

Pattern of Congenital Heart Disease in Children Admitted into Tertiary Care Hospitals of Sylhet: A Multicenter Study

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Abstract

Objective: This study was carried out to find out the prevalence of CHD and their type among Children attended in the inpatient and out patient department of district tertiary care hospital of Sylhet.

Methodology: This prospective cross sectional study was carried out in the department of Paediatrics of 4 medical college hospitals of Sylhet over a period of 1 year from January 2012 to December 2012. All children with the confirmed diagnosis of CHD with the age ranging from 1st day of life to 12 years were analyzed considering the pattern of CHD.

Results: A total of 234 cases of CHD were admitted. Maximum cases of CHD were admitted between 29 days to 1year age group and 148 (63.25%) were male and the rest 86 (36.75%) were female. The male-female ration was 1.72:1. Most of the CHD (65.38%) were acyanotic and 34.42% cases were cyanotic. The commonest CHD was found VSD (33.33%) which was followed by ASD (16.24%), TOF (11.54%), Complex CHD (11.54%) and PDA (10.68%).

Conclusion: It was concluded from this study that the male children are mostly sufferer from CHD and acyanotic heart disease was commonest type of CHD.

Key words: Pattern, Congenital heart disease, Sylhet.

Introduction:

Congenital heart diseases (CHD) are structural problems that arise from abnormal formation of the heart or major blood vessels.¹ It is the most common congenital anomaly and also the commonest type of heart disease in children.² If left untreated, CHD is an important cause of mortality in children, so early detection and proper intervention is especially important. It also causes a tremendous psychological stress and economic burden to the family and country. The estimated incidence of CHD is 9 per 1,000 live births which correspond to 1.35 million newborns with CHD every year, representing a major global health

burden.³ The prevalence of CHD in India is 8.54 per 1000 live birth;⁴ in Pakistani population is 11 per 1000 live birth⁵. Congenital heart defects are the most common type of birth defect in the United States, affecting nearly 1% of—or about 40,000—births per year.⁶ In Europe the average total prevalence of CHD was 8.0 per 1000 births, and live birth prevalence was 7.2 per 1000 births.² There is no nationwide survey to see the prevalence of CHD in Bangladesh. A hospital-based study at Dhaka reported the incidence of CHD is 25/1000 live birth⁷. Pattern of CHD varies from country to country, region to region. In developed countries pattern of CHD is well documented. There is no such nationwide data in Bangladesh. A multicenter study in Dhaka found ventricular septal defect (VSD), atrial septal defect (ASD), patent ductus arteriosus (PDA), Tetralogy of Fallot (TOF), transposition of great arteries (TGA), pulmonary stenosis (PS) and A-V canal defect as common congenital heart diseases in Bangladesh.⁸

Sylhet is a peripheral divisional city. There are one government and 3 private medical college hospitals in

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Sylhet having tertiary care facility. Almost all children with CHD from Sylhet division visit at least one of these medical college hospitals. So, data from these 4 hospitals might be represent the whole Sylhet division. Though some studies are done in Dhaka to see the pattern of CHD, no such study is done in Sylhet. This study was done to find out the pattern of CHD among the admitted children in 4 medical college hospitals of Sylhet.

Methodology

This prospective cross sectional study was carried out in the department of pediatrics of 4 medical college hospitals of Sylhet, namely Sylhet MAG Osmani Medical College Hospital (SOMCH), Jalalabad Ragib-Rabeya Medical College Hospital (JRRMCH), North East Medical College Hospital (NEMCH) and Sylhet Women’s Medical College Hospital (SWMCH) over a period of 1 year from January 2012 to December 2012. All admitted children with CHD were enrolled in the study. The study cases were selected purposively; all children with the confirmed diagnosis of CHD with the age ranging from 1st day of life to 12 years were included in the study. Acquired heart diseases such as rheumatic heart disease or mitral valve prolapse were excluded. The diagnosis was confirmed by color Doppler echocardiography done by qualified

cardiologist. CHD with multiple lesions which could not be diagnosed as a single entity were termed as complex CHD. Ethical issues were addressed duly.

