Yuva Journal of Medical Science,
Vol 4, No 2, August 2018, pp. 06-11,
ISSN:2395-6526, Index Copernicus Value 43.26

CLINICAL PROFILE OF PATIENT WITH ACYANOTIC CONGENITAL HEART DISEASE OF UDAIPUR ZONE

Dr Kalpesh
Senior Resident, Department of Pediatrics, RNT Medical College.

Abstract

Introduction: Congenital Heart Diseases are amongst the major congenital malformations contributing to infant mortality. Most CHDs are diagnosed in infancy and cyanosis and cardiac failure are the principal signs. Later, in childhood or adolescence, CHD patients may present differently.

Objective: 1.To Study the clinical & Etiological profile of Patient presenting as CHD. 2. To Study the clinical profile of Patients presenting as acyanotic CHD 3. To study the relative incidence of various types of acyanotic CHD.

Material and Methods: This prospective study was conducted in Dept. of pediatrics, RNT Medical College, Udaipur. 100 children having sign and symptoms suggestive of CHD, attending the Balchikitsalay, were included in this study. Each case worked out by a detailed history, physical examination and various investigations. 1. CBC 2. Chest X-Ray 3. Echo Cardiography.

Results: Majority of the cases in our study were of Acyanotic CHD (73%) and most of them presented during 0-1 Year of life (78.08%). Dyspnoea was the commonest symptoms (62%) followed by FTT (40%) cases and Recurrent RTI (36%) cases, Refusal to feed (34%) cases, cyanosis (25%) cases, Anoxic Spell (5%) of cases. 73 Patients had abnormal chest X- ray finding on presentation.

Conclusion: Acyanotic CHD were most commonly seen in children rather than cyanotic CHD.VSD was most commonacyanotic congenital heart disease in infancy. Among cyanotic CHDs, Tetralogy of Fallot is the most common lesion. All cases of CHD should be under regular monitoring so as to permit optimal growth and development. A high index of suspicion, a detailed history, physical examination, chest X-ray along with the use of 2-D-Echocardiography which not only helps us to diagnose most of the cases of congenital heart disease but also help in diagnosing severity of the lesion.

Keywords*: Congenital Heart Diseases (CHD), 2-D-Echocardiography, X-ray.*

INTRODUCTION

Congenital heart defects (CHDs) have been defined as gross structural abnormalities of the heart or intrathoracic great vessels that are actually or potentially of functional significance[(1)].Traditionally, CHDs have been categorized according to whether the defect may cause cyanosis. *Cyanotic* lesions cause the presence of desaturated blood in the systemic circulation due to right to left shunting and include tetralogy of Fallot (TOF), transposition of the great arteries (TGA), and Ebstein's anomaly. *Acyanotic*lesions include ventricular septal defect (VSD), atrial septal defect (ASD), patent arterial duct (PDA), pulmonary stenosis (PS), atrial stenosis (AS), and coarctation of the aorta (CoA)[(2,3)]. 1.1 Incidence of CHD Congenital heart disease occurs in 0.5–0.8% of live births. The incidence is higher in stillborn (3–4%), spontaneous abortuses (10–25%), and premature infants (about 2% excluding patent ductusarteriosus [PDA]). This overall incidence does not include mitral valve prolapse, PDA of preterm infants, and bicuspid aortic valves (present in 1–2% of adults). Congenital cardiac defects have a wide spectrum of severity in infants: about 2–3 in 1,000 newborn infants will be symptomatic with heart disease in the 1st year of life. The diagnosis is established by 1 week of age in 40–50% of patients with congenital heart disease and by 1 month of age in 50–60% of patients. With advances in both palliative and corrective surgery, the number of children with congenital heart disease surviving to adulthood has increased dramatically. Despite these advances, congenital heart disease remains the leading cause of death in children with congenital malformation[(3)]. Congenital heart diseases have varying degree of presentation. Child with congenital heart disease may manifest with congestive heart failure or may have asymptomatic murmur. A number of studies have been undertaken worldwide on pattern of CHDs but there has been no study on pattern of CHDs in symptomatic and suspected children in Rajasthan. The purpose of this study was to find out common type of CHDs manifests during neonatal and childhood period in our clinical practice.

