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Study of Signs, Symptoms and Investigations of Congenital Heart Disease in A Teaching Hospital

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Abstract
Congenital heart disease one of the leading cause of morbidity and mortality in pediatric age group. The reported incidence is 8 per 1000 births. The reported incidence is 8 per 1000 births. Objective is to study the pattern of clinical presentations in various Congenital heart diseases. This prospective study included children (birth to 12 yrs) with history and examination suggestive of congenital heart disease. Diagnosis confirmed by Echocardiography. Out of 82 cases, 78 cases were diagnosed Acyanotic and 4 were Cyanotic CHD. ASD (37.8%) remained the majority of cases. Female (54%) outnumbered male. Common clinical manifestations were Breathlessness (75%), Chest retractions (30%), failure to thrive (18%) , Cyanosis (4%) and Feeding difficulty (24%). Among the cases studied, 24% had history of recurrent lower respiratory tract infections. Murmur with or without thrill and cardiomegaly were the most important cardiac finding. Frequently observed complications were heart failure and growth failure. Conclusion: Early diagnosis, close monitoring and timely intervention goes a long way in reducing morbidity and mortality in CHD.
Keywords: *Congenital Heart Disease, Signs, Symptoms, Investigations.*

Introduction

Congenital heart disease (CHD) defined as abnormality in Cardiocirculatory structure and function present since birth.[1]comprises one of the major diseases in pediatric age group and is the leading cause of death in children. The incidence Congenital Heart Disease is 8/1000 live births.[2] The incidence is still higher in still born (3-4%), spontaneous aborted (10-25%). Due to high birth rate, the burden of CHD is in India is enomerous. With advances in both palliative and corrective surgery, the number of children with congenital heart disease surviving adulthood has increased dramatically.[3] Fetal echocardiography can make more accurate diagnosis of CHD even before birth. With currently available treatment modalities over 75 % of infants born with critical heart disease can survive beyond the first year of life and many can lead a normal life thereafter[4]. The objective of this study are the clinical presentations in Various CHD.

Objective

The study aimed at understanding the clinical manifestations of various congenital heart diseases.

Methodology

Children presenting with features suggestive of congenital heart disease diagnosis confirmed by

echocardiography were studied over a period from November 2014 to august 2016 admitted in Rajah Muthiah Medical College and hospital. During this study, 82 cases were included. After inclusion in each case a thorough history, detailed examination and investigations like ECG and cheat X-ray were done. After this the diagnosis were confirmed by Echocardiography.

Results

In this study the clinical presentations of various congenital heart diseases were taken into consideration and it was found that Breathlessness (75%) constituted the majority of cases followed by Cheat retractions (30%), cough (25%), feeding difficulty (24%) and failure to thrive (18%).

Table 1: Distribution of CHD by Modes of presentation

CHD Type	Common Symptoms (Percentage - %)										
	Chest retraction	Breathlessness	Pulsation on chest	Chest pain	Cough	Cyanosis	Cyanotic spells	Feeding difficulty	Edema	Fever	FTT
ASD+VSD	67	100	0	0	33	0	0	100	0	0	0
ASD+PDA	25	100	0	0	0	0	0	50	0	25	25
PDA+VSD	0	100	0	0	0	0	0	0	0	0	50
ASD	19	91	0	0	22	0	0	9	0	9	6
VSD	46	89	14	11	43	0	0	39	0	50	32
PDA	56	89	11	11	33	0	0	56	11	33	44
CCHD	75	100	25	0	50	100	0	0	0	0	25

