PATTERN OF CONGENITAL HEART DISEASE AT LIAQUAT UNIVERSITY HOSPITAL HYDERABAD

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ABSTRACT

OBJECTIVE:

To find out the frequency of various Congenital heart disease among affected children from birth to 12 years of age at Liaquat University Hospital Hyderabad.

Setting:
Study was conducted in pediatric Department of Liaquat University Hospital Hyderabad.

Study design:
This descriptive study was conducted over a period of one year from April 2006 to March 2007.

Patients and Method:
Eighty Children up to 12 year of age with clinical suspicion of congenital heart disease were evaluated for type of lesion, gender and age at presentation. They were subjected to chest X-ray, ECG and detailed echocardiography which confirmed the final diagnosis .The results was analyzed on SPSS window version 10.

Results:
Out of eighty cases fifty were male (62.5%) and thirty were female (37.5%).Fifty eight (72.5%) children were having cyanotic heart disease. Among Acyanotic lesion VSD was present in 42 patients (52.5%), ASD were 7 (8.75%) 6 have secondum types. PDA was present in 6 (7.50%) patients. A total of 7 (8.75%) patients had the TOF and 3 (3.75%) had TGA in association with VSD in one and ASD in 2 patients .Severe pulmonary stenosis was seen in 3 (3.75%) patients 2 were in association with ASD. Single ventricle and dextrocardia were seen in 3 (3.75%) patients each. Complex cardiac lesion was seen in 2 (2.5%) patients.

Conclusion:
Majority of Congenital heart disease in children at Tertiary care Hospital are acynotic , VSD is the commonest acynotic lesion while TOF is the commonest cyanotic lesion.Early detection of these defect is important for proper management and the gold standard for diagnosis of these defect is 2D echocardiography with Doppler examination.

Keyword:
Congenital Heart Disease (CHD), VSD, TOF, Echocardiography.

INTRODUCTION

Congenital heart disease is defined as structural abnormality of heart or blood vessels near the heart, present either at the time of birth or detected later on.[1] The incidence of these defect is 0.5-0.8 live birth, it increases to 2-6% if first degree relative is affected.[2] In developing countries including Pakistan majority of births take place at home and routine screening of neonate is not common so true birth prevalence of CHD cannot be possibly calculated.[3] In western countries pattern of CHD is well documented.[4,5]

Clinically a child having CHD may present with CCF, cynosis, respiratory distress, hypoxic spells, feeding difficulties and failure to thrive but in some children

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it may be asymptomatic and murmur is detected by attending physician during examination for other illness. Early diagnosis and proper management is essential to prevent morbidity and mortality.

This study was conducted to find out the age and sex distribution and frequency of various CHD in children up to 12 year of age.

PATIENTS AND METHOD:

This study was done over a period of one year from April 2006 to march 2007 in pediatric department of Liaquat University Hospital Hyderabad which is a tertiary care hospital having the facilities for echocardiography. All children up to 12 years of age with clinical suspicion of CHD undergo assessment with detailed history, clinical examination, CXR and ECG. Final diagnosis was confirmed by echocardiography. They were divided into four age groups 0-29 days,1month to1 year, over 1 year to 6 year, over 6 year to 12 year .Children more then 12 years of age or those with features of acquired heart disease and those who expired before confirmation of diagnosis were excluded from this study.

RESULTS:

