Prevalence of Cardiac Abnormalities in Cases

Referred to Echocardiography Unit

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Abstract

Key Words: Cardiac abnormalities – congenital heart disease– rheumatic heart disease –cardiomyopathy- echocardiography

Retrospective descriptive study was conducted to determine the prevalence and relative frequency of cardiac abnormalities diagnosed by echocardiography Unit in pediatric Hospital, Cairo University during a period of 2 years (January 2005-December 2006).Congenital Heath diseases was the most frequent cardiac abnormalities (89.94%) and the most frequent defects ware VSI (39.18%) , ASD (24.71%) and PS (13.19%) Rhumatic Heart disease was the second cardiac abnormalities (5.25%) with femal predominant and mitral regurgitation was the commonest cardiac lesion in RHD cordiomyopathy was the less frequent type of cardiac abnormalities (4.79%)

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LIST of ABBREVIATION

ASD	Atrial septal defect
AS	Aortic stenosis
AR	Aortic regurge
CHD	Congenital heart disease
COA	Coarctation of aorta
DCM	Dilated cardiomyopathy
DORV	Double outlet right ventricle
EA	Ebestien anomaly
ESPAP	Estimated systolic pulmonary artery pressure
FS	Fractional shortening
IVS	Inter ventricular septum
LVEDD	Left ventricular end diastolic diameter
LVESD	Left ventricular end systolic diameter
LVOT	Left ventricular outlet
MR	Mitral regurge
MS	Mitral stenosis
MVP	Mitral valve prolapse
PAP	Pulmonary artery pressure
PH	Pulmonary hypertension
PDA	Patent ductus arteriosus
PFO	Patent foramen oval
PG	Pressure gradient
PR	Pulmonary regurge
PS	Pulmonary stenosis

RHD	Rheumatic heart disease
TA	Tricusped atresia
TAPVR	Total anomalies pulmonary venous return
TGA	Transposition of great arteries
TOF	Tetralogy of Fallot
TR	Tricuspid regurge
VSD	Ventricular septal defect

Introduction and Aim of The Work

The spectrum of echocardiographically detected cardiac abnormalities in pediatric age group include congenital cardiac malformations, acquired cardiac diseases as rheumatic heart disease with various valvular affection and cardiomyopathies.

Additionally, echocardiography could detect some complications of the diseases as vegetations of infective endocardities and thrombi.

Congenital heart diseases (CHD) are the malformation of the heart or the large blood vessels associated with the heart. **(Smitha et al, 2006)**

They are the most frequent (one- third) of all major birth defects, with an estimated prevalence at birth of approximately 8-10 cases per 1000 births**. (Bassili et al, 2000)**

Congenital heart disease as a whole occurs with equal frequency in males and females, but some lesions such as aortic stenosis, coarctation of the aorta, transposition of the great arteries and tetralogy of Fallot are more common in males whereas patent ductus arteriosus and aterial septal defect are common in females**.(Samanek M, 1994)**

CHD comprise the most common group of congenital malformations. Despite recent developments in interventional and surgical techniques, heart disease in children continues to be an important cause of morbidity and mortality**.(Basbinar et al, 2006)**

The etiology of the majority of congenial cardiac anomalies remains unknown. Most cases are sporadic and occur as isolated events in otherwise normal families.

Specific chromosomal abnormalities are associated with cardiac anomalies but account for only a small proportion of all children with congenital heart disease, about 5 percent**.(Shinebourne and Anderson, 1980)**

Down syndrome was found as the commonest syndromic anomaly with cardiac defects. **(Volti et al, 1991)**

The most common malformation is ventricular septal defect which accounts for approximately 25% of congenital heart defects. The majority of these structural abnormalities occur as isolated cardiac defects. Approximately 25% of patients with CHD also have other non-cardiac malformation**. (Bassili et al, 2000)**