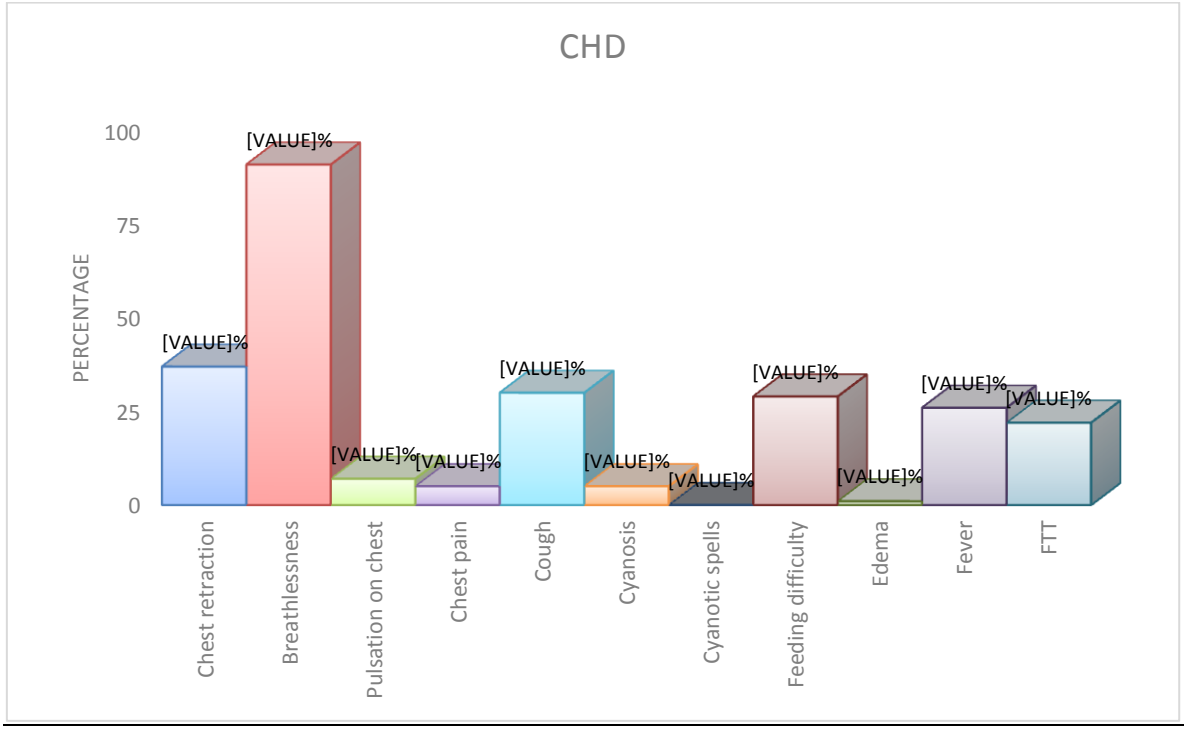

Fig 1: Clinical Presentations in CHD

Breathlessness and chest retractions were the first two ranks in symptoms in CHD. Breathlessness, Chest retractions and feeding difficulty were the first three symptoms ranks amongst ACHD. In case of CCHD, Cyanosis and breathlessness and chest retractions were the first three ranks symptoms.

Distribution of CHD by Murmur

Table-2: Distribution of CHD by Murmur

CHD Type	Murmur			
	PSM	LSM	CM	ESM
ASD+VSD	2	1	0	0
ASD+PDA	0	1	2	1
PDA+VSD	2	0	0	0
ASD	0	1	0	31
VSD	19	8	0	1
PDA	1	0	8	0
CCHD	0	0	0	4
Total	24	11	10	37
%	29	13	12	45

Most commonly occurring murmur in CHD was found to be ESM and next PSM, LSM and continuous murmur (CM) followed notably no diastolic murmur was found. These associations were found to be statistically very significant.

Among ASD and VSD cases more than 40% is with ESM and more than 15% with PSM. Among PDA cases 90% is with CM and 100% of the CCHD cases are with ESM.

Distribution of CHD by XRAY

Table-3: Distribution of CHD by XRAY

CHD Type	XRAY				
	CDM	PLETHORA	OLIGEMIA	CDM + PLETHORA	Normal
ASD+VSD	2	0	0	1	0
ASD+PDA	2	0	0	0	1
PDA+VSD	1	0	0	0	1
ASD	7	1	1	1	23
VSD	18	0	0	2	8
PDA	7	0	0	2	0
CCHD	0	0	4	0	0
Total	37	1	5	6	33
%	45	2	6	7	40

Among the 82 cases included in study 45% of them showed CDM and 40% found to be normal. Oligemia, Plethora contributes less than 10% of the cases.

Distribution of CHD by ECG

Table-4: Distribution of CHD by ECG

CHD Type	ECG				
	LVH	RVH	BVH	Normal	STRAIN PATTERNS(rsr`)
ASD+VSD	1	0	1	1	0
ASD+PDA	0	0	1	3	0
PDA+VSD	2	0	0	0	0
ASD	0	5	0	23	4
VSD	6	2	1	19	0
PDA	7	0	0	2	0
CCHD	0	4	0	0	0
Total	16	11	3	48	4
%	19	13	4	59	5

Most prevalent ECG finding among all CHD's was LVH (19%), followed by RVH (13%). In summary 41% of all CHD's had an abnormal ECG finding and this was found to be statistically very significant.