Results:

During the study period a total number of 234 cases were admitted with CHD and among them; 148 in SOMCH, 54 in JRRMCH, 12 in NEMCH & 20 in SWMCH. Maximum cases of CHD were admitted in 29 days to 1year age group in all 4 institutes with a total of 140 (59.83%). Age distribution of CHD patients are shown in table-I. Among 234 patients 148 (63.25%) were male and the rest 86 (36.75%) were female with a male-female ratio 1.72:1 (figure-I).

Among the children with CHD 65.38% (153/234) were acyanotic and 34.42% (81/234) were cyanotic CHD. In SOMCH 90 (60.81%) were acyanotic and 58 (39.19%) were cyanotic. The distribution of acyanotic and cyanotic CHD is shown in figure - II.

The commonest CHD was VSD (33.33%) which was followed by ASD (16.24%), TOF (11.54%), Complex CHD (11.54%) and PDA (10.68%). Among 78 cases of VSD 42 (28.38%) were in SOMCH, 25 (46.30%) in JRRMCH, 4 (33.33%) in NEMCH and 7(35.00%) in SWMCH. Pattern of CHD in 4 hospitals are shown in Table-II.

Table I
Distribution of Age in CHD patients (n=234)

	SOMCH	JRRMCH	NEMCH	SWMCH	Total
0-28 Days	10 (6.76%)	14 (25.93%)	2 (16.67 %)	1 (5%)	27 (11.54%)
29 days - 1year	92 (62.16%)	30 (55.56%)	7 (58.33%)	11 (55%)	140 (59.83%)
Over 1year - 5 years	26 (17.57%)	7 (12.96%)	2 (16.67%)	6 (30%)	41 (17.52%)
Over 5 years	20 (13.51%)	3 (5.56%)	1 (8.33%)	2 (10%)	26 (11.11%)
Total	148	54	12	20	234

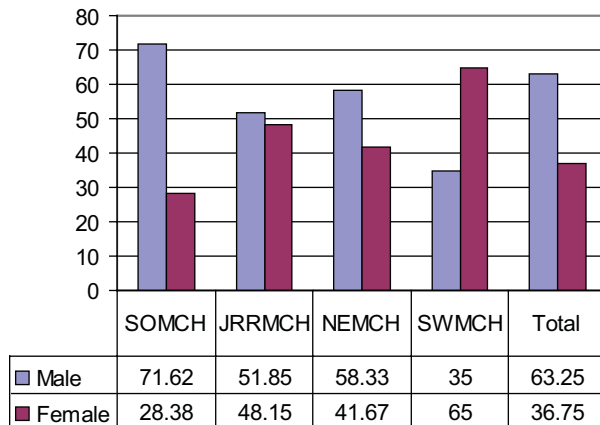


Fig.-1: *Distribution of sex in CHD patients*

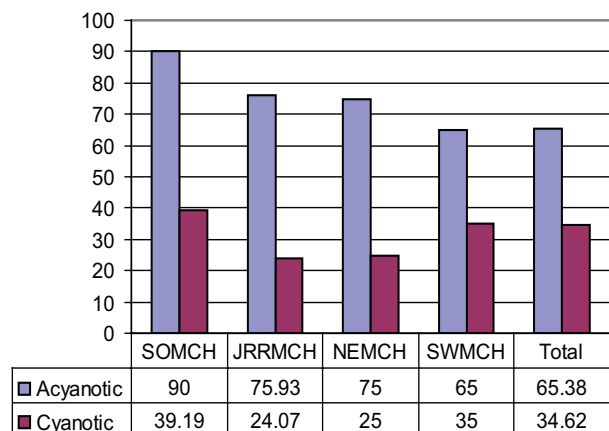


Fig.-2: *Distribution of Acyanotic & Cyanotic CHD*

Table II
Pattern of CHD in Four Hospitals (n=234)