AIMS & OBJECTIVES

1. To Study the clinical profile of Patients presenting as acyanoticCHD.
2. To study the relative incidence of various types of acyanotic CHD.

MATERIAL & METHODS

This prospective study was conducted in Dept. of pediatrics, RNT Medical College, Udaipur from January 2012 to December 2012.100 children having sign and symptoms suggestive of CHD, attending the Balchikitsalay, were included in this study.**Inclusion Criteria-** Admitted in NICU, PICU, Pediatric Ward, attending OPD with symptoms [Dyspnoea (Breathlessness), Cyanosis, Cynotical spell, respiratory tract infection, FTT, Refusal to feed] related to Cardiac failure.

1. Having abnormal Heart Sound
2. Having CHF Probably due to Anatomical Cardiac Defect
3. Having Cyanosis attributable to CHD
4. X-ray shows Cardiomegaly

Exclusion Criteria

1. Sign symptoms suggestive of RHD or Infective Heart Disease
2. Pneumonia

The Demographic profile and relevant information of Individual patient were collected using structural Proforma by interviewing parents and an informed consent was taken. Each case worked out by a detailed history, physical examination and various investigation.

1. CBC
2. Chest X-Ray
3. Echo Cardiography

RESULTS

Majority of the cases in our study were of Acyanotic CHD (73%) (Table 1). Most of them presented during 0-1 Year of life (78.08%) followed by 1-3 Year (15.07%). Among 73 cases, 58.9% were Male and 41.1% were Female.

Table 1: Types of CHD

CHD	0-1Yr	%	1-3Yr	%	3-6Yr	%	TOTAL
Acyanotic	57	78.08	11	15.07	5	6.85	73
Cyanotic	13	56.52	3	13.04	7	30.43	23
Obstructive	2	100.00	0	0.00	0	0.00	2
Abnormal Position	2	100.00	0	0.00	0	0.00	2
TOTAL	**74**		**14**		**12**		**100**

Dyspnoea was the commonest symptoms seen in (52.05%) followed by FTT in (39.73%) cases (Table 2) and Recurrent RTI in (42.37%) cases, Refusal to feed in (31.5%) cases, cyanosis in (1.37%) cases. 68.49% patients of Acyanotic CHD had abnormal radiological finding.

Table 2: Presenting complaints in acyanotic CHD

PRESENTING COMPLAINTS	n (%)
Dyspnoea	38(52.05%)
Recurrent RTI	31 (42.47%)
FTT	29(39.73%)
Refusal to Feed	23(31.50%)
Cyanosis	1(1.37%)

In our study most common Acyanotic CHD was VSD. Most cases of the isolated VSD (86.67%) and VSD+ (88.46%) were present during 0-1 year of life (Table 3).

Table 3: Distribution of each type of acyanoticCHD on the basis of time of presentation

CONGENITAL HEART DISEASE		0-1 Yr	1-3 Yr	3-6 Yr	TOTAL
Acyanotic	Isolated VSD	13	1	1	15
	VSD+	23	3	0	26
	ASD	9	3	1	13
	ASD+	5	2	0	7
	PDA	4	0	2	6
	PDA+	3	0	0	3
	ECD	0	2	0	2
	AS	0	0	1	1

The most common type of VSD is perimemranous (68.29%) followed by muscular VSD (17.07%) (Table 4). As per size determination, large size of VSD was most common (46.34%) followed by medium size (34.15%) and small size (19.51%).

Table 4: Various types of VSD & their Percentage

TYPE OF VSD	NO. OF CASES	%
PERIMEMBRANOUS VSD	28	68.29
MUSCULAR VSD	7	17.07
OUTLET VSD	2	4.88
INLET VSD	4	9.76
TOTAL	**41**	**100.00**

In our study 39% cases were having CHF; among 69% cases of CHF found in Acynotic CHD, majority were VSD. Extracardiac anomalies were present in 13 cases. Out of which trecheo esophageal fistula was most common (30.7%), Mongoloid features were present in (23.07%) of the cases.

