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PATTERN OF CONGENITAL HEART DISEASE AT BAHAWAL VICTORIA HOSPITAL, BAHAWALPUR

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Abstract:

Objective: *To find out the prevalence of various congenital heart defects in children from birth to 12 years of age.*

Study design: *This descriptive study was conducted at the Pediatric Unit-II and Cardiology department of Bahawal Victoria Hospital, Bahawalpur for one-year duration from April 2019 to April 2020.*

Patients and Method: *Eighty children up to 12 years of age with clinical suspicion of a congenital heart defect were assessed on the type of lesion, sex and age at the time of reporting. They underwent chest X-ray, EKG, and detailed echocardiography that confirmed the final diagnosis, and the results were analyzed in the SPSS version 10 window.*

Results: *Of eighty cases, fifty were male (62.5%), thirty were female (37.5%), and fifty-eight (72.5%) children had cyanosis. 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.*

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INTRODUCTION:

Congenital heart disease is defined as a structural abnormality of the heart or blood vessels around the heart, present at birth or later detected[1-2]. The incidence of these defects is 0.5-0.8 live births, rises to 2-6% for first-degree relatives. In developing countries, including Pakistan, most births take place at home and routine screening for newborns is not common, so the actual prevalence of CHD at birth cannot be calculated[3-4]. Coronary heart disease has been well documented in Western countries. Clinically, a child with CHD may show CCF, cyanosis, respiratory distress, attacks of hypoxia, feeding difficulties, and lack of development, but in some children, this may be asymptomatic and murmurs are detected by a doctor on examination for another disease[5-6]. Early diagnosis and proper management are essential to prevent morbidity and mortality. This study was conducted to establish the age, gender, and prevalence of different CHD in children up to 12 years of age.

PATIENTS AND METHOD:

This descriptive study was conducted at the Pediatric Unit-II and Cardiology department of Bahawal Victoria Hospital, Bahawalpur for one-year duration from April 2019 to April 2020. All children under 12 years of age with clinical suspicion of CHD are assessed with a detailed history, clinical examination, CXR and ECG. The final diagnosis was confirmed by echocardiography. They are divided into four age groups 0-29 days, from 1 month to 1 year, over 1 to 6 years old, over 6 to 12 years old. Children 12 years of age or older or with evidence of acquired heart disease and those who died earlier to confirm the diagnosis were excluded from this study.

RESULTS:

A total of 80 patients were analyzed throughout the study period. Data from these patients were recorded on specific proformas regarding age, sex, age of presentation, and type of lesion (Tables 1, 2, 3).

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 abnormalities in 4 (5%) cases and failure to thrive in **AG E & SEX Distributions** 3 cases (3.75%).

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

TABLE – 3 Sex Distribution & Age Presentation

Type of CHD	No. of cases in Male	% in Male	No. of cases in Female	% in Female	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
AV canal defect	1	33.33%	2	66.66%	8.5 months
TOF	5	71.42%	2	28.57%	13 months
PS	2	66.66%	1	33.33%	
2.5 years TGA	1	33.33%	2	66.66%	3 months
Single ventricle	3	100.00%	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 Cases	%
Recurrent chest infection	24	30%
Dyspnea	17	21.25%
Found on R. E	15	18.75%
Hypoxic spells	10	12.50%
CCF	6	7.50%
Delayed development	5	6.25%
Cyanosis	4	5%
Congenital abnormalities	4	5%
FTT	3	3.75%
Fatigue	1	1.25%

The age group ranged from newborn to 12 years of age. Over 70% of children reported in the first year of life, 20% in the age group> 1-6 years, and 10% in the age group> 6-12 years old. Of the 80 cases, 50 (62.5%) were male and 30 (37.5%) were female. The male to female ratio was 2: 1. Fifty-eight (72.5%) children had cyanosis of the heart, the most common lesion was VSD found in 42 (52.5%) children, of these 32 (76.1%) children had peri membranous defects, the mean age of presentation was 11.5 months and usually these children do not develop and have recurring chest infections. ASD was the second most common embryonic defect found in 7 (8.75%) and most 6 (85.7%) with the secondary type, and the mean age of presentation was 15.5 months. In 6 (7.50%) men, the PDA ratio was 2: 1 and the mean age of presentation was 3.8 months, recurring chest infections were frequent presentations. AV channel defect in 3 (3.75%) children, one male and two female one of them had Down's syndrome, and the mean age of presentation was 8.5 months. Among the stenosis lesions, severe pulmonary stenosis was found in 3 (3.75%) patients. Among cyanobacterial heart defects, TOF was detected in 7 (8.75%) children, 5 of whom were male and 2 female, and the mean age of presentation was 13 months, followed by TGA in 3 (3.75%) with the addition of ASD and VSD and the mean age of presentation was 3 months, one patient had truncus arteriosus and presented at 4 months of age. Three (3.75%) children had a single ventricle, all were male, and the mean age of presentation was 3 weeks with respiratory failure. Dextrocardia in combination with VSD, AV channel defect and Carthage syndrome were found in 3 (3.75%) 2 men and 1 woman, and the mean age of presentation was 6 years. Two patients (2.5%) had complex heart injury and the mean age of presentation was 5.4 years. Fifteen (18.75%) children were diagnosed with heart damage during a routine examination for another disorder. Table 4 shows the

