

Study of Clinical Profile, Complications and Outcome of Congenital Heart Diseases in Paediatric Age Group

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Abstract

Background: Congenital heart disease (CHD) is the commonest of all congenital lesions and is the most common type of heart disease among children. 28% of all major congenital anomalies consist of heart defects. Prevalence of Congenital Heart Disease in India is reported to be between 2.5 to 5/1000 live births. This study was undertaken to study the clinical profile, complications and outcome of congenital heart diseases.

Material and Methods: We enrolled 120 patient of congenital heart diseases diagnosed by clinical examination and 2 D ECHO. Detailed history, examination, complication and outcome were noted.

Results :

The most common age group in patients with CHD was between 0-1 years. 64 being male and 56(46.67%) were female with male to female ratio 1.14: 1. We found majority of the patients had acyanotic CHD with (70.83%), followed by (29.17%) cyanotic CHD. The most common congenital heart disease was Ventricular Septal Defect among all patients with CHD. The commonest Sign was pallor and symptom was respiratory distress. We found most common complication as congestive cardiac failure in these CHD patients. In the present study majority of the patients with CHD survived (85%).

Conclusion: Most common age group being 0 to 1 year with male preponderance, the most common sign was pallor and most common symptom being respiratory distress. acyanotic congenital heart disease was commonest with ventricular heart disease was commonest individual cardiac anomaly. Majority of patient in our study survived.

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I. Introduction:

Congenital heart disease (CHD) is the commonest of all congenital lesions and is the most common type of heart disease among children. Congenital heart disease, in a definition proposed by Mitchell et al is "a gross structural abnormality of the heart or intrathoracic great vessels that is actually or potentially of functional significance."^[1,2]

Prevalence of Congenital Heart Disease in India is reported to be between 2.5 to 5/1000 live births. The clinical presentation of congenital heart disease varies according to the type and severity of the defect.^[5]

In neonatal period the presenting feature of congenital heart disease are cyanosis (with or without respiratory distress), heart failure (with or without cyanosis), collapse, an abnormal clinical sign detected on routine clinical examination (e.g., absent femoral pulse or a heart murmur).^[6] While in infancy and childhood

the usual presenting features are cyanosis, digital clubbing, murmur, syncope, squatting, heart failure, arrhythmia, failure to thrive.^[7]

This study was undertaken to study the clinical profile, complications and outcome of congenital heart diseases in patients of pediatric age group so as to help in early diagnosis.

II. Material And Methods

It was a hospital based observational study. After written informed consent all cases of diagnosed congenital heart disease between 0-12 yrs age group attending OPD or admitted in IPD of a tertiary care centre from December 2019 to November 2021 were enrolled in study.

Detailed history was noted in children aged 0-12 years attending outdoor, indoor in patient with congenital heart disease diagnosed by clinical and 2d echo. Signs and symptoms (cyanosis, tachypnea, dyspnea, heart failure, difficult feeding, poor growth and frequent respiratory infection etc.) were noted. Past history, parental history of consanguineous marriage, degree of consanguinity, immunization history was noted in detail in these children. General examination will include vital signs (temperature, heart rate, respiratory rate, blood pressure) cyanosis, oedema etc. and systemic examination was done in detail. Treatment was given according for managing the patient in form of oxygen, antibiotics, blood, products, CCF management. Nutritional and supportive management given for all patient. After stabilizing the child, we referred the patient for interventional procedures if needed. Patients were monitored for all complications related to CHD and outcome was noted in the form of death or discharge.

III. Results

During the study period we enrolled 120 patients of congenital heart disease.

In present study, majority (75%) of patients were seen in age group of 0-1 year-90 (75%) with sex ratio (Male : Female) 1.9:1. The next group affected was 1-5 years (19.17%) with sex ratio (Male : Female) 0.92:1. While male were affected more commonly than female with male to female ratio of 1.14:1 as shown in table 1.

Table 1: Demographic profile of patients enrolled.

Age group (In years)	No. of patients(n)	Percentage (%)
0 -1	90	75.00
1-5	23	19.17
5-12	07	5.83
Total	120	100.00

Gender	No of patients (n)	Percentage (%)
Male	64	53.33
Female	56	46.67
Total	120	100

In present study, most common symptom was respiratory distress in 64 cases (53.33%), followed by fever in 60 cases (50%), as shown in table 2.

Table 2. Symptomatology of patients with CHD

SYMPTOMS	No. of patients (N= 120)	Percentage
Fever	60	50.00
Cough/cold	45	37.50
Respiratory Distress	64	53.33
Cyanosis	45	37.5
Pain in abdomen	20	16.67
Failure to gain weight	58	48.33
Feeding Difficulty	30	25.00
Vomiting	25	20.83

Loose Motion	28	23.33
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Most common sign was pallor in 48 cases (40%), followed by cyanosis in 45 cases (37.5%) as shown in table 3.