A total of 80 patients were analyzed during the study period. Data from these patients were recorded on specified proforma regarding age, sex, age of presentation and type of lesion (Table 1, 2, 3). Age group ranged from newborn to 12 years .More then 70% of children presented during 1st year of life, 20 % in age group >1-6 year while 10% at age above 6 year to 12 year. Out of 80 cases 50 (62.5%) were male and 30(37.5%) female. Male to female ratio was 2:1. Fifty eight (72.5%) children were having cyanotic heart disease, the commonest lesion was VSD found in 42 (52.5%) children, of these 32 (76.1%) children had perimembranous defect, 6 (14.28%) has supracristal and 4 (9.25%) had muscular defect ,the mean age of presentation was 11.5 months and commonly these children fails to thrive and have repeated chest infection. ASD was the second commonest Acyanotic defect found in 7 (8.75%) and majority 6 (85.7%) have secondum type and mean age of presentation was 15.5 months .PDA was seen in 6 (7.50%) male female ratio was 2:1 and mean age of presentation was 3.8 months, common presentation was repeated chest infection. AV canal defect in 3(3.75%) children one male and two were female one of them had Down Syndrome and mean age of presentation was 8.5 months .Amongst stenotic lesion severe pulmonary stenosis was present in 3(3.75%) patients 2 of them had associated ASD. Amongst cyanotic heart defect TOF was detected in 7 (8.75%) children out of them 5 were male and 2 were female and mean age of presentation was 13 months, followed by TGA in 3 (3.75%) with addition of ASD and VSD and mean age of presentation was 3 months, single patient had truncus areriosus and presented at 4 month of life. Three (3.75%) children had single ventricle all were male and mean age of presentation was 3 weeks with respiratory distress. Dextrocardia in association with VSD, AV canal defect and cartaginor syndrome was found in 3 (3.75%) 2 male 1 female and mean age of presentation was 6years. Two patients (2.5%) had complex cardiac lesion and mean age of presentation was 5.4 years. Fifteen (18.75%) children were detected to have cardiac lesion on routine examination for some other disorder Table 4 shows the symptoms with which children with congenital heart disease came to hospital. Other symptoms were developmental delay 5 cases (6.25%) of which 4 cases were of Down Syndrome and 1 of congenital rubella syndrome, congenital

TABLE - 1

Frequency of various CHD

Congenital heart defect	No.	%
VSD	42	52.5%
ASD	7	8.75%
PDA	6	7.75%
AV canal defect	3	3.75%
TOF	7	8.75%
PS	3	3.75%
TGA	3	3.75%
Single ventricle	3	3.75%
Dextrocardia	3	3.75%
Complex cardiac lesion	2	2.50%
Truncus arteriosus	1	1.25%

TABLE - 2

AG E & SEX Distributions

Age Group	No. of cases M	F	Total	%
0-29 days	3	4	7	8.75%
1 month-1 year	32	17	49	61.25%
1 year- 6 year	10	6	16	20%
6 year-12 year	5	3	8	10%

TABLE - 3

Sex Distribution & Age of Presentation

Type of CHD	No. of cases in Male	% in Male	No. of cases in Female	% in Femal	Mean Age of presentation
VSD	27	64.28%	15	35.71%	11.5 months
ASD	4	57.14%	3	42.85%	15.5 months
PDA	4	66.66%	2	33.33%	3.8 months
AVcanal defect	1	33.33%	2	66.66%	8.5 months
TOF	5	71.42%	2	28.57%	13 months
PS 2.5 years		2	66.66%	1	33.33%
TGA	1	33.33%	2	66.66%	3 months
Single ventricle	3	100%	0	0%	3 weeks
Dextrocardia	2	66.66%	1	33.33%	6 years
Complex cardiac lesion	1	50.00%	1	50.00%	5.4 years
Truncus arteriosus	0	0%	1	100%	4 months

TABLE - 4

Symptoms in Cases of CHD

Symptoms	No. of Caes	%
Recurrent chest infection	24	30%
Dyspnoea	17	21.25%
Found on R.E	15	18.75%
Hypoxic spells	10	12.5%
CCF	6	7.5%
Delayed development	5	6.25%
Cyanosis	4	5%
Congenital abnormalities	4	5%
FTT	3	3.75%
Fatigue	1	1.25%

abnormalities in 4 (5%) cases and failure to thrive in 3 cases (3.75%).