It is recognized that in some families two or more children have similar cardiac malformations and that some pairs of monozygotic or dizygotic twins have the same anomaly. Thus genetic septal defects are inherited as autosomal dominant or as autosomal recessive**.(Volti et al, 1991)**

Rheumatic heart disease is still a major health problem in developing countries and the current prevalence of rheumatic heart disease is 0.68 per 1000 children. **(Jose et al**, 2003)

The cardiomyopathies are defined as diseases of the myocardium associated with cardiac dysfunction. **(Khan et al, 2004)**

Dilated cardiomyopathy is the most common form of cardiomyopathy .The annual incidence of dilated cardiomyopathy in children younger than 18 years was 0.57 cases per 100,000 per year. The majority of children (66%) had idiopathic disease**. (Towbin et al, 2006)**

Aim of The Work :

We aimed to study the prevalence of different types of congenital heart diseases versus acquired cardiac problems, as rheumatic heart disease and cardiomyopathies, among cases referred to Echocardiography Unit, Pediatric Department, Cairo University over a period of 2 years (2005-2006). To determine age and sex distribution of different cardiac abnormalities and to assess the outcome of post operative cardiac surgical procedures.

Incidence of Congenital Heart Disease

Congenital heart diseases (CHD) refer to structural or functional heart diseases, which are present at birth. Some of these may be discovered later. These are primarily seen in neonates, infants and children,(**Saxena, 2005**)

Although the patent ductus arteriosus of prematurity is clearly a structural cardiovascular abnormality present at birth, it is a functional abnormality of a normal fetal structure and will usually not persist after appropriate pharmacologic therapy or maturation.(**Rudolph et al, 1987)**

More intensive studies, in which pediatric cardiologists played a large part, have reported incidence of congenital heart disease of about 8 per 1000 live births. (**Braunwald, 1997)**

CHD occurs in 0.5-0.8% of live births. the incidence is higher in stillborns (3-4%), abortuses(10-25%),and premature infants (about 2%excluding patent ductus arteriosus). **(Daniel, 2004)**

Among infants with congenital cardiac defects there is a spectrum of severity: About 2 to 3 in 1000 infants will be symptomatic in the first year. The diagnosis is established by 1 week of age in (40 - 50%) and by 1 month of age in (50 - 60%) of patients with heart defects**.(Nelson et al, 2004)**

The incidence of CHD in the Western industrialized world has varied from a low value of about 3 to 5 per 1000 live births to about 12 per 1000 live births. Most of the lower incidence figures were obtained before there were sufficiently well trained

pediatric cardiologists and before the success of cardiac surgery put a premium on early and correct diagnosis of CHD.

The advent of echocardiography with Doppler color flow measurements has made it possible to diagnose lesions that are asymptomatic, minor, and even without murmurs. The incidence of CHD in underdeveloped countries is estimated in some countries, but the distribution of different lesions is fairly similar to those in developed countries except perhaps for fewer with aortic stenosis and coarctation of the aorta.(**Hoffman, 1995)**

CHD is a significant health problem. Increasing incidence of CHD might be attributed to more diagnoses with new technologic development or it may indicate a real increase in the defects. (**Basbinar et al, 2006)**

Ventricular septal defect (VSD), atrial septal defect (ASD), tetralogy of Fallot (TOF), patent ductus arteriosus (PDA) Pulmonary stenosis (PS),aortic stenosis (AS) coarctation of aorta (COA),and atrioventricular septal defect (AVSD) account for 85% of all CHDs. The remaining 15% are the rare and complex CHDs including persistant truncus arteriosus (PTA), tricusped atresia (TA), total anomalous pulmnary venous connection (TAPVC), hypoplastic left heart syndrome (HLHS), single ventricle (SV), Ebestien anomaly (EA),and dextrocardia.(**Smitha et al, 2006)**

Precise data concerning the frequency of individual congenital lesion also are lacking and the results of many analysis differ depending on the source (living or dead) and the