Frequency of congenital cyanotic heart diseases in Tripoli children hospital

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Abstract: Congenital heart disease is the most common congenital problem in pediatric age group. It represents 30% of congenital anomalies in children. Presentation varies from asymptomatic accidental findings to severe cardiac decompensation and death, especially cyanotic lesions which has a high morbidity and mortality rate. Early recognition and interventions has great implications on prognosis. The aim is to view, prevalence and gender distribution of cyanotic congenital heart disease in Libyan children attending the cardiac department at Tripoli children's hospital. Retrospective study, scrutinizing the clinical records of all cases referred to the cardiac department at Tripoli children hospital who had been found to suffer from congenital heart disease between January 2009 and December 2010. Inclusion criteria: all children whose diagnosis has been confirmed to have congenital cyanotic heart disease. We obtained all patients had history, clinicalexaminations findings, chest X ray, ECG, ECHO and few CT angiography. Sex, age, mode of presentations, birth weight and type of cyanotic lesions. A total of (103) children were included. There were 68 males (66%) and 35 females (34%). 25 patients had transposition of great arteries, TGA (24.3%), 21 patients were Tetralogy Fallot, TOF, (20.4%), 13 patients with tricuspid atresia, TA, (12.6%), 11 patients were double outlet Right ventricle, DORV, (10.6%), 10 patients with single ventricle, SV (9.7%), 9 patients with pulmonary atresia (PA) 8.7%. Nine more patients had different rare cyanotic lesions (Ebestien anomaly, Truncusarteriosus, total anomaly pulmonary venous return, persistent pulmonary hypertension and mitral atresia). Most of the patients present less than three months of age (78.6%). Cyanosis and murmur were common presentation (35%, 31%, respectively). Nearly 50% of patient's weight was < 3 kg at presentation. Significant congenital cyanotic heart diseases are common and clinicians should have a high index of suspicious of cyanotic heart disease in neonates and refer them as soon as possibleto pediatric cardiologist to confirm diagnosis and to start appropriate management. Well timed early detection and intervention is an indispensable requirement to decrease both mortality and morbidity rates. 2D-echo with Doppler forms the gold standard for diagnosis of congenital heart diseases.

Key words: Congenital heart disease, 2D echocardiography, TGA, TOF, Libya.

Introduction

Congenital heart defects affect nearly 1% of live births and 25% of them are considered to be critical which require surgery or catheterization within the first year of life (1). Infants with critical congenital heart defects most of them are cyanotic lesions. Cyanosis can occur when there is obstruction to right ventricle out flow causes intracardiac right to left shunting, congenital heart defects (CHDs) is a malfunction and malformation of cardiac chambers and the great vessels arising from it. CHD is an important cause of morbidity and mortality in infancy. CHD affects 6-8 babies in every

1000 live birth (2) and 1-2 % of them had moderate to severe CHD (3). CHD is the most common congenital problem in children accounting for nearly 25% of all congenital malformations (4). Most of cyanotic heart defect are life-threatening and presented in very serious condition in which might lead to death in the first year of life particularly transposition of the great arteries, pulmonary atresia with intact septum, tricuspid atresia, hypoplastic left heart, and mitral atresia. These all lesions called critical congenital heart diseases (CCHD), and needs catheterization and or surgical interventions in the first year of life; also the mortality is high in these patients. CHDs are the common single group of abnormalities accounting for about 30% of the total congenital abnormalities (5). Early diagnosis and proper management with early intervention for these patients could give normal or near normal life expectancy, patient born with severe forms of CHD have 12 folds increase risk of death during first year of life and the risk increase more if diagnosed after neonatal period (6).

Patients and methods

This is a retrospective descriptive study, carried out in Tripoli children hospital (university hospital), from January 2009 till December 2010 medical records of clinically diagnosed patients with cyanotic CHD were reviewed. They were 103 referred patients who underwent cardiologic examination, ECG, chest x-ray and echo-cardiography and few CT angiographies were done for them. Birth weight, symptoms, signs, age at presentation, sex, and type of cyanotic heart defects were recorded. The Excel statistical package was used for data analysis.

Results

Eight hundred and twelve files were retrospectively studies and diagnosed to have congenital heart defect, cyanotic lesions were detected in 103 patients, 68 were males (66 %) and 35 were females (34%), with a male to female ratio of 1.9:1 (figure1).

Age distribution of patients were from intrauterine life to 10 years of age witha mean age of 186.5 days, more than half of the patients diagnosed in the neonatal period (54%) and (78.6%) were diagnosed at age of three months. 49% had a birth weight below three kilograms and 35 % were between three and four kilogram at presentation. Cyanosis was the commonest presentation (35%), then murmur (30%), with (12.6%) had both murmur and cyanosis figure (2). The commonest cyanotic lesion was TGA (24.3%), followed by TOF (20.4%). With gender distribution are shown in table (1) and figure (3).

