



PROFILE OF CONGENITAL HEART DISEASE IN TERTIARY CARE HOSPITAL IN INDIA

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ABSTRACT **BACKGROUND:** Congenital heart disease is an important cause of childhood morbidity and mortality worldwide. Congenital heart disease is the leading cause of birth defects. The burden of congenital heart disease in India is likely to be enormous, due to a very high birth rate.

AIMS AND OBJECTIVES: To study the profile of newborns with congenital heart defects in our centre.

MATERIALS AND METHODOLOGY: This is a six months cross sectional study in the department of neonatology, Niloufer hospital. Neonates suspected clinically were included in the study. Congenital heart diseases were diagnosed using 2D Echo.

RESULTS: On 2D echo 288 were detected to have CHDs with incidence of 6.8%. Acyanotic heart defects were 214 (72.5%) of the total heart defects, rest of 74 were cyanotic heart disease. In acyanotic congenital heart disease patent ductus arteriosus was more common lesion in 82 cases with 38.3% followed by ventricular septal defect in 74 cases. In cyanotic congenital heart disease Transposition of great arteries (TGA) was more common in this study followed by total anomalous pulmonary venous connection (TAPVC).

CONCLUSION: We noted that acyanotic heart disease cases were more than cyanotic heart disease. Patent arteriosus was commonest lesion in newborns. Transposition of great arteries is most common lesion in newborn presenting with cyanosis.

KEYWORDS : Newborn, Congenital heart disease, Acyanotic, Cyanotic.

1. INTRODUCTION

Congenital heart disease is defined as a gross structural abnormality of the heart or intra-thoracic great vessels that is actually or potentially of functional significance [1]. When infectious diseases are excluded, congenital heart disease accounts for more deaths in the first year of life than any other condition [2]. Before the introduction of echocardiography, incidence figures ranged from five to eight per 1000 live births but better diagnosis has detected many more with milder forms, so that current estimates range from eight to 12 per 1 000 live births [3].

The burden of congenital heart disease in India is likely to be enormous, due to a very high birth rate. This heavy burden emphasizes the importance of this group of heart diseases. CHD in neonates is increasingly recognized in India, perhaps due to increasing awareness in pediatricians who are the primary health care provider. This trend may also be related to widely available echocardiography machines and trained personnel, since echo forms the mainstay of diagnosis of CHD in neonates [4].

The incidence of any disease is the essential information for the long-term planning of health care. In addition to the need for definition and classification of the anatomical heart defects, determination of the CHD frequency is fully recognized as actual. [5]. This study was undertaken to study the profile of patients with CHD in neonates admitted to tertiary care hospital from south India.

2. MATERIALS AND METHODS

This is a cross sectional study conducted in the department of neonatology niloufer hospital over a period of six months. Four thousand one ninety five neonates were admitted during this period. All children suspected of congenital heart disease presenting to neonatal department were included in this study. Case was defined as when newborn presented with suspicious congenital heart disease like cyanosis, murmurs, abnormal chest x ray, and saturation less than 90% on pulse oximetry. Parents not giving consent for present study were excluded. All newborns included in study were subjected to clinical

examination, chest x ray, and final diagnosis was made through 2D ECHO. Data was entered into excel sheet and analyzed statistically.

3. RESULTS:

A total of 4195 were admitted in department during the six months study period, total 776 patients were screened by Echocardiography of whom 488 presented with normal Echocardiography study whereas 288 were detected to have CHDs with incidence of 6.8%. Acyanotic heart defects were 214 (72.5%) of the total heart defects, whereas the contribution of cyanotic heart defects was 74 (27.5%). Out of all CHDs, PDA was the most common lesion with contribution of 84 (21%) cases, whereas among the cyanotic heart defects, TGA was the most common lesion (12 of total cases). Out of the total 288 cases, 161 were males (65.25%). [Table 1]

TABLE 1: Incidence of the heart disease based on the gender

	CYNOTIC HEART DISEASE	ACYNOTIC HEART DISEASE	TOTAL
MALE	40	121	161
FEMALE	34	83	117
TOTAL	74	214	288

In total 288 cases of congenital heart diseases term babies were 193 (67%) and rest of 95 babies were preterm babies (33%). Acyanotic heart diseases were more than cyanotic heart disease both in term and preterm babies. [Table 2]

