International Journal of Medical Science and Research
www.medicaljournals.in
Online ISSN: 2664-8768, Print ISSN: 2664-875X
Received: 07-12-2022, Accepted: 24-12-2022, Published: 09-01-2023
Volume 5, Issue 1, 2023, Page No. 21-22

Echo based prospective study of CHD and RHD in school children (5-16 yrs) in Shimla, HP, India

Negi Prakash Chand[1], Bisht Dinesh[1], Dhiman Raminder[2]

[1] MD, Department of Cardiology, Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh, India

[2] RA, Department of Cardiology, Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh, India

Abstract

Children 5 to 16 years of age were screened with echocardiography in various schools in the vicinity of Shimla for Congenital heart disease and Rheumatic heart diseases. Total children were 1666, 815 were males and 851 were females. Total CHD were 18 with a prevalence of 10 per thousand. Total Definite RHD were 2 with a prevalence of 1.2 per thousand, borderline RHD were 10.

Among CHD, 4 were small VSD, 1 was Pulmonary Atresia with large VSD, 5 were small PDA, 5 were small ASD, 2 were mild Valvular pulmonary stenosis, 1 was severe Valvular pulmonary stenosis. Among definite RHD both had mild MR. Among borderline RHD 2 were mild AR, 10 were mild MR.

Keywords: CHD and RHD, children, echocardiography

Introduction

Rheumatic heart disease (RHD) is a major public health problem. It is estimated that the number of patients in India with RHD are around 1.4 million. WHO criteria for diagnosing probable rheumatic heart disease are more sensitive and are based on the detection of significant regurgitation of mitral and/or aortic valves by colour Doppler. The present study was done using world health federation echocardiographic criteria to determine the prevalence of RHD in school children in Shimla, Himachal Pradesh state of North India.

Heart disease significantly contributes to the health burden of children in developed as well as developing countries such as India. It has greatest effect on childhood mortality and morbidity among all congenital anomalies. Prevalence of congenital heart disease (CHD) ranges from 1.01 to 17.5 per 1000 live births according to various studies all over the world. In India, the prevalence of CHD is 2.25 to 5.2 per 1000 children.

In the present study, we found decreased incidence of RHD, the reason is improved standards of living, improved sanitation facilities in villages, noncrowdinig, and improved health awareness.

The prevalence of CHD in our study is same as other studies. Severe forms of CHD had already taken Medical attention. Mild CHD were detected by screening. Small ASD, PDA may require treatment due to Associated complications. Mild pulmonary stenosis may progress, ASD detected in asymptomatic children can be treated with device closure. Severe pulmonary stenosis and Atresia were treated at IGMC Shimla.

Material and methods

CX 50 portable Philips echo machine was used with 5S Sector probe, 2D, color and Doppler and M mode were used. Bicacaval view, 4 chamber and 5 chamber views and plex and short axis views and sternal views were taken in 2D, color and Doppler.

All children 5 to 16 years were enrolled, name, age, sex, echo diagnosis, weight were recorded and the data was recorded, echo images were stored in hard disc and CD.

Data analysis Assistant and taxi was hired, funding was arranged from National health mission.

No sedation was given to children. For uncooperative children, parents were called to console them. Female attendant and screen was used for teen girls.

Results

Total children were 1666, 815 were males and 851 were females. Total CHD were 18 with a prevalence of 10 per thousand. Total Definite RHD were 2 with a prevalence of 1.2 per thousand, borderline RHD were 10.

Among CHD, 4 were small VSD, 1 was Pulmonary Atresia with large VSD, 5 were small PDA, 5 were small ASD, 2 were mild Valvular pulmonary stenosis, 1 was severe Valvular pulmonary stenosis. Among definite RHD both had mild MR. Among borderline RHD 3 were mild AR, 6 were mild MR.

Table 1

SN	Age (yrs)	Sex	Weight	Characteristic	Disease
1	9	F	20	2mm muscular VSD	CHD
2	17	F	40	3mm PDA	CHD
3	11	M	24	9mm FO ASD, dilated RA, RV	CHD
4	9	F	21	Mild Valvular PS, PG 30 mmhg	CHD
5	7	M	17	3 mm perimembranous VSD	CHD
6	8	F	18	6mm FO ASD, dilated RA, RV	CHD
7	8	F	19	9mm FO ASD, dilated RA, RV	CHD

8	9	M	21	3mm muscular VSD	CHD
9	10	M	23	Sinus venous ASD, PAPVC of RUPV, dilated RA, RV	CHD
10	8	F	19	3mm PDA	CHD
11	12	F	27	Bicuspid AV, mild AR	CHD
12	9	F	18	8mm FO ASD, dilated RA,RV	CHD
13	7	M	15	3mm PDA, PG 64,dilated LA, LV.	CHD
14	16	F	40	3mm PDA, dilated LA, LV	CHD
15	9	F	19	3.5mm muscular VSD	CHD
16	12	M	14	Pulmonary Atresia, VSD large	CHD
17	12	M	23	2mm PDA	CHD
18	11	F	20	Severe Valvular PS, PG 64mmhg	CHD
1	16	M	23	Mild MR	Borderline RHD
2	15	M	32		
				Mild MR	Borderline RHD
3	13	F	25	Mild MR	Definitive RHD
4	8	M	15	Mild MR	Borderline RHD
5	7	M	15	Mild AR	Borderline RHD
6	8	M	16	Mild MR	Borderline RHD
7	12	F	26	Mild MR	Borderline RHD
8	10	F	22	Mild MR	Borderline RHD
9	11	F	23	Mild MR	Borderline RHD
10	15	M	34	Mild MR, Thick MV	Definitive RHD
11	11	M	25	Mild MR	Borderline RHD
12	15	F	32	Mild AR	Borderline RHD

Conclusion

In the present study, we found decreased incidence of RHD, the reason is improved standards of living, improved sanitation facilities in villages, noncrowdinig, and improved health awareness.

The prevalence of CHD in our study is same as other studies. Severe forms of CHD had already taken Medical attention. Mild CHD were detected by screening. Small ASD, PDA may require treatment due to Associated complications. Mild pulmonary stenosis may progress, ASD detected in asymptomatic children can be treated with device closure. Severe pulmonary stenosis and Atresia were treated at IGMC Shimla.

References

1. Avasthi G, Singh D, Singh C, Aggarwal SP, Bidwai PS, Avasthi R. Prevalence survey of rheumatic fever (RF) and rheumatic heart disease (RHD) in urban and rural school children in Ludhiana. Indian Heart J.,1987:39:26-28.
2. Prevalence of rheumatic and congenital heart disease in school children of Andhra Pradesh, South India Rama Kumari N *et al.* J Cardiovasc Dis Res., 2013.
3. Epidemiological Survey of Rheumatic Heart Disease among School Children in the Shimla Hills of Northern India: Prevalence and Risk Factors Jarnail S, Thakur Prakash C. Negi Surendra K, Ahluwalia, Nand K Vaidya. Journal of Epidemiology and Community Health,1979:50(1):62-67.
4. Global, Regional, and National Burden of Rheumatic Heart Disease, List of authors, 1990–2015.
5. David A, Watkins MD, MPH Catherine O, Johnson Ph.D, MPH Samantha M, Colquhoun Ph. D, Ganesan Karthikeyan MD, DM *et al*., 2017:377:713-722.
6. Rheumatic heart disease in the developing world: prevalence, prevention, and control M. J. EISENBERG
7. European Heart Journal,1993:14(1):122-128.