DISCUSSION

Present study was conducted on 100 children in which congenital heart disease was suspected and later on confirmed by 2D Echocardiography. Relevant history with special emphasis on antenatal and family history was taken. Detailed clinical examination of each child was done. All relevant investigations like chest X-ray and CBC of each patient was done and finally diagnosis was made on the basis of 2D Echocardiography.

In our study male to female ratio was 1.7:1.This finding coincides with the previous study. Leung, P Maurice, et al (1990)[4], they conducted a study between 1981 and 1990 on 765 symptomatic children with major congenital heart malformation. Most of the children (62%) were male in their study. Shah GS, Singh MK et al (2006)[5], they conducted a study between January, 2006 to December, 2006 out of 84 CHD cases 51 were males and 33 females with male to female ratio of 1.5:1. This may be due to the fact that most of the population brings the male offspring's for treatment more frequently.

In the present study 74% of patients present during 0-1 year of life, 14% 1-3 year of life & 12% was in 3-6 years of life. In the study conducted by Sonali Tank, Sushma Malik et al (2004)[6], they found between 1996 to 2000 out of 147 CHD cases they found that the majority of cases 50% present during 0-1 years of life. While considering the age at presentation, we found that maximum number of children were picked up in infancy, including 22 newborns, as is also seen in other studies. In the West, however, there are a higher number of patients reported in the neonatal period. This could be due to the fact that foetal echo-cardiography forms a part of their routine antenatal examination. In a 5 year study (1979-1984) conducted by Udani et al the maximum number of cases were seen between 5-12 years. This may be due to the fact that improved awareness and better facilities are freely available now and hence, more children are being picked up at an earlier age than two decades ago when study was conducted by Udani et al. (1979-1984).

In our study 73% cases had acyanotic CHD, 23% cases had cyanotic CHD and 2% cases had abnormal cardiac position with associated lesion, 2% cases had pure obstructive lesions. Among acynotic CHD, VSD was most common CHD (41%) followed by ASD (20% 0f total cases). PDA was found in 9% cases and 2% cases had endocardial cushion defect & 1% had AS. From 41 cases of VSD, 15 cases (36.58%) had isolated VSD and remaining 26 (63.41%) had some associated lesion with VSD. From 20 cases of ASD, 13 cases (65%) had isolated ASD and remaining 7 cases (35%) had some associated lesion. Among cyanotic CHD, TOF (11%) was the most common anomalies followed by TGA (4%) & TA (3%). Among 2 cases of abnormal positions, 1 had dextrocardia and 1 had mesocardia. Our observations are in accordance with previous studies done. Richard D. Rowe (1960)[7] in their study found that VSD was most common CHD found in 20% cases, next was TGA found in 16% of the cases. Mitchell S C et al[1] in their in study found that VSD was the most common CHD (31.5%), second most common was ASD (8.7%), next was PDA(7.8%) and out of cyanotic CHD, TGA and TOF were most common. Shima Y. et al (2001)[8] in their study of 43 newborn babies with congenital heart disease (CHD) found that 72% cases were of acynotic CHD, out of which VSD was most common and 28% cases were of cynotic CHD. MehbubulHooque et al (2004)[12] in their study found that VSD was the most common CHD (present in 36% cases) ,second most common was ASD (32%),next was TGA and TOF(present equally as 14% cases of each). Shah GS, Singh MK et al (2006)[5], in their study found that VSD was the most common CHD (58.3%), second most common was TOF (13.1%). However, DJ Scott et al (1984)[10]in their study found that from 0-1 month – complete transposition (15.8%) was and the most common cardiac lesion, and VSD was most common lesion in patients of age group 0-6 month. Leung, P Maurice et al (1990)[4]in their study on 765 symptomatic children found that obstruction of pulmonary outflow tract occurred most frequently (37.8%), followed by left ventricular outflow obstruction, left to right shunting (15.5%), complete transposition (12.4%), and miscellaneous causes (3.3%).