Table 3. Signs in patients with CHD

SIGNS	No. of patients (N=120)	Percentage(%)
Pallor	48	40.00
Cyanosis	45	37.50
Jaundice	18	15.00
Significant Lymphadenopathy	20	16.67
Clubbing	12	10.00
Raised JVP	7	5.83
Oedema	18	15.00
Abdominal Distension	20	16.67
Others	16	13.33

Majority of the patients had acyanotic CHD with 85 cases (70.83%), followed by cyanotic CHD (29.17%)

Table 4. shows distribution of patients as cyanotic and acyanotic CHD.85 (70.83%) cases were of acyanotic CHD while 35 (29.17%) cases were of cyanotic CHD.

Type of CHD	No of patient	Percentage (%)
Cyanotic	35	29.17
Acyanotic	85	70.83
Total	120	100.00

Most common acyanotic CHD was VSD with 63 cases (52.5%), followed by 30 cases of ASD (25%) as shown in table 5. Most common cyanotic CHD was TGA-11 (9.17%).

Table 5- Showing different lesions of CHD

DIAGNOSIS	Total no. of patients (N=154)	Percentage
ASD	30	35.00
VSD	63	52.50
TGA	11	9.17
TOF	9	7.50
Fallot's Physiology	3	2.50
PDA	19	15.83
TAPVC	2	1.67
Others	3	2.50

In present study, most common complication was congestive cardiac failure in 35 cases (29.16%), followed by pulmonary hypertension in 30 cases (25%) as shown in table 6.

Table 6: Table showing complications in patients with CHD.

COMPLICATIONS	Total no. of patients (n)	Percentage(%)
Cyanotic spells'	14	11.67
Polycythemia	13	10.83
Infective Endocarditis	21	17.50
Rhythm Disturbances	3	2.50
Reversal of Shunt	5	4.17
Congestive Cardiac Failure	35	29.17
Myocardial dysfunction	2	1.67
Pulmonary Hypertension	30	25.00
Impaired growth and nutrition	20	16.67
Others	3	2.50

Out of 120 cases , majority patients 102 patients (85%) were discharged and 18 patients (15%) died.

Table 7. Showing outcome of patients with CHD

OUTCOME	No of patients (n)	Percentage (%)
Discharge	102	85%
Deaths	18	15%
Total	120	100

IV. Discussion

In present study, most commonly affected age group of congenital heart disease was between the age group of 0 to 1 years in 90 patients (75%). Similar results were reported by **Golmei et al (2018)**(N=8), **Bhushan deo et al (2015)** (10) and by **Meshram et al (2019)** (9).

In contrast a study done by **Vinod Jacob et al(2009)** (11) reported most common age group 0-1 weeks. This difference might be due to the study being conducted only on neonates.

In present study, there was male preponderance with 64 patient (53.33%) being male and 56(46.67%) were female with male to female ratio 1.14: 1 . Similar results were reported by **ArizFazeriandy et al (2018)** (12) and by **Pedram Nazari et al (2016)** (13).

While the study done by **Deveshwar Dev et al(2016)** (14) shows male to female ratio of 2.2:1. This variation might be because a large number of patients were enrolled in their study group (n=518).

In present study, most common symptom was respiratory distress. Similar results were reported by **Golmei et al (2018)** (N=8), **Meshram et al (2019)** (9) and **Reddy et al (2016)** (15)

In contrast, a study done by **Ashok Kumar Meena et al(2016)** (N=16) on patients with CHDs reported cough as the most common symptom. This difference might be because this study was conducted in a different geographical location .

In the present study, most common sign was pallor in 48 cases (40%). Similar findings in study done by **Meshram et al (2019)** (N=9) and **Shah et al (2008)** (N=17).

Contrary to this, **Reddy et al (2016)** (15) conducted a study on patients having CHDs and reported most common clinical presentation as cyanosis 47(16%) and pallor in 38 (12.93%) patients. This variation in the presentation might be due to a large number of cases with cyanotic CHD enrolled in their study.

Majority of the patients had acyanotic CHD with 85 cases (70.83%), followed by 35 cases of cyanotic CHD (29.17%) . Similar results were reported by a study done by **Khadija et al (2008)** (N=18),and**Shah et al (2008)** (N=17),

A study done by **Wasim et al (2020)** (N=20), reported only 6% patients with cyanotic CHD and 94% patients with acyanotic CHD. This might be due to the large number of cases (N=265) were included in their study and the fact that this study was conducted among Jordanian population which was ethnically different from our study.

In the present study, most common CHD was VSD with 63 cases (52.5%). Similar results were found in a study conducted by **Fuad I. Abbaget al (2006)** (N=21) and **Ashok Kumar Meena et al(2016)** (16).

