Pattern of cardiac disease at pediatric cardiac clinic of Tikur Anbessa Hospital

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Abstract: A retrospective descriptive study conducted on 324 children with cardiac disease presenting for the first time at the pediatrics cardiac clinic of Tikur Anbessa Hospital in two years, January 03-December 04. It was found out 177(54.6%), 127(39.2%) and 20(6.2%) of patients had Congenital Heart Disease, Rheumatic Heart Disease and non Rheumatic acquired heart disease respectively, with male to female ratio of 1: 1.36.

The study revealed Ventricular Septal defect(VSD) in 48(27.1%), Patent Ductus arteriosus(PDA) in 27(15.2%), and Atrial Septa Defect(ASD) in 23 (13.0%) mixed lesion in 24(13.6%) as the commonest congenital heart disease seen in the study period..

All patients with Rheumatic Heart disease had mitral valve involvement. Pure mitral lesion was seen in 44(34.6%) of Rheumatic Heart disease of patients. Myocarditis in 7(35.0%), dilated Cardiomyopathy in 5(25.0%) and arrhythmia in 4(20.0%) were the main types of non rheumatic acquired heart disease followed in the clinic. Thus, both congenital and rheumatic heart diseases are still significant causes of morbidity in Ethiopian children. Hence, community based surveys are needed to identify environmental risk factors, the magnitude of the problem so as to develop effective medical service and control measures.

INTRODUCTION

The cardiovascular system is the first functioning organ system in the embryo. The development of such a complex system is the result of biomechanical force generated by proliferation of cells and extra cellular matrix. A defective development of the system results in a congenital heart disease that occurs in about 0.5-0.8% of live births (1). Almost all cases of congenital heart disease need surgery in addition to medical treatment with drugs to lead normal life. Complex congenital Heart disease requires life long monitoring.(2)

In the developing country the commonest acquired cardiac disease is Rheumatic Heart Diseases (RHD)

which is frequently observed in the age group of 5-15 years. The age group which is most susceptible to group A beta hemolytic streptococcal infection. (3, 4)

The proper treatment of streptococcal throat infection with penicillin that is the primary prophylaxis for prevention of rheumatic fever; and the secondary prophylaxis administration of monthly Benzathin penicillin for prevention of recurrence is the most effective method to date to prevent sever valvular lesion until a successful vaccine against m protein of streptococcus is available. (5, 6, 7)

In Ethiopia data concerning both congenital heart disease (CHD) and Rheumatic heart disease available from hospital data obtained from chart analysis. And very few community surveys concerning prevalence of Rheumatic Heart Disease were published. (8, 9, 10)

Hadgu & parry in 1968 were the first to report on cardiac diseases in Ethiopia .Among a total of 75 cardiac patients seen at Ethio Swedish Pediatrics clinic they found 38(50.7%) having Rheumatic Heart disease and 26(34.7%) with Congenital Heart Disease . (8)
A study by Belay A from January to July 1986 showed VSD (35.8%),PDA (13.5%) & ASD(12.3%) as the commonest Congenital Heart Disease (10)

In the study done among school children at Butajera town of Ethiopia in 1991, Rheumatic Heart Disease prevalence was 4.6 per1000 (11). A similar study in Addis Ababa school children in 1999 showed prevalence of 6.4 per 1000(12).
This study conducted to see if there is any change in the pattern of cardiac disease seen at Pediatrics cardiac follow up clinic in the last 17 years.

MATERIALS AND METHODS

This is a retrospective descriptive study of cardiac patients seen for the first time at the Tikur Anbessa specialized hospital at the pediatrics cardiology follow up clinic. The cardiac clinic runs twice per week, one for congenital and one for acquired heart disease. Children aged up to 12 year

old presenting to the cardiac clinic for the first time in the period of January 2003-December 2004 were included in the study. Children who were diagnosed to have acute rheumatic fever with chorea and with no cardiac findings were excluded.

Data were collected using a study protocol that comprised of socio-demographic, clinical investigation information. Data entered using SPSS statistical soft ware and analysis done using SPSS & EPINFO version 6.04 computer programs.

RESULT

A total of 324 patients seen at the cardiac follow up clinic during the study period included in the study. Among them 137 (42.3%) were males and 187(57.7%) were females. The male to female ration was 1: 1.36. There were 77(54.3%) of the patient diagnosed to have congenital heart disease , 127(39.0%) were children with rheumatic heart disease .The remaining 20 (6.2%) children were having non rheumatic acquired heart disease(NRAHD) (Table 1) The actual age distribution was neonates 12(3.7%), infants 46(14.2%), under five year 80(24.7%), five to eight year 77(23.8%) and nine to twelve year 109(33.6%).

Table 2 shows the types of congenital lesions seen in the clinic. VSD 48(27.1%), PDA 27(15.2 %) ASD 23(13.6%) , multiple defects 24(13.6%) were the most common type of Congenital heart disease seen in this series. 107(60.4%) of the children with CHD Females and 70(39.6%) were males. The male to female ratio for CHD is 1:1.53

Table 3 shows the distribution of RHD with age, sex and type of lesion.

57(44.9%) of the children diagnosed to have RHD were males and 70(55.1%) were females with M:F ratio of 1:1.23 . All of the children with RHD showed mitral involvement. Pure mitral lesion was seen in 44(34.6%) of the cases. The youngest patient with pure MS was eight yrs old.

