second common CHD. This may be attributable to over-diagnosis of patent foramen ovale as atrial septal defect. PDA is the third in the list (14.71%) of CHD in our study which may be a bias as we are having quite a large number of referrals from our neonatal intensive care unit.

Tetralogy of Fallot is the commonest type of cyanotic congenital heart disease (18%) as reported by several studies.[9] Some studies shows the male preponderance of 2.08:1 and 1.78:1 but we didn't get a significant gender disparity (1.2:1).[10,11] This small disparity may be explained on basis of social issue in our country, which may be due to high health seeking behaviour in parents for male child.

CONCLUSION

In this era were we have the most accurate diagnostic modalities, any clinical suspicion of congenital heart disease should be confirmed by echocardiography. More doctors should be trained in diagnosing congenital heart disease 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 congenital heart disease.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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