



ORIGINAL RESEARCH PAPER

Paediatrics

SPECTRUM OF CONGENITAL HEART DISEASES IN TERTIARY CARE CENTRE

**KEY WORDS:** Children, congenital-heart disease, echocardiography.

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ABSTRACT

**Background:** 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. Variability in incidence and prevalence of CHD from various countries of Indian subcontinent and rest of the world could be because of genetic, cultural, and environmental factors.

**Objective:** To find pattern of CHD in a tertiary care hospital in Kota. Rajasthan. **Materials and Methods:** A retrospective analysis of case-records data of 203 patients (0-18 years) attending the pediatric Echocardiology clinic over 1 year and 8 months period was conducted to ascertain the spectrum of CHDs.

**Results:** A total of 203 patients were referred to the clinic for echocardiography for suspicion of CHD. Out of these 103 were male & 100 females. 154 cardiac defects were found. 45 (29.2%) patients had VSD, 28 had Ostium secundum ASD. PDA was present in 25 (12%) patients. one with Congenital Supravalvar Aortic Stenosis. 25 children had cyanotic CHDs, of which most frequent was Tetralogy Of Fallot, 2 had d-TGA, 2 with Tricuspid Atresia & 1 of single Ventricle with PS, DORV, TAPVC & Ebstein Anomaly each

INTRODUCTION

Congenital heart disease (CHD) is a group of structural abnormalities that are present at birth. Congenital malformations of the heart and circulation are not fixed anatomic defects that appear at birth but instead are anomalies in flux that originate in the early embryo, evolve during gestation, survive the dramatic circulatory alterations at birth, and change considerably during extrauterine life. CHDs are primarily seen in neonates, infants, and children even seen in adults with undiagnosed and uncorrected CHD. The prevalence of CHD is not uniform across the country and varies from 0.8 to 5.2/1000 patients in community-based studies[3,4] while the prevalence ranges between 3.9 and 26.4/1000 live births in hospital-based studies in India, which is not uniform across the country.[3-8] Ten percent of the present infant death may be accounted for by CHD.[5] They affect eight out of every 1000 newborns.[9] In ~90% of the CHD cases, there is no identifiable cause that can be attributed as multifactorial defects, and the most cases are asymptomatic and discovered during routine neonatal check up.[2] CHD is the most common congenital problem in children accounting for nearly 25% of all congenital malformations.[3] Early recognition of such diseases is of immense importance as clinical presentation and deterioration can lead to sudden collapse. Routine neonatal examination fails to detect more than half of babies with heart disease; examination at 6 weeks misses one third. A normal examination does not exclude heart disease. Babies with murmurs at neonatal or 6 week examinations should be referred for early paediatric cardiology evaluation which will result either in a definitive diagnosis of congenital heart disease or in authoritative reassurance of normal cardiac anatomy and function. Cardiac defects are grossly divided into acyanotic and cyanotic heart diseases, former being more common. Ventricular septal defect (VSD) (30-35%) and Tetralogy of Fallot (TOF) (5-7%) are most common among acyanotic and cyanotic CHDs respectively.[6] Incidence of CHD is underestimated due to home deliveries and early discharge of mothers along with their neonates from hospitals without proper neonatal examination pertinent to the cardiovascular system by a qualified and experienced personal.[7] CHD has a wide spectrum of severity in infants. About 2-3 infants/1000 live births will develop symptom-related to cardiac defects during 1st year of life.[6] Prevalence studies of congenital cardiac disease are necessary to establish baseline rates, to know the time, person and geographical trends that may help to raise the awareness of early medical and surgical intervention.

MATERIALS & METHODS

The study presents retrospectively analyzed the data of the patients attending pediatric cardiology clinic for 2 D Echocardiography between 0-18 years age, during the period of January 2017 to August 2018 in our institute. All patients who were sent for echocardiography on the basis of symptoms or presence of cyanosis & murmur were subjected to 2 d echo & Doppler study. Patients were divided into two groups according to the type of CHD, cyanotic and

acyanotic CHD. According to age group, classified in 0-28 days, 1 month-1 year, 1-5 yr, 5-12 yr >12 yrs.

RESULTS

Table 1 shows the baseline characteristics of the study population. Total 203 patients were sent for echo, with equal number of males (103) & females (101), (1.01:1). Majority of patients were in infancy (87), followed by 1-5 yr age group (42). 30 newborns were sent for echo, 24 patients belonged to the age group of 5-12 years & 10 patients in >12 year age. Majority patients were diagnosed with Ventricular Septal Defect (29.2%), ostium secundum ASD was present in 28, os. primum ASD in 1, & coronary sinus ASD was diagnosed in one subject. PDA accounted for 16.4 % lesions. Tetralogy Of Fallot was most common cyanotic CHD (9.7%).

Table 1. Age distribution of study population

Age group	No of patients
0-28 days	30
1 month- 1year	87
1-5 year	44
5-12 year	32
>12 year	10

Table 2 Distribution of Acyanotic CHDs

Cardiac defect	No. Of patients
Perimembranous VSD	30 (29.2 %)
Subaortic VSD	9
Muscular VSD	6
PFO	23
Ostium secundum ASD	28 ((19.4%)
Ostium primum ASD	1
Coronary Sinus ASD	1
PDA	25 (16.2%)
Supra valvar Aortic Stenosis	1
Valvar Pulmonic Stenosis	5
Coarctation of Aorta	0

Table 3. Distribution of cyanotic Congenital Heart Defects

Cardiac defect	No. Of Patients
Tetralogy of Fallot	15
d- transposition Of Great Arteries	2
Tricuspid Atresia	2
DORV	2
Single Ventricle with PS	1
TAPVC	1
Ebstein's anomaly	1
Pulmonary Atresia	1

DISCUSSION

The most frequent type of CHD was VSD (29.2%), followed by

ASD 19.4%) & PDA ( 16.2% ). This is in accordance with the study done by Bhat et al., who stated that ventricular septal defect was most common in 30.4% patients, followed by atrial septal defect in 17.63% and patent ductus arteriosus in 9.62%. [11]. Number of PDA is high in our study as our study includes newborns (both term & preterm). Maximum number of cases of CHD was of the age group 1-12 months (44%), and including neonates it comprised about 60% of the total CHDs' which is in accordance with other studies from rest of India, [42.87%]. Tetralogy of Fallot was the most common cyanotic CHD (60%) followed by d- TGA, Tricuspid Atresia. Double-outlet right ventricle, Single Ventricle with PS, TAPVC & Ebstein's Anomaly was seen in one patient each. Tetralogy of Fallot according to natural history usually presents late and has favourable natural history, which can be the reason that it is the most common cyanotic CHD encountered in our study. A study by Patra et al. Showed that Tetralogy of Fallot was the most common cyanotic CHD (44%) followed by double-outlet right ventricle (14%). [18] Our data of cyanotic and acyanotic CHD are quite similar to other Indian data. [14,15]

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