A study done by **Wasim et al (2020)** (N=20), reported most common CHD was ASD (62.3%), followed by VSD (23%). This might be due to the large number of cases (N=265) were included in their study and the fact that this study was conducted among Jordanian population which was ethnically different from our study.

In present study, commonest complication was congestive cardiac failure in 35 cases (29.16%). Similar findings seen in study done by **Meshram et al (2019)** (N=9) and **Shah et al (2008)** (N=7),

In contrast, a study conducted by **Vinod et al(2009)** (N=11) reported the most common complication as recurrent respiratory tract infection-9 (21%). This might be due to the fact that this study was conducted in dedicated operative center for shunt reversal and only reported more patients with shunt reversal lesions.

In our study ,out of 120 cases, 102 patients (85%) were discharged and 18 patients (15%) died. similar findings were seen in study done by **Golmei et al (2018)** (N=8) and **Shah et al (2008)** (N=17).

While in contrast study conducted by **Vinod et al (2009)** (11) reported 28(56%) patients survived and nearly half of them died, that is 22 (44%) patients. This difference might be because this study was a longitudinal study conducted in a different geographical area and reported more patients with shunt reversal lesions

V. Conclusion ;

The most common age group in patients with CHD was between 0-1 years, with (53.33%) being male and 56(46.67%) were female with male to female ratio 1.14:

We found majority of the patients had acyanotic CHD with (70.83%), followed by (29.17%) cyanotic CHD . The most common congenital heart disease was Ventricular Septal Defect , commonest sign was pallor and symptom was respiratory distress with most common complication being congestive cardiac failure. In the present study majority of the patients with CHD survived (85%).

References

- [1]. Faheem UIHaq et al. Risk factors predisposing to congenital heart defects. APC 2011;4(2):117-121.
- [2]. S. L. Chadha, Neerpal Singh and D.K. Shukla. Epidemiological study of congenital heart disease. Indian Journal of Pediatrics. 2001;68:507-510.
- [3]. Saxena A. CHD in India: A status report. Indian J Pediatr. 2005;72:595.
- [4]. Shieh. Consanguinity and the Risk of Congenital Heart Disease. Am J Med Genet A. 2012;158A(5):1236-41.
- [5]. Branon E.S., Weens M.S., Warren J.V. ASD. Study of hemodynamics by The technique of right heart cath. American journal of med s.o.210:980,1945.
- [6]. Goldberger E. Heart disease: its diagnosis and treatment. Lea &Febiger;1955.
- [7]. Stephan Aryan: Echocardiography, an integrated approach.ChurchillLivingstone,1984.
- [8]. Namganglung Golmei et al ;Clinical Profile of Congenital Heart Disease in RIMS Hospital , JMSCR Volume 06 ;12 December 2018 ;Page 1117-1122.
- [9]. Deo B, Jadhav J, Idgampalli N, Deo N, Sabale R. Study of clinical profile of Congenital Heart Disease in paediatric age group. Indian J Basic Applied Med Res. 2015;4(4):269-72.
- [10]. Meshram RM, Gajimwar VS. Prevalence, profile, and pattern of congenital heart disease in Central India: A prospective, observational study. Nig J Cardiol 2018;15:45-9.
- [11]. Kuriakose VJ. Congenital Heart Disease In Neonates—Clinical Profile, Diagnosis, Immediate Outcome, And Short Term Follow Up Study (Doctoral dissertation).
- [12]. Fazeriandy A, Ali M, Saing JH, Tobing TC, Adriansyah R. Consanguinity and congenital heart disease in offspring. Paediatrica Indonesiana. 2018 Apr 30;58(2):75-9.
- [13]. Nazari P, Davoodi M, Faramarzi M, Bahadoram M, Dorestan N. Prevalence of Congenital Heart Disease: A Single Center Experience in Southwestern of Iran. Glob J Health Sci. 2016 Oct 1;8(10):56421.
- [14]. Dev D, Sharma R, Sharma M, Agrawal K, Garg M. Evaluation of consanguinity as a risk factor for congenital heart diseases. Int J Contemp Pediatr 2016;3:868-71.
- [15]. Reddy R, Taksande A. Clinical Profile of Congenital Heart Disease in a Tertiary Care Hospital in Central India.
- [16]. Meena AK, Agrawal DK, Agrawal R. Spectrum of congenital heart diseases at tertiary-care hospital in north western Rajasthan in India. Int J Med Sci Public Health 2016;5:2332-2336 .
- [17]. El-Hazmi MA, al-Swailem AR, Warsy AS, al-Swailem AM, Sulaimani R, alMeshari AA. Consanguinity among the Saudi Arabian population. J Med Genet. 1995; 32:623–626.
- [18]. Roos-Hesselink JW, Kerstjens-Frederikse WS, Meijboom FJ, Pieper PG. Inheritance of congenital heart disease. *Neth Heart J* 2005; 13: 88-91.
- [19]. Sharmin LS