



## To Find Out Spectrum of Congenital Cyanotic and Critical Congenital Heart Disease at Tertiary Care Centre of Western Rajasthan

<sup>1</sup>Yatendra Sahu, Assistant Professor, Department of Pediatrics, GMC, Kota

<sup>1</sup>Hanif Khan, Junior Resident, Department of Pediatrics, GMC, Kota

<sup>2</sup>Anjali Rathor, Junior Resident, Department of Pediatrics, GMC, Kota

<sup>3</sup>J.P. Soni, Senior Professor, SNMC, Jodhpur

**Corresponding Author:** Hanif Khan, Junior Resident, Department of Pediatrics, GMC, Kota.

**How to citation this article:** Yatendra Sahu, Hanif Khan, Anjali Rathor, J.P. Soni, “To Find Out Spectrum of Congenital Cyanotic and Critical Congenital Heart Disease at Tertiary Care Centre of Western Rajasthan”, IJMACR- December - 2024, Volume – 7, Issue - 6, P. No. 141 – 145.

**Open Access Article:** © 2024 Hanif Khan, et al. This is an open access journal and article distributed under the terms of the creative common’s attribution license (<http://creativecommons.org/licenses/by/4.0>). Which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

### Abstract

**Background:** Congenital heart disease (CHD) is one of the major cause of mortality and morbidity in the pediatric population of both developing and developed countries. Nearly one third to half of these CHD are critical. Approximately 10% of present infant mortality in india due to CHD.

**Objective:** To find out the prevalence and pattern of congenital cyanotic and critical congenital heart disease in western Rajasthan.

**Methods:** A descriptive type of study conducted in department of pediatrics of SNMC Jodhpur. All data were analyzed by SPSS software

**Results:** The prevalence of congenital cyanotic heart disease was 13.36% of total CHD and critical CHD was 3.64% of total CHD in this study

**Conclusion:** Prevalence of congenital heart disease among the hospital attending children could be an underestimating of the actual disease burden in our country, increase awareness regarding cardiac diseases reduce the mortality and morbidity

**Keywords:** Congenital heart disease, prevalence, children

### Introduction

Congenital Heart Diseases refer to structural or functional heart diseases which are present at birth. 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. 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.<sup>1,2</sup>

TOF is most common cyanotic CHD and account for 8–10% cyanotic CHDs. The relative frequency of different forms of CHD also differs greatly from study to study<sup>3</sup>.

There are no comprehensive prevalence data on CHDs in Indian populations. The few, small, scattered studies, either school or hospital based are from different region and are mostly confined to northern India.

As we discussed above that prevalence of heart disease are different in different geographical area and relative frequency of different forms of heart diseases also differs greatly from study to study and according to geographical area. The prevalence of different type of heart disease is not known exactly in this part of state. Thus this study was planned with following aim.

**Material and Methods**

It is an observational study it was conducted in dept. of pediatric Dr. S N Medical College, Jodhpur. For this Table 1: 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

In our study 183 patient had cyanotic CHD out of them TOF, TGA, TAPVC and TA (Truncus Arteriosus) were

study approval was taken from Institutional Ethical committee. All the patient referred to Pediatric Cardiology clinic and Pediatric ECHO lab were enrolled in this study.

**Methodology**

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 younger children use pediatric probe of S 8–3 MHz and for older children use probe of S 4–12 MHz was used for Echocardiography.

**Results & Observations**

During the period of study, a total of 163842 patients sought medical help in pediatric department of Dr SN Medical college hospital. Of them 1370 pediatric patients were diagnosed with congenital heart diseases by echocardiography.

observed in 6.93%, 1.90%, 1.53% and 0.73% patients respectively.

Table 2 : Types of fallot’s physiology

Types	Total	Overriding of Aorta
TOF	75 (78.95%)	Yes
Triology of fallot’s	12 (12.63%)	No
Pantology of fallot’s	08 (8.42%)	Yes
TOF with pulmonary atresia with PDA	12 (12.63%)	Yes
Total	95	

In our study, we diagnosed 95 patients as a fallot’s physiology, TOF, Triology of fallot’s, pentology of fallot’s and TOFwith pulmonary atresia with PDA were observed in 78.95%, 12.63%, 8.42% and 12.63% patients respectively. 87.36% of patients had overriding of aorta.

Table 3 : Types of TAPVC

TAPVC [n=21]	Male	Female	Frequecy (%)
Supra cardiac	11 (52.38%)	04 (19.05%)	15 (71.43%)
Cardic	02 (9.52%)	01 (4.76%)	03 (14.29%)
Infra cardiac	02 (9.52%)	01 (4.76%)	03 (14.29%)

In our study, we had 21 patients of TAPVC, of them supracardiac TAPVC, infracardiac TAPVC and cardiac TAPVC were observed in 71.43%, 14.29% and 14.29% respectively.

Table 4 : Types of Truncus arterious.