	SOMCH	JRRMCH	NEMCH	SWMCH	Total
VSD	42 (28.38%)	25 (46.30%)	4 (33.33%)	7 (35.00%)	78 (33.33%)
ASD	24 (16.22%)	7 (12.96%)	3 (25.00%)	4 (20.00%)	38 (16.24%)
TOF	21 (14.19%)	4 (7.41%)	1 (8.33%)	1 (5.00%)	27 (11.54%)
PDA	16 (10.81%)	5 (9.26%)	2 (16.67%)	2 (10.00%)	25 (10.68%)
TGA	12 (8.11%)	1 (1.85%)	0 (0.00%)	2 (10.00%)	15 (6.41%)
TAPVR	6 (4.05%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	6 (2.56%)
PS	4 (2.70%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	4 (1.71%)
AV Canal Defect	3 (2.03%)	0 (0.00%)	0 (0.00%)	1 (5.00%)	4 (1.71%)
DORV	2 (1.35%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (0.85%)
CoA	2 (1.35%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	2 (0.85%)
MR	0 (0.00%)	2 (3.70%)	0 (0.00%)	0 (0.00%)	2 (0.85%)
AS	1 (0.68%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.43%)
AR	0 (0.00%)	1 (1.85%)	0 (0.00%)	0 (0.00%)	1 (0.43%)
TA	1 (0.68%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (0.43%)
TR	0 (0.00%)	1 (1.85%)	0 (0.00%)	0 (0.00%)	1 (0.43%)
Complex CHD	14 (9.46%)	8 (14.81%)	2 (16.67%)	3 (15.00%)	27 (11.54%)
Total	148	54	12	20	234

Discussion:

In the present study most of the CHD patients (59.83%) were diagnosed at 29 days – 1 year age group. Hussain et al⁸ found the same age distribution in their multicenter study. About 56.84% patients in BSMMU, 44.99% in NICVD, 45.25% in CMH and 39.19% in DSH belongs to the same age group.⁸ Hussain et al⁹ in another study in Dhaka Shishu Hospital found that 56.60% CHD patients belonged to the same age group in 1999 and 36.40% in 2009. The distribution of age varied in different institutes in the above mentioned studies which also varied among the patients of 4 institutes in the present study.

In the current study, male patients outnumbered female patients with male-female ratio 1.7:1. Hussain et al⁸ found male-female ratio 1.98:1 in DSH, 1.39:1 in CMH, 2.55:1 in NICVD and 1.24:1 in BSMMU which are similar to our study. A study in Rajshahi Medical College Hospital¹⁰ found male-female ratio 1.3:1. The difference in male female ratio in different institutions may be due to regional variations.

Acyanotic CHD was more common in the present study (65.38%). Hussain et al⁸ found similar finding

in DSH, CMH, NICVD & BSMMU. Sharmin et al¹⁰ also found similar result in Rajshahi Medical College Hospital.

In the current study VSD was the commonest CHD (33.33%) which was followed by ASD, TOF, Complex CHD and PDA. This finding is almost similar to the findings of Hussain et al⁸ and Sharmin et al¹⁰. The commonest cyanotic CHD was TOF (11.54%) in this study. Studies of Hussain et al⁸, Sharmin et al¹⁰ and Rahman et al¹¹ support this finding. Complex CHD comprises a large amount (11.54%) in the present study. Sharmin et al⁸ reported 7% multiple lesion in their study. But no such finding is mentioned in the study of Hussain et al⁹ and Rahman et al¹¹. This large number of Complex CHD may result from less expertise of the cardiologists who performed echocardiography. It is noteworthy that there is no pediatric cardiologist in Sylhet and all echocardiography of the present study were done by adult cardiologists.

Conclusion:

VSD was the commonest CHD in Sylhet which was followed by ASD, TOF and PDA. A community based

survey should be carried out to assess the definite prevalence and pattern of CHD in Sylhet.

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