Distribution of CHD by Malnutrition

Table-5: Distribution of CHD by Malnutrition

CHD Type	Malnutrition			
	Normal	Grade 1	Grade 2	Grade 3
ASD+VSD	3	0	0	0
ASD+PDA	3	0	1	0
PDA+VSD	2	0	0	0
ASD	29	3	0	0
VSD	13	4	11	0
PDA	6	1	2	0
CCHD	2	2	0	0
Total	58	10	14	0
%	71	12	17	0

Among the 82 cases taken for study 71% of them doesn't show sign of malnutrition and are normal in nutritional level. But 29% of them shows Grade 1 and Grade 2 malnutrition.

Distribution of CHD by Echo Finding

Table-6: Distribution of CHD by Echo Finding

CHD Type	SUB-TYPE	ECHO - FREQUENCY	%
ASD+VSD	-	2	2
	OS	1	1
ASD+PDA	-	3	4
	OS	1	1
PDA+VSD		2	2
ASD	PFO	11	13
	OS	21	26
	OP	0	0
	SV	0	0
VSD	PERIMEMBRANEOUS + MUSCULAR	19	23
	PERIMEMBRANEOUS	7	9
	INFUNDIBULAR	0	0
	INLET/AV CANAL	0	0
	MUSCULAR	2	2
PDA		9	11
CCHD		4	6

In Echo findings of the total CHD cases, OS contributes for 28% and PFO contribute for 13% in ASD type. Perimembraneous and muscular types dominates in VSD with more than 23%.

Discussions

Among the 82 cases studied revealed 95% constitutes ACHD and 5% CCHD. The modes of presentation of CHD seen in this study includes most frequently breathlessness (91%), followed by Chest retractions (37%), cough (30%), feeding difficulty (29%).fever (26%) and FTT (22%). When ACHD were analyzed alone, it was noted that breathlessness (91%), chest retractions (35%) and cough (29%) were the most frequent presenting complaints and in case of CCHD, cyanosis (100%) and breathlessness (100%) followed by chest retractions (75%) were noted.

Padedum et al[5], noted in his study indentified the most common presentatio9n were chest retractions (57.4%) followed by cough (53.7%), breathlessness (35.1%), failure to thrive (25.9%), feeding difficulty (14.8%). In ACHD, it was noted that chest retractions is the most frequent presenting complaint in 59.1%, breathlessness, easy fatigability in 32.6%, followed by FTT 38% and in CCHD, it was observed that cyanosis was the most common presenting complaint in 100 % cases followed by feeding difficulty (80%), breathlessness (60%), failure to thrive (60%), chest retractions (40%) and cyanotic spell in 20 % cases.

Sandeep et al[6] in his study conducted at a tertiary care hospital observed the commonest symptom inn CHD as breathlessness (78%) followed by LRTI(60%), FTT(40%), cyanosis (26%) and fever(24%).LRTI noted commonly seen in VSD.

Similar results were also observed by Dipendra et al[7] where, breathlessness was the most common presenting symptom reported in 69.2% followed by fatigue (62.6%), fever (59.3%), cough (54.9%), failure to thrive (42.8%), recurrent LRTI (35.1%), CCF (27.4%), cyanosis(26.3%), refusal of feed s(!7.5%), cyanosis(9.8%) and clubbing (15.3%). Similar results were observed by Shamima Sharmin et al[8.] Recurrent LRTI was the most common in acyanotic CHD. Cyanosis was the presenting symptom in cyanotic CHD.

FTT is a major symptom of CHD, the reason being inadequate food intake and feeding difficulty.

In our study, the most common murmur was Ejection systolic murmur (48%) followed by Long systolic murmur (30%), Pan Systolic murmur (12%) and continuous murmur (10%).

The most common murmur in ASD were ESM usually in the second, third intercostals space on left due to increased flow across the pulmonary valve. The PSM found in VSD heard in left lower sternal border.

We studied 82 cases and found chest X-ray abnormal in 60% of the cases and the most common observed abnormality were Cardio-megaly (45%), 7% cardiomagaly had plethors predominantly observed in ASD, VSD, PDA. Normal cardiac size and oligemia were seen in 6% of cases, majority were TOF.

Conclusion

Breathlessness, cheat retractions, FTT, feeding difficulty, cyanosis were the common clinical presentations in congenital heart disease.CHD should be suspected in all cases of recurrent chest infections and failure to thrive. A high index of suspicion, a detailed history, physical examination, chest x-ray, electrocardiogram along with Echocardiography helps us to diagnose most of the congenital heart disease. With limited resources, clinical acumen forms the backbone for diagnosis for CHD. Early detection and intervenetion reduces the morbidity and mortality of CHD.

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