When the symptoms were taken into consideration, we found Dyspnoea was the commonest symptoms seen in (52.05%) followed by FTT in (39.73%) cases and Recurrent RTI in (42.37%) cases, Refusal to feed in (31.5%) cases, cyanosis in (1.37%) cases. Dyspnoea was the commonest symptom in both cyanotic as well as acyanotic heart disease. FTT and Recurrent RTI were maximally seen in cases of VSD and these patients had large defects with evidence of pulmonary hypertension. Recurrent RTI was also seen in other patients with a large left to right shunt, as in ASD and PDA.

In our study 39% cases were having CHF; among 69% cases of CHF found in Acynotic CHD, majority were VSD. CHF was also seen in Cynotic CHD in (23%) cases. FTT was seen in 40% cases of Acynotic as well as Cynotic. FTT is a major symptom of congenital heart disease, as these children are having low energy intake, low resting energy expenditure, inadequate food intake, and or feeding difficulties. Refusal to feed in 34% cases of all CHD, when patient in CHF unable to take feed.

73% patients had abnormal chest X-ray findings on presentation in our study. 68.49% cases of Acyanotic CHDs had abnormal chest X-ray findings while 86.93% cases of cyanotic CHDs had abnormal chest X-ray finding. We did not found any positive family history of congenital heart disease and any risk factor which significantly predisposes children to congenital heart disease. Our results are in agreement with the study of other workers. Richard R. Mary et al (1955)[11] in their study on 50 cases of CHD did not found any association between maternal infections early in pregnancy and the occurrence of CHDs in the offspring, Obstetric and medical complications were failed to show any correlation with the incidence of CHD.

In our study extracardiac anomalies were present in 13 cases. Out of which trecheo esophageal fistula was most common (30.7%), Mongoloid features were present in (23.07%) of the cases. But no significant association could be drawn between any extracardiac anomaly and type of CHD. Similar findings are reported by other studies. Leung P. Maurice et al (1990)[4] in their study found that extracardiac anomalies were present in 17% of the cases. Out of these 3.7% are chromosomal, 2.8% were non-chromosomal and 11.9% were other. Mitchell S C et.al (1971)[12] in their study 0n 457 children of CHDs found that extracardiac anomalies were present in 138 subjects (30%). Karmer et al (1987)[13] in their study of 1016 cases of congenital heart disease found that major extracardiac malformation was present in 6.6% cases and in another 13.3% cases CHD was part of malformation syndrome or embryopathy complex.

SUMMARY AND CONCLUSION

CHDs are amongst the major congenital malformations contributing to infant mortality. In developing countries like India its very unfortunate that most of the CHDs are diagnosed very late due to lack of awareness and resources. Hence it is concluded that Acyanotic CHD were most commonly seen in children rather than cyanotic CHD.VSD was most common acyanotic congenital heart disease in infancy. VSD when associated with other lesion manifested early rather than when it is in isolated form. Dyspnoea was the commonest symptoms seen in (52.05%) followed by FTT in (39.73%) cases and Recurrent RTI in (42.37%) cases, Refusal to feed in (31.5%) cases, cyanosis in (1.37%) cases. Echocardiography confirmed the diagnosis of all CHD.

Hence, we recommend that all murmurs should be screened unless thought to be physiological.With a high degree of suspicion in most a cardiac evaluation with echocardiography is advised in all suspected cases of CHD who come to us oftenly repeated Dysponea, FTT, lower respiratory infections and cyanosis. All cases of CHD should be under regular monitoring so as to permit optimal growth and development. A high index of suspicion, a detailed history, physical examination, chest X-ray along with the use of 2-D-Echocardiography which not only helps us to diagnose most of the cases of congenital heart disease but also help in diagnosing severity of the lesion. Early diagnosis, close monitoring and timely intervention in cases of congenital heart disease will go a long way in reducing the morbidity and mortality in these young children to a large extent.

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