symptoms with which children with congenital heart disease were admitted to the hospital. Other symptoms were developmental delay in 5 cases (6.25%), including 4 cases of Down's syndrome and 1 congenital rubella syndrome, birth defects in 4 (5%) cases and no development in 3 cases (3.75%).

DISCUSSION:

Congenital heart disease is one of the most common major birth defects. In developing countries, thousands of children die from coronary heart disease. A quarter of all deaths from CHD occur in the first month of life, and half to two-thirds of deaths occur in the first seven to ten days of life. Many infants require corrective or palliative surgery and frequent hospitalization during the first year of life. Most studies are confined to hospitals, so a true estimate of the severity of CHD is not possible. Early diagnosis and careful treatment are critical to the outcome of these patients. Our study is also a hospital study to look for a pattern of coronary artery disease in patients who are referred to a tertiary hospital from inside Sind, in addition to patients from Hyderabad City. Children with CHD are admitted to hospital with a variety of symptoms, which may or may not be related to the heart. Symptoms of significance include those of congestive heart failure, difficulty in breathing and feeding, dyspnea, cyanosis, hypoxia attacks and associated syndromes and congenital anomalies. In our study, 70% of children with CHD were under the age of 1, 20% over the age of 1 to 6, and 10% over the age of 6 to 12. About 72% of people with CHD were A cyanotic and VSD was the most common defect (52.5%) most were peri membranous followed by carpal and muscular. Most of these patients reported when they were 1 year old, the mean age of presentation was 11.5 months, and in our study, they were mostly male. These results are in line with other studies from Pakistan. The second most common a cyanotic defect in our study was ASD (8.75%), mostly of the second type (85.7%). Research by Ahmed and Wahaj also found ASD to be the second common a cyanotic defect. AV channel loss was observed in 3.75% of the cases in our study, while in 2.6% of the cases in the Peshawar Fazlur Rahim study. Patent ductus arteriosus was present in 7.50% of the cases in our study, the majority were infants, and men were more affected than women. A similar figure was found in a Nepalese teachers' hospital study, but Rahim et al. Reported 2.6% of PDA cases. The tetralogy of Fallot's was the most common cyanosis of the heart occurring in 8.75% of cases, the majority were men, and the mean age of presentation was 13 months. Another study from Pakistan has also found TOF to be the major cyanosis of a congenital heart defect. Lung stenosis and TGA occurred in 3.75% of cases, respectively, but TGA occurred earlier in our study and the mean age of presentation was 3 months. A single ventricle was present in 3.75% of the cases in our study, all were male, and occurred within 3 weeks of life. Complex heart lesions were found in 2.5% in our study, while in other studies it was found in 5.2% and 6.4%. Truncus arteriosus was present in 1.25% of the cases in our study. No other anomalies such as aortic coarctation, aortic stenosis, and Ebstiens anomalies were observed in our study. The symptoms reported by the children were recurrent chest infections (30%), dyspnea (21.25%), cyanosis (12.5%), heart failure (7.5%), delayed development (6.25%), cyanosis (5%), birth defects (5%), lack of development (3.75%) and fatigue (1.25%), while in 18.75% of cases, a routine examination of other diseases detected changes in the heart. In developed countries, early detection and surgical intervention have had a high chance of survival for children with CHD, but in developing countries such as Pakistan, facilities for diagnosing and treating children with CHD are restricted to larger cities and are quite extensive and inaccessible to the poor, so many children dies before diagnosis at an early age. To improve survival in children with CHD, there is a need to diagnose and treat CHD at an early age by providing diagnostic and surgical facilities in every corner of the country for effective intervention.

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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