Table 4 shows distribution of duration of symptoms before diagnosis of cardiac disease, twenty five (14.1%) of children with CHD was asymptomatic. They were diagnosed incidentally on examination for other complaint. Forty three (24.3%) had a duration of symptoms 5 to 24 weeks while 33 (18.6)

had a duration of symptoms more than 104 weeks. Sixty (47.2%) of RHD had duration of symptoms up to six month while sixty seven (52.8%) had duration of symptoms more than six month. The majority of patients diagnosed to have non rheumatic acquired heart disease had duration of less than four weeks.

DISCUSSION

Although the pattern of cardiac diseases varies geographically; it remains important cause of morbidity and mortality all over the world. (1, 2, 5) Rheumatic heart disease has dramatically fall down in developing countries due to improvement of housing and socio- economics status but rheumatic fever and rheumatic heart disease remain a major threat to health of children the young and productive section of the population in the developing countries (5, 13, 14, 15)

Among 324 patients with organic heart disease included in this study (54.6%) was congenital, (39.2%) were rheumatic heart disease and (5.2 %) were diagnosed to have non rheumatic acquired heart disease. Female predominance observed both congenital and rheumatic heart disease this is the same as previous study. (8,9, 10)

In this study high proportion of congenital heart disease were seen and is may be explained by a better diagnostic possibilities with echocardiography and awareness of health providers sending children for a better diagnostic even if they are not symptomatic. This was also reflected in the proportion that 14 % of children seen at the pediatrics cardiac clinic were asymptomatic and diagnosis was established incidentally.

Our study has shown that rheumatic heart disease occurred in 39 % of cases and the mitral valve is the most commonly affected valve which also observed in different previous studies in Ethiopia. In 1974 over a period of twelve month at the Ethio-Swedish hospital EY and Johnson found 49 children out of 99 cases (50%) to have rheumatic heart disease. The mitral valve was affected in 96% of the cases.(8)

In our study the figure of rheumatic heart disease is shown to be lower than the previous study but this can be explained by the difference of age seen in the clinic, which was lower up to 12 year because of changed policy of the hospital.; where as in the previous study children up to 14 year were included.

The children with rheumatic heart disease 47.2 % of them had duration of symptoms up to six month the remaining 52.8% had duration of symptom more than six months. This shows that the majority of patients visited health institution after far advanced state of the disease.

Finally we conclude that although it is hospital based data both congenital and rheumatic heart diseases are the cause of significant morbidity in Ethiopian Children as also seen in the previous studies in 80 s. There is a need for a better designed community survey to asses the magnitude of the problem and to establish a service which encompass both curative and preventive aspect of management of both congenitaland

Rheumatic heart diseases.

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Table 1. Age distribution of cardiac patients presenting for the first time at the pediatrics cardiac follow up clinic of Tikur Anbessa specialized clinic January 2003-December 2004.

CHD RHD NRHD Total

Age	No %	No %	No %	No %				
Neonate	12	3.8	0	0	0	0	12	3.8
<one year	44	14.01	0	0	2	0.63	46	14.6
1-4 year	61	19.4	10	3.18	9	2.8	75	23.8
5-8 year	36	11.4	38	12.1	3	0.95	75	23.8
9-12 year	24	7.64	79	25.1	6	1.91	106	33.75
Total	177	56.3	127	40.4	20	6.3	314	100

Table 2:- Frequency distribution of Congenital Heart diseases by sex at Pediatrics cardiac follow up clinic of TAH, January 2003- December 2004

Congenital heart Disease	No of patient	Total (%)	
	M (%)	F (%)	
Ventricular septal defect	17 (9.6)	31 (17.5)	48 (27.1)
Atrial septal defect	6 (3.3)	17 (9.69)	23 (13.0)
Patent ductus arteriosus	12 (6.7)	15 (8.4)	27 (15.2)
A aortic stenosis	4 (2.2)	1 (0.5)	5 (2.8)
Pulmonary stenosis	11 (6.2)	4 (2.25)	15 (8.5)
Atrioventricular Canal	1 (0.56)	3 (1.6)	4 (2.2)
Tetralogy of Fallot	5 (2.8)	4 (2.25)	9 (5.1)
Coarctation of the aorta	-	1 (0.5)	1 (0.9)
Multiple lesion	6 (3.3)	18 (10.1)	24 (13.6)
Others	9 (5)	14 (7.9)	23 (12.9)
Total	70 (40)	107 (60)	177 (100.0)

able 3. Frequency distribution of Rheumatic Heart disease by age, sex and lesion.

MR= Mitral regurgitation

MS= Mitral Stenosis

A= aortic valve lesion

T= Tricuspid valve lesion

P= pulmonary valve lesion

Diagnosis	<5yr	5-8 yr	9-12 yr	Total(%)	% of Total			
	M (%)	F (%)	M (%)	F (%)	M (%)	F (%)		
MR	1(3.4)	4(13.8)	1(3.4)	10(34.5)	5 (17.2)	8(27.6)	29 (100.0)	22.8
MS	-	-	-	1(33.3)	1 (33.3)	1(33.3)	3 (100.0)	2.4
MR+MS	-	-	1(8.3)	3(25.0)	4 (33.3)	4(33.3)	12 (100.0)	9.4
M+A	1(4.2)	1(4.2)	5(20.8)	3(12.5)	9 (37.5)	5(20.5)	24 (100.0)	18.9
M+T	-	2(15.4)	1(5.9)	2(11.8)	4 (23.5)	8(47.0)	17 (100.0)	13.4
M+A+T	-	1(2.6)	8(20.5)	3(7.7)	14 (35.9)	13 (33.3)	37 (100.0)	30.7
M+A+T+P	-	-	-	-	2 (66.7)	1(33.3)	3 (100.0)	2.4

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