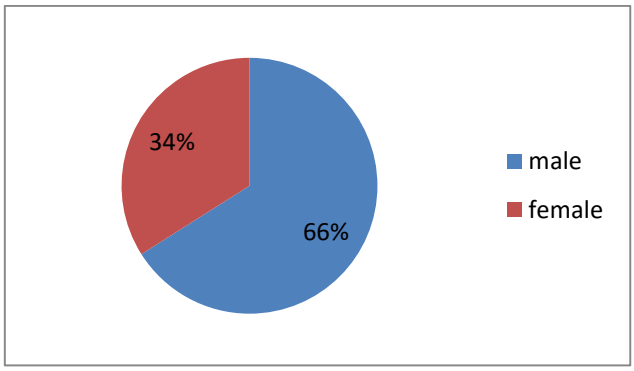

Figure 7: Male and female ratio

Type of CHD	%	No. of patients	Male	Female
TGA	24.3	25	16	9
TOF	20.4	21	13	8
TA	12.6	13	9	4
DORV	10.6	11	6	5
SV	9.7	10	8	2
PA	8.7	9	6	3
HLHS	4.8	5	4	1
Others	8.7	9	6	3
Total	100%	103	68	35

Table 1: Frequency and distributions of CHD

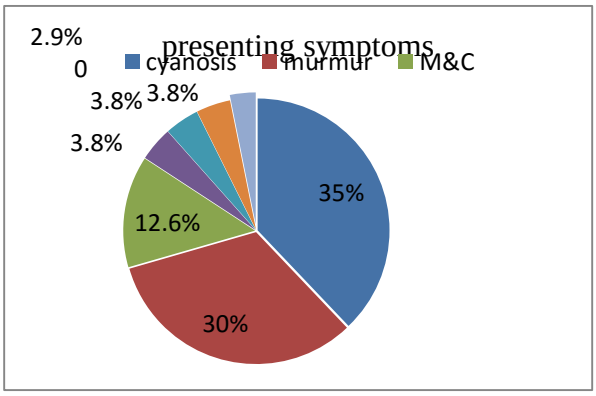

Figure 3: presenting symptoms

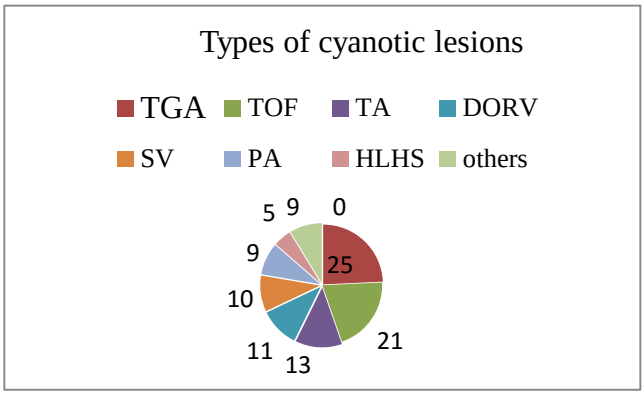

Figure 4: Types of cyanotic lesions

Discussion

Congenital heart disease is the most congenital anomalies in children; it affects 1% of live birth of which 25% of them presented with critical congenital heart disease. The critical congenital heart disease majority of them are cyanotic lesions which required catheterizationsand orsurgical intervention in first few hours or days or months from the first year of life. Throughout the World about 2-3 in 1,000 newborn infant with congenital heart disease will be symptomatic in the first year of life (7). The diagnosis is established by the first week of life in 40-50% of patients with congenital heart disease and by one month of age in 50-60% of patients (7).

In our study the diagnosis of cyanotic heart disease was done in the first week of life in 33% of patients and 54% by one month of ageand in first 3 months in 78.6% of patients which is a little bit delayedfrom the percentage throughout

the world for all congenital heart disease mainly in the first week of life, that is means we arestill late to detect the cyanotic babies in early life, might be due to discharged babies not checked by expert physician or the symptoms were not noticed by mothers.

In the current study the common cyanotic lesion was TGA (24.3%) followed by tetralogy Fallot TOF (20.4%), DORV (10.6%), PA (8.7%) and TAPVD (2.9%). In comparison to Indian study where TOF accounts 44% while DORV 14%, TGA 9%, PA 8% and TAPVD 7% of cyanotic heart disease we found that TGA was high in our patients nearly threefold of Indian patients and their patients with TOF more than double of our patients, DORV approximately same, PA equal to our patients and TAPVD is less occurrence in our patients. But in other study tetralogy Fallot was the commonest as in Cameron it accounts 26.1% from total congenital heart disease (8) and in Pakistan TOF was the commonest cyanotic lesion it accounts 17.7% from total CHD (9), most of the study reported that TOF were the most common cyanotic lesions (4, 8).

In summary most of our patients diagnosed in the first 3 months of life and the common cyanotic lesions were TGA followed by TOF, earlier diagnosis and management on time will declining the morbidity and mortality in this age group with the providing of essential facilities for diagnosis, medical and surgical interventions at the appropriate time will have a positive impact on consequence for these children.

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