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TO FIND OUT THE SPECTRUM OF CONGENITAL AND ACQUIRED HEART DISEASE AT TERTIARY CARE CENTRE OF WESTERN RAJASTHAN

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Abstract

Background: Congenital heart disease (CHD) is one of the major causes of mortality and morbidity in the pediatric population of both the developing and developed countries.

Objective: To find the prevalence and pattern of CHD in a tertiary care centre of Western Rajasthan

Methods: A descriptive type of study conducted during the period of January 2017 to December 2018, a total of 163842 patients sought medical help in pediatric department of Dr SN Medical college hospital. All data were analyzed by SPSS-software.

Results: The prevalence of heart disease was 0.89% in our study. The prevalence of congenital heart disease (CHD) was 0.84% and acquired heart disease was 0.05% in this study.

Conclusion: Prevalence of heart disease was 0.89% among the hospital attending patients could be an underestimation of the actual disease burden in our community. Increased awareness regarding cardiac diseases reduces the mortality and morbidity associated with these ailments.

Keywords: Children, congenital-heart disease, echocardiography, prevalence

Introduction:

Congenital Heart Diseases refer to structural or functional heart diseases, which are present at birth. Some of these may be detected later. These are primarily seen in neonates, infants and children, although in our country it is not uncommon to see adults with uncorrected CHD. The reported incidence of CHD is 8–10/1000 live birth according to various series from different parts of the world. It is believed that this incidence has remained constant worldwide. Nearly one third to half of these CHD are critical, requiring intervention in the first year of life itself. With currently available treatment modalities, over 75% of infants born with critical heart diseases can survive beyond the first year of life and many can lead near normal lives thereafter. However this privilege of early diagnosis and timely management is restricted to children in developed countries only. Unfortunately majority of children born in developing countries and afflicted with CHD do not get the necessary diagnostic as well as management (intervention and surgical) and die, leading to high morbidity and mortality. In India prevalence of CHD is on higher side due to high birth rate.[1,2] Crude birth rate of India fell gradually from 19.3 births per thousand population in 2015 to 18.6 births per thousand population in 2018. The birth rate of India is 2,42,96,194.2 per year in year 2019. Thus incidence of CHD is 24,29,61 of them one third to half are having critical CHD that is 72888.3 to 121480.5 Children suffer from critical CHD every year. Approximately 10% of present infant mortality in India is due to CHD. In this way every year a large number of children are added to total pool of cases with CHD, because of lack of health awareness and inadequate care facilities[3].

Acquired heart disease represents a diverse group of heart disease which occur after birth and relative burden and pattern of acquired heart disease vary between regions across the world and even within particular geographical area[4].

In India, the prevalence of rheumatic fever and rheumatic heart diseases ranges from 0.9 to 6.4 per 1000 population. A survey conducted by Indian Council of Medical Research, on children aged 6 to 16 years showed that the incidence of rheumatic fever is about 5.3 per 1000 population[5].

Due to limited number of study in our center the prevalence of different type of heart disease is not known exactly in this part of country.

MATERIAL AND METHODS

TYPE OF STYDY- descriptive study

STUDY AREA- Dept. of pediatric Dr. S N Medical College, Jodhpur

STUDY DURATION- From January 2017 to December 2018

INCLUSION CRITERIA

- All the patient referred to Pediatric Cardiology clinic and Pediatric ECHO lab were enrolled in this study.
- Patients less than 18 years of age

EXCLUSION CRITERIA

- Patients more than 18 years of age

METHODOLOGY

This is an observational study conducted at a tertiary care centre of western Rajasthan. Pediatric age group children suspected to have heart diseases, and referred to Pediatric Cardiology clinic or Pediatric ECHO lab, were enrolled in this study.

All the Pediatric patients referred to Pediatric cardiac clinic and Pediatric Cardiology ECHO lab with clinical suspicion of heart disease were evaluated by x–ray chest PA view, ECG and finally confirmed by echocardiography. All parameters were recorded on predesigned proforma for this study. For younger children use pediatric probe of S 8–3 MHz. For older children use probe of S 4–12 MHz was used for echocardiography.

DATA ANALYSIS

Statistical analysis was performed with the SPSS, Trial version 20 for Windows statistical software package (SPSS inc., Chicago, il, USA). The Categorical data were presented as numbers (percent) and were compared among groups using Chi square test. Groups were compared for demographic data. Concordant rate were calculated to evaluate the agreement between two diagnosis test. The diagnostic accuracy (specificity SP, positive predictive value PPV and efficiency) were calculated. Probability p value <0.05 was considered statistically significant.