TABLE 2: Incidence of the heart disease based on the gestation

	CYNOTIC HEART DISEASE	ACYNOTIC HEART DISEASE	TOTAL
TERM	53	140	193
PRETERM	21	74	95
TOTAL	74	214	288

In acyanotic congenital heart disease patent ductus arteriosus was more common lesion in 82 cases with 38.3% followed by ventricular septal defect in 74 cases with 34.5%. [Table 3]

TABLE 3: Prevalence of Acyanotic heart disease

ACYNOTIC HEART DISEASE	TOTAL	PERCENTAGE
PDA	82	38.3%
VSD	74	34.5%
ASD	58	21.2%
TOTAL	214	

In cyanotic congenital heart disease Transposition of great arteries (TGA) was more common in this study followed by total anomalous pulmonary venous connection (TAPVC). Other cyanotic congenital heart disease diagnosed in this study are *Coarctation of the aorta (CoA)*, tricuspid atresia, double outlet right ventricle (DORV), ebstein anomaly, right ventricle outflow tract obstruction (RVOT), atrioventricular canal defect, Aortopulmonary window (AP window). [Table 4]

TABLE 4: Prevalence of Cyanotic heart disease

CYNOTIC HEART DISEASE	NUMBER
TGA	12
TAPVC	11
COA	10
TRICUSPID ATRESIA	9
DORV	6
EBSTEIN ANAMOLY	5
SINGLE VENTRICLE	3
RVOT	5
AV CANAL DEFECT	3
MITRAL REGURGITATION	2
AP WINDOW	4
DYSPLASTIC PULMINARY ARTERY	2

4. DISCUSSION

Congenital heart disease, a major cause of serious morbidity and mortality, is common. It is usually defined as clinically significant structural heart disease present at birth [3]. The majority of congenital heart diseases presents as an isolated defect and is not associated with other diseases. They can also be a part of various genetic and chromosomal syndromes such as Down syndrome, Turner syndrome, Marfan syndrome, trisomy 13 and Noonan syndrome. Congenital heart disease can be cyanotic or acyanotic depending on whether the defect in the heart causes mixing of blood from the right and left sides of the heart. Non-cyanotic congenital heart diseases include ventricular septal defect, atrial septal defect, patent ductus arteriosus, aortic stenosis, pulmonary stenosis, coarctation of the aorta and atrioventricular canal (endocardial cushion defect). Symptoms depend on the specific defect. Cyanotic congenital heart disease such as Fallots tetrology features are present at birth, some other defects may not be immediately obvious. Defects such as coarctation of the aorta may not cause problems for many years. People with small ventricular septal defects may have no symptoms and can have a normal lifespan. Many congenital heart defects are amenable to cost-effective surgery that can be life saving and improve long-term prognosis [2].

Before the introduction of echocardiography, incidence figures ranged from five to eight per 1000 live births but better diagnosis has detected many more with milder forms, so that current estimates range from eight to 12 per 1 000 live births [3]. A true pioneer in determining the CHD frequency was Swede Calgren [6], who calculated that the incidence of CHD was 4/1,000 live births through the period 1941–1950. First true population studies were conducted in the late 1950s by Sheila Mitchell et al. [7], who found that the incidence of CHD was 7.67/1,000 live births. Among the reasons for the early lower incidence rates of 4 to 5/1,000 live births is that only the most severely affected subjects were referred to a cardiac center, that there was relatively little interest in and knowledge of CHD by pediatricians and that cardiac surgery had not yet offered the spectacular results that now demand referral of these patients. Furthermore, before the availability of good echocardiography, diagnosis if not certain clinically had to be established by cardiac catheterization [8]. In present study incidence of congenital heart disease was 6.8 per 1000 live births.

In our study most common congenital heart disease in newborn

admitted to unit was patent ductus arteriosus, which constituted 28% of total cases followed by ventricular septal defect. This finding correlated with other studies such as Khurshid Ahmed et al, [9] where PDA was more common in newborn population than ventricular septal defect. Some studies have found ventricular septal defect was more common than patent ductus arteriosus such as Khalil A et al. [10] worldwide reports also have similar presentation with ventricular septal defect being more common lesion in congenital heart disease of infancy. [11-13]

CONCLUSION:

In present study incidence of congenital heart disease was 6.8 per 1000 live births. In our study most common congenital heart disease in newborn admitted to unit was patent ductus arteriosus. In developing country like India where resources are limited congenital heart defects are diagnosed late. Early identification and treatment would decrease burden of disease on community, also improve survival of newborn and children.

5. REFERENCES

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