TA [n=10]	Male	Female	Frequecy (%)
Type – I	04 (40.0%)	02 (20.0%)	06 (60.0%)
Type – II	01 (10.0%)	01 (10.0%)	02 (20.0%)
Type – III	02 (20.0%)	00	02 (20.0%)

In our study, we had 10 patients of Truncus Arteriosus. Truncus Arteriosus type I. Type II and type III were observed in 60%, 20% and 20% respectively.

Table No. 5: Distribution of CHD

S. No.	Type of CHD	Total Patient	Percentage n=1370
1.	Non Critical CHD	1320	96.35%
2.	Critical CHD	50	3.64%

In our study, we had total 1370 patient of CHD, out of them 3.64% had critical CHD.

Table 6: Distribution of critical CHD [CCHD]

CCHD Type	Male	Female	Total	Percentage n=1370
TOF with pulmonary atresia	08	04	12	0.87%
TGA	01	01	02	0.14%
Critical PS	08	06	14	1.02%

Pulmonary atresia	07	04	11	0.80%
Single ventricle	02	03	05	0.36%
Critical AS	02	01	03	0.21%
Severe COA	02	01	03	0.21%
Total	30	20	50	3.64%

In our study 3.64% of total CHD had critical CHD, The male to female ratio of CCHD was 1.5:1. Critical PS, TOF with pulmonary atresia, pulmonary atresia and critical AS were observed in 1.02%, 0.87%, 0.80% and 0.21% patients respectively.

### Discussion

Anita saxena et al reported a prevalence of congenital heart disease 8.07 per 1000 live birth<sup>4</sup>. Jatav et al reported a CHD prevalence of 8.55 per 1000 live birth which is similar to our results<sup>5</sup>

**Cyanotic CHD:** In this study cyanotic Heart disease group, TOF, TGA and TAPVC was seen in 7%, 1.90% and 1.53% respectively. Bhat NM et al reported TOF being commonest cyanotic CHD in 5.45% followed by TGA in 5.13%<sup>6</sup>. Pooja M Vyas et al, reported TOF, DORV and TGA in 13.57% 2.84% and 2.51% respectively<sup>7</sup>. Anushula Tandon et al also reported TOF as the commonest cyanotic heart disease in 13.63%.<sup>8</sup>

**TAPVC:** In this study 21 patients had TAPVC, which is 1.53% of total CHD. In our study supracardiac, cardiac and infracardiac TAPVC were seen in 71.43%, 14.29% and 14.29% respectively. Vimal Raj et al<sup>9</sup> found in their study Supracardiac TAPVC being the commonest 46% and infracardiac and cardiac was seen in 8% and 24% patients respectively.

**Critical CHD:** In this study, 3.64% of total CHD had critical CHD, like TOF with pulmonary atresia, pulmonary atresia, critical PS, critical AS, single ventricle and TGA seen in 0.87%, 0.80%, 1.02%, 0.21%, 0.36% and 0.14% respectively.

Anita et al reported in their study that incidence of TOF with pulmonary atresia, single ventricle, critical PS, critical AS and TGA was 1.8%, 1.2%, 1.2%, 1.2% and 0.6% respectively. A study by Pooja M Vyas<sup>7</sup> reported, the incidence of PA, single ventricle and TGA was 0.07%, 0.07% and 0.02% respectively.

### Summary and Conclusion

In this study 13.36% was cyanotic CHD of total CHD. TOF was commonest cyanotic CHD. The prevalence of CHD among children who attended Paediatric OPD and emergency services of Dr. S.N. Medical College Hospital during a two year period was 8.4 per 1000 live birth. This correlates with some studies from south India, but the prevalence is less when compared to most hospital based studies from other parts of India.

### Limitations of the Study

This is a single centre hospital based study, the results cannot be extrapolated to the general population, Which require large scale community based epidemiological studies. Secondly being hospital based, this also suffers from referral bias. And another is significant number of these defects close spontaneously with age.

### References

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 16<sup>th</sup> eds. Harcourt asia pvt.Ltd.2000;1362-63.

3. Nitin Rao, Congenital Heart Disease epidemiology and classification, IAP specialty series on pediatric cardiology, IAP Publication house, Gwalior, 2<sup>nd</sup> edition : 2013; page 155-158.
4. 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
5. 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
6. Bhat NM. Prevalence and pattern of congenital heart disease in Uttarakhand, India. *IJP*. April 2013; vol 80; issue 4, 281-285
7. Pooja M Vyas, Nilesh K Oswal, Iva V Patel. Burden of congenital heart diseases in a tertiary cardiac care institute in western India: need for a national registry. *Heartindia* 2018, volume:6, issue:2, page 45-50.
8. Anushula Tandon, Sonali Sengupta. Risk factors for Congenital Heart Disease in Vellore, India; *Current Res J of Biol Sciences* 2(4):253-258, 2010
9. Vimal Raj, Varun Bhat, Vinay belva. Prevalence and pattern of TAPVC in Indian patients with congenital heart disease. *Journal of cardiovascular magnetic resonance* 2015, 17(suppl 1); P222