

Patterns of Congenital Heart Diseases based on Echocardiogram (ECHO) Appearance

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Abstract: Objectives: To determine the various forms of congenital heart diseases and to study the distribution of age and sex of affected children.

Method: A Retrospective descriptive study were the information about the patients obtained from medical records for children up to 15 years referred to Hadhrumout Medical Board for treatment abroad in Ibn–Sina Teaching Hospital during the period from January 2011 to December 2011.

Results: of studied files, 152 were males (63%) and 90 females (37%). The frequency of various forms of congenital heart diseases were as follow: Ventricular Septal Defect(VSD) with percentage 32.6%, Tetralogy of Fallot(TOF) 24.8%, Patent Ductus Arteriosus(PDA)13.2%, Atrial Septal Defect (ASD)11.2%, Pulmonary Stenosis 6.6%, .

Conclusion: Tetralogy of Fallot represented the commonest cyanotic lesions and Ventricular Septal Defect the commonest non-cyanotic lesions. These results were consistent with the previous reported from other parts of the world. Early detection of congenital heart disease is of utmost importance for proper management in order to avoid the serious complications.

Keywords: Echocardiogram (ECHO), Patent Ductus Arteriosus(PDA), Ventricular Septal Defect(VSD).

1. INTRODUCTION

Congenital heart disease is define as the structural or functional heart disease present at time of birth, even if it is detected later on¹. In Yemen as most of the developing countries most of the deliveries take place at home and with the absence of routine neonatal screening. So, it is very difficult to calculate true birth prevalence of congenital heart disease. Heart defects are among the most common birth defects and are the leading cause of birth defect–related deaths². In the United States about 40,000 infants are born with heart defects each year³.

The causes of most Congenital Heart Defect are unknown but rapid progress is being made in identifying the genetic basis of many in Congenital Heart Lesions. Most cases, Congenital Heart Diseases were thought to be multi-factorial and result from combination of genetic predisposition and environment stimulus. A small percentage of Congenital Heart Lesions were related to chromosomal abnormalities particular in Trisomy 21, 13, 18 and Turner Syndrome⁴.

2. METHODOLOGY

Our study was a cross – sectional descriptive study that was approved by the Ethics Committee of Ibn – Sina Teaching hospital, Hadhrumout Province, Yemen. The duration of this study was from January to December of 2011.

Information about the patients obtained from medical records of children up to 15 years referred to Hadhrumout Medical Board (HMB) for treatment abroad in Ibn – Sina Teaching Hospital. We excluded the cases of their age more than 15 years old and the files without ECHO results.

To ensure the accuracy of data processing, the collected data were organized and analyzed by using SPSS version 14.

3. RESULT

Among 242 patient were included in the study males represent 63% of all Congenital Heart Diseases in our study while females found in 37% .

We found that 40.5% of children with Congenital Heart Disease in studied files presented in age group (30 days – 11 months) while we found the less age distribution in age group (>29 days), see table NO.1.

Table No.1: Showed the distribution of the age groups among studied records

<i>Age group</i>	<i>Frequency</i>	<i>percentage</i>
> 29 days	3	1.20%
30 days -11 months	98	40.50%
12 months-5 years	85	35.10%
6-10 years	37	15.30%
11-15 years	19	7.90%
Total	242	100%

Ventricular Septal Defect (VSD) was the commonest Acyanotic cardiac lesion (46.2%) while Coarctation of Aorta found only in 0.6% of Acyanotic cases studied while Tetralogy of Fallot (TOF) was the commonest Cyanotic cardiac lesion in 89% and less common found in Tricuspid Atresia in 3% of Cyanotic cases studied, see table NO.2 & NO.3.

Table 2: Distribution of various forms of acyanotic congenital heart disease in cases studied

<i>Acyanotic Cardiac Lesions</i>	<i>Frequency</i>	<i>Percentage</i>
Ventricular Septal Defect	79	46.2%
Patant Ductus Arteriosus	32	18.7%
Atrial Septal Defect	27	15.8%
Pulmonary Stenosis	16	9.3%
Ventricular Septal Defect with Atrial Septal Defect	8	4.7%
Ventricular Septal Defect with Pulmonary Stenosis	6	3.5%
Atrioventricular Canal	2	1.2%
Coarctation of Aorta	1	0.6%
Total	171	100%

Table 3: Distribution of various forms of cyanotic congenital heart disease :

<i>Cyanotic Cardiac Lesion</i>	<i>Frequency</i>	<i>Percentage</i>
Tetrology of Fallot	60	89%
Transposition of Great arteries	5	8%
Tricuspid Atresia	2	3%
Total	67	100%

4. DISCUSSION

About 1% of live born children have congenital heart defects^{5&6}. Knowledge of the true incidence of CHD is important because of the risk of Bacterial Endocarditis in patients with heart defects. This knowledge could also serve as a basis for research on the etiology of CHD. Congenital heart disease is an important cause of morbidity and mortality in children, it causes death of thousands of children in developing countries¹. Our study does not give a true study about incidence and prevalence of congenital heart disease in all population because this study was carried out at medical board for a cases needs treatment abroad.

In this study number of males were 152 and females were 90. This result of male dominant was consistent with the study in Pakistan¹ also with a largest study by Rehan et al⁷ but inconsistent with the study in Saudi Arabia in which the male to female ratio was 0.9:1⁸.

In our study the maximum age distribution in studied files with congenital heart disease was observed in those above 30 days up to 5 years of age followed by 6 – 10 years of age, the same observed in the study done in Pakistan¹. Those below

one month (neonatal period) represent the lowest referral cases (only 3 cases) in this study, which inconsistent with other study done was the maximum number of congenital heart disease was diagnosis at this period of life ⁹.

Regarding to the various forms of congenital heart diseases in our study, among the acyanotic group Ventricular Septal Defect followed by Patent Ductus Arteriosus, Atrial Septal Defect and Pulmonary Stenosis were the common forms of cardiac lesions.

This finding was consistent with a study done in Saudi Arabia ⁸. In a study done in India the lesions in order of frequency were Ventricular Septal Defect, Atrial Septal Defect and Patent Ductus Arteriosus ⁹, in that study Atrial Septal Defect was common than Patent Ductus Arteriosus which inconsistent with our study because of the most Atrial Septal Defects are asymptomatic and less to be referred.

Among the cyanotic congenital heart lesions Tetralogy of Fallot (TOF) was the commonest lesion followed by Transposition of Great Arteries(TGA). This is comparable with the study in Pakistan where the commonest cyanotic cardiac lesion was TOF then TGA ¹.

5. CONCLUSION

We have a defect in diagnosis of congenital heart disease among children because lack of facility that allowed us to detect those defects early. Our goal from this study to focus in this problem and create a comprehensive protocol that allowed us to detect and manage early.

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