DISCUSSION

Congenital heart diseases are among the more common major malformations at birth.[6] In developing countries thousands of children die due to CHD.[7] One quarter of all deaths from CHD occur in the 1st month of life, and half to two third of deaths occur within 1st seven to ten days of life.[8,9] Many infants require corrective or palliative surgery and frequent hospitalization during 1st year of life.[10]

Most of the studies are confined to hospitals so true estimate of magnitude of CHD is not possible .Early recognition and careful management is critically important in the outcome of these patients. Our study is also a hospital based study to look for pattern of CHD in patients who are referred to tertiary care hospital from interior Sind in addition to patients from Hyderabad city.

Children with CHD are brought to the hospital with a variety of symptoms which may or may not be related to the heart. The symptoms of significance are features of congestive cardiac failure, respiratory & feeding difficulties, dyspnoea, cyanosis, hypoxic spells and associated syndromes and congenital malformations.

In our study 70% children with CHD were below the age of 1 year 20% over 1 year to 6 year and 10%were over 6 to 12 year. About 72% of CHD were Acyanotic and VSD was the commonest defect, (52.5%) majority had perimembranous type followed by supracristal and muscular type. Most of these patients presented in 1st year of life, the mean age of presentation was 11.5 months and males were affected predominantly in our study. These findings are in accordance with other studies from Pakistan.[11-13] The second most common acyanotic defect in our study was ASD (8.75%) majority being of secundum type (85.7%) Ahmed and Wahaj studies also showed ASD as the second common acyanotic defect.[14,11] AV canal defect was observed in 3.75% of cases in our study while it was seen in 2.6% of cases in Peshawar study by Fazlur Rahim.[13] Persistent ductus arteriosus was present in 7.50% cases in our study, majority were infants and male were affected more then

female. Similar figure was shown in a study at Nepal teaching Hospital but Rahim et al reported 2.6% cases of PDA.[15,13] Tetrology of Fallots was the commonest cyanotic heart disease present in 8.75% cases, majority were male and mean age of presentation was 13 months.

Other studies from Pakistan also reported TOF as the principal cyanotic congenital heart disease.[16,17] Pulmonary stenosis and TGA were present in 3.75% of cases respectively, but TGA was earlier to present in our study and mean age of presentation was 3 months. Dextrocardia was present in 3.75% of cases one had cartaginor syndrome other had VSD. Dextrocardia was found in 0.9% children in a study at NICVD, Karachi.18 Single ventricle was present in 3.75% of cases in our study all were male and presented within 3 weeks of life .Complex cardiac lesion were seen in 2.5% in our study while it was reported 5.2% and 6.4% in other studies.[11,17] Truncus arteriosus was present in 1.25% of cases in our study. Other anomalies like coarctation of aorta, aortic stenosis and Ebstiens anomalies were not observed in our study. The symptom with which children presented were recurrent chest infection(30%), dyspnoea(21.25%), cyanotic spell (12.5%), cardiac failure(7.5%), delayed development (6.25%), cyanosis(5%), congenital abnormalities (5%), failure to thrive(3.75%) and fatigue(1.25%), while in 18.75% of cases cardiac lesion were detected on routine examination for some other illnesses.

In developed countries early detection and surgical intervention have provided a high chance of survival in children with CHD but in developing countries like Pakistan the facilities for diagnosis and treatment of children with CHD are limited to larger cities and quite expansive and beyond the reach of poor, so many children die before diagnosis at an early age. To improve the survival of children with CHD there is need to diagnose and treat CHD at earliest age by provision of diagnostic and surgical facilities at each corner of the country in order to intervene successfully.

CONCLUSION

Our study performed over a period of 1 year in tertiary care Hospital shows that Congenital Heart Disease are still common in our society and constituting a big health problem. Majority of CHD in children up to 12 years of age are Acyanotic followed by cyanotic heart disease. VSD is the major Acyanotic lesion & TOF is the major cyanotic lesion. Most of the information about morphology and homodynamic can be obtained by 2D echo and Doppler examination of all infants and children suspected of having CHD, therefore it is essential tool for diagnosis beside proper management to improve the survival of patients with various CHD by medical or surgical intervention at the earliest possible age.

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