RESULTS & OBSERVATIONS

During the period of January 2017 to December 2018, a total of 163842 patients sought medical help in pediatric department of Dr SN Medical college hospital. Of them 1452 pediatric (0–18 year) patients were diagnosed with heart diseases by echocardiography of them 1370 had CHD , 82 had acquired heart disease and 1187 patients out of 1370 had acyanotic congenital heart disease and their mean age was 2.31±3.68. The prevalence of heart disease was 0.89%. The prevalence of congenital heart disease (CHD) was 0.84% and acquired heart disease was 0.05% in this study. This values cannot be extrapolated to the normal population because as the study was carried out only in a proportion of the population which sought medical care to Dr. S.N. Medical College OPD.

Table 1: Patient of Acyanotic Congenital Heart Disease

Type of Congenital Heart Disease	No. of Patients	% of Heart Disease [n=1187]
PS	47	3.96
MS	06	0.51
COA	11	0.93
PFO	11	0.93
ALCAPA	02	0.17
Dextrocardia with Situsinversus	14	1.18
AS	03	0.25
BAV	26	2.19
MVP	02	0.17
TOTAL	122	10.27

Table 2: Patient of potentially Cyanotic Congenital Heart Disease

Type of CHD	No. of Case	% of Heart Disease [n=1370]
VSD	554	40.44%
ASD	182	13.28%
PDA	201	14.67%
APW	8	0.58%
Total	945	68.97%

Table 3: Distribution of cyanotic heart disease

S. No.	Type of Congenital Heart Disease	No. of Patients	% of Heart Disease [1370]
1.	TOF	95	6.93
2.	TGA	26	1.90
3.	TAPVC	21	1.53
4.	TA	10	0.73
5	Pulmonary atresia	11	0.80
6	Single ventricle	05	0.36
7	Ebsteine anomaly	02	0.15
8	DORV	13	0.95
	TOTAL	183	13.36

Amongs potentially cyanotic CHD patients, VSD, ASD, PDA and APW were observed in 40.14%, 13.28%, 14.67% and 0.58% respectively.

In our study 1370 patients had congenital heart disease and 1187 patients had acynotic heart disease, of them 122 (10.27%) had pure acyanotic congenital heart disease like Pulmonary stenosis, Bicuspid aortic valve, Dextrocardia with situs inversus, COA, PFO, Mitral valve prolapse, Mitral valve stenosis and ALCAPA were observed in 3.96%, 2.19%, 1.18%, 0.93%, 0.93%, 0.17%, 0.51% and 0.17% patients respectively.

In our study 183 patient had cyanotic CHD out of 1452 patient with cardiac disease (12.60%), The 1370 had CHD, of them 13.35% had cyanotic CHD. TOF, TGA, TAPVC and TA (Truncus Arteriosus) were observed in 6.93%, 1.90%, 1.53% and 0.72% patients respectively.

Table 4: Patient of acquired heart disease

S. No.	Type of Heart disease	No. of Patients	% of Heart Disease (n=82)
1.	RHD	42	51.21
2.	MYOCARDITIS	05	6.10
3.	DCM	25	30.48
4.	PERICARDIAL EFFUSION	10	12.20
5.	TOTAL	82	100%

82 patients had acquired heart diseases out of 1452 patients (5.64%). Commonest acquired heart disease was rheumatic heart disease (RHD) 51.21% of acquired heart disease followed by DCM 30.48%, pericardial effusion 12.22% and myocarditis 6.10%. Prevalence of acquired heart disease was 0.05%.

DISCUSSION

In our study the prevalence of heart disease among children was population (0.89%). The prevalence of CHD in this study was 8.4 per 1000 live birth (0.84%). However this cannot be extrapolated to the normal population, as the study was carried out in selected group of pediatric patients seeking medical services in a tertiary care hospital. Anita saxena et al reported a prevalence of congenital heart disease 8.07 per 1000 live birth[6]. Jatav et al reported a CHD prevalence of 8.55 per 1000 live birth which is similar to our results[7]. Kurshid Ahmed et al reported a prevalence of 1.12% in a study conducted in children in a tertiary care hospital in Srinagar[8]. Mukul Misra et al reported a prevalence of 13 per 1000 live birth in a

study conducted in the school children in uttar pradesh[9]. Najaf Masood et al also reported a prevalence of CHD 10 per 1000 live birth in a hospital based study[10]. All these studies show greater prevalence of CHD compared to our study. The prevalence of acquired heart disease in our study was 0.5 per 1000 population (0.05%). Rheumatic heart disease constituted 2.89% of total heart disease in our study. The prevalence of RHD in our study was 0.3 per 1000 population. Dipanker Prajapathi et al[11]and Yadav et al reported[12] the prevalence of RHD was 0.9 and 0.73 per 1000 population respectively.

