



STUDY OF INCIDENCE, EXTRA CARDIAC ANOMALIES, SYNDROMES AND OUTCOME OF CHD IN NEWBORNS

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ABSTRACT

Congenital heart defects (CHD) are the commonest birth defects and is an important cause of morbidity and mortality in newborns. The current study was done aiming at determining spectrum and clinical profile of various congenital heart disease (CHD) and extra cardiac anomalies associated with CHD in neonatal period. An observational study was carried out in the newborn unit in Rajah Muthiah medical college and hospital from November 2014 to August 2016. All newborns with the clinical suspicion of CHD were included in the study and were further evaluated by Echocardiography. Clinical spectrum of various congenital heart diseases was observed. Out of 2189 admissions 42 cases were diagnosed with CHD and included in the study. All the cases belong to Acyanotic heart disease. ASD was the commonest contributing to 54.76%, followed by VSD (23.8%) and PDA (7.14%). Six cases were diagnosed with complex CHD. Most of the cases presented with fast breathing and chest retractions. Conclusion: Children having murmurs should be screened unless thought to be physiological. Early diagnosis, close monitoring and timely intervention in cases of CHD will go a long way in reducing the morbidity and mortality to a large extent.

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INTRODUCTION

Congenital heart disease (CHD) is defined as a gross structural abnormality of heart or intrathoracic great vessels that is actually or potentially of functional significance. The burden of congenital heart disease in India is enormous because of high birth rate. Twenty eight percent of the congenital anomalies comprises of heart defect¹. The reported incidence of CHD is 8 per 1000 live births². Asian race more affected than non-asian race due to high rate of consanguineous marriages. Nearly one-third of CHD are critical requiring interventions in the first year of life. CHD's contribute to infant mortality significantly as, 7% of the neonatal deaths are due to congenital malformations, 25% of which are cardiovascular. In India, 10 % of the present infant mortality rate accounted by CHD. It is imperative to have clear information of the disease burden for proper distribution of resources. Rapid advances had taken place in the diagnosis and management of CHD in the last six decades. There are diagnosis tools available by which accurate diagnosis of CHD can be made even before birth. With currently available treatment modalities, 75% of the child born with CHD, can survive beyond first year of life and many can lead normal life thereafter.³

Objective

To study the spectrum and clinical profile of various

Congenital heart diseases and extra cardiac anomalies associated with CHD in newborns.

METHODOLOGY

In this observational study, all newborns suspected of congenital heart disease admitted to newborn unit, on the basis of clinical examination were included, chest x-ray and electrocardiogram were taken and diagnosis confirmed by echocardiography.

RESULTS

Total number of newborns (live births) was 2189 during the study period. Out of which 42 were diagnosed with CHD. Incidence of CHD was found to be 1.91%. All of them contributed to Acyanotic heart disease. ASD was the commonest contributing to 54.76%, followed by VSD (23.8%) and PDA (7.14%). Six cases were diagnosed with complex CHD. Among the cases, female (59.52%) outnumbered male (35.71%).

Diagnosis	Male	Female	Total(percentage)
ASD+VSD	1	1	4.76
ASD+PDA	1	2	7.14
PDA+VSD	0	1	2.38
ASD	9	14	54.76
VSD	3	7	23.8
PDA	1	2	7.14

Most of the cases presented with fast breathing and chest retractions.

Anomalies associated with CHD

Anomalies	Total cases	Percentage
Polydactyly	2	22.2
CTEV	3	33.3
Hypospadias	1	11.1
Single umbilical artery	1	11.1
Hemi vertebra	1	11.1
Downs phenotype	1	11.1s

In the present series the incidence of extra cardiac anomalies contributed to 21.42%. One child diagnosed with Down's phenotype had VSD. Musculoskeletal anomalies were the most frequent comprising of 6 cases (66.6%). The musculoskeletal abnormalities comprised of 2 case of Polydactyly (22.2%), 3 cases of CTEV (33.33%) and 1 case of Hemivertebra (11.1%).

DISCUSSION

Of the total cases all the cases diagnosed belong to acyanotic CHD. We found the incidence of CHD among newborns to be 1.91%. ASD was the commonest contributing to 54.76%, followed by VSD (23.8%) and PDA (7.14%). Six cases were diagnosed with complex CHD. Among the cases, female (59.52%) outnumbered male (35.71%).

Akash *et al*⁴ in his study found the incidence to be 8.79%. But the study done by Hussain *et al* observed higher incidence of 15 %. In our study ASD were most common contributing to 54.776%. In studies conducted by Akash⁴, Islam⁵ and Hussain⁶, showed higher prevalence of as follows 26.93%, 29% and 31.3%. The spectrum of heart defects were similar to previous study, however the prevalence may not be true representative of the community as this study was done at hospital setting. Secondly in our study only newborns suspected of heart defect on clinical basis were subjected to echocardiography and we know many complex heart defects can be absolutely silent on clinical examination which can be missed.

Comparison of Prevalence and spectrum of CHD with other studies

Study	Prevalence	No of cases	ASD	VSD	PDA
Akash	8.79	52	26.93	21.15	15.38
Isalm	7.8	51	29	24	10
Hussain	15	87	31.3	22.9	14.94
Our study	1.91	42	54.76	23.8	7.14

In the present series the incidence of extra cardiac anomalies contributed to 21.42%. One child diagnosed with Down's phenotype had VSD. Musculoskeletal anomalies abnormalities comprised of 2 case of Polydactyly (22.2%), 3 cases of CTEV (33.33%) and 1 case of Hemivertebra (11.1%).

Sandeep *et al*⁷ reported an incidence of extra cardiac anomalies to be 24%. Similar to our study musculoskeletal abnormalities were observed most frequently with Polydactyly (42.85%), CTEV (42.85%) and webbed neck (14.28%). Association with Downs syndrome was found to be 41.66%.

Out of the cases diagnosed 5 cases were with CCF and were on anti failure measures. One case died diagnosed with complex heart defect.

CONCLUSION

ASD was the most common congenital heart disease among newborns. Some of them were asymptomatic but detected on auscultation. Most common clinical presentation was fast breathing and chest retractions. 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 disease⁸. Children having murmurs should be screened unless thought to be physiological. Early diagnosis, close monitoring and timely intervention in cases of CHD will go a long way in reducing the morbidity and mortality to a large extent.

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