In this study acynotic diseases like pulmonary stenosis, mitral stenosis, aortic stenosis, bicuspid aortic valve and COA were observed in 3.96%, 0.51%, 0.25%, 2.19% and 0.93% patients respectively. A study by Ashok et al also reported that Acyanotic CHD like pulmonary stenosis, aortic stenosis, mitral stenosis and COA were observed in 1.5%, 0.5%, 2% and 0.3% respectively[13]. A study by Sharma SK et al reported, The pulmonary stenosis, COA, aortic stenosis, mitral stenosis and BAV seen in 3.8%, 3.0%, 1.5%, 0.3% and 0.8% patients respectively[14].

In this study, Among the potentially cyanotic heart disease, VSD, PDA, ASD and APW were seen in 40%, 15%, 14% and 0.58% patients respectively. In a study done by Sohan Sharma et al[15], reported VSD, ASD, PDA and APW seen in 28.1%, 29.4%, 29.1% and 0.3% respectively. In this study cyanotic Heart disease group, TOF, TGA and TAPVC was seen in 7%, 1.90% and 1.53% respectively. Bhat NK et al[16] reported TOF being commonest cyanotic CHD in 5.45% followed by TGA in 5.13%.

Among the acquired heart diseases, Rheumatic heart disease the commonest lesions in our study (51.21%), followed by Dilated cardiomyopathy. UM Sani et al[17] at Sokoto reported RHD as commonest acquired heart disease (61.6%), followed by dilated cardiomyopathy, Pericardial effusion, and Kawasaki disease was the least common. In our study, no case of Kawasaki disease was identified.

CONCLUSION

Prevalence of heart diseases 0.89% among the hospital attending patients could be an underestimation of the actual disease burden in our community. Increased awareness regarding cardiac diseases reduces the mortality and morbidity associated with these ailments.

BIBLIOGRAPHY:

1. Mitchell SC, korones SB, Berendes HW. Congenital heart disease and incidence and natural history.circulation.1972;25:323-32.
2. Behrman RE, Kligman RM, Jenson HB. Congenital heart disease. Nelson textbook of pediatrics 16th eds. Harcourt asia pvt.Ltd.2000;1362-63.
3. Hoffman JI, Kaplan S. Incidence of congenital heart disease. J Am Cardiol 2002;39:1890-1900.
4. WHO Technical report series, Report of a WHO expert consultation on Rheumatic fever and Rheumatic heart disease, Geneva, November 2001. Available at WWW.who.
5. Zulfikar Ahmed, NC Joshi, Rheumatic fever and rheumatic heart disease in children, IAP, Pediatric Cardiology, Gwalior, 2nd edition, page 246.
6. Saxena A, Mehta A, Sharma M, Salhan S, Kalaivani M, Birth prevalence of congenital heart disease: A cross sectional study from north India. Ann pediatr card 2016;9:205-9.
7. Jatav RK, Mamta B **et al**. Prevalence and pattern of congenital heart diseases in Karimnagar, Andhra Pradesh, India: diagnosed clinically by trans-thoracic-two-dimensional echocardiography: Int J Res Med Sci.2014 Feb;2(1):186-192.
8. Khurshid Ahmed Wanni, Naveed Shazhad, Mohd Asraf, Kaiser Ahmed, Muzafer Jan, Shafaqat Rasool. Prevalence and spectrum of heart disease in children. Heart India Journal. Jul-Sep 2014.
9. Mukul Mishra. prevalence of congenital heart disease in school children of Eastern Uttarpradesh. Indian heart journal.2009,61:58-60.
10. Najaf Masood, Muddasir Sharif. Frequency of Congenital Heart Diseases at Benazir Bhutto Hospital Rawalpindi: Ann. Pak. Inst. Med. Sci. 2010; 6(2): 120-123.
11. Dipanker Prajapathi. Epidemiological survey of Rheumatic Fever, Rheumatic Heart Disease and Congenital Heart Disease among school children in Kathmandu valley of Nepal: NHJ,2013;10(1).
12. Yadav P, Joshi P. Prevalence of Rheumatic Fever and Rheumatic Heart Disease in school children in Malwa region of MP: National Journal of Community Medicine 2010, Vol 1, Issue 2.
13. Ashok Kumar, Devendra Kumar Agrawal, Renu Agrawal. Spectrum of congenital heart disease at tertiary care hospital in north western Rajasthan

in India. International journal of medical science and public health, 2016;11(5).

14. Sohan Kumar Sharma, Shalabh Kumar Agarwal. Spectrum of acyanotic heart disease in Rajasthan. Int J Med Res prof.2017;3(4)75-78.

15. Sohan Kumar Sharma, Shalabh Kumar Agarwal. Spectrum of acyanotic heart disease in Rajasthan. Int J Med Res prof.2017;3(4)75-78.

16. Bhat NM. Prevalence and pattern of congenital heart disease in Uttrakhand, India. IJP. April 2013;vol80;issue 4,281-285.

17. Pattern of acquired heart disease in children seen in Sokoto, North Western Nigeria. Nigerian journal of clinical practice. Nov-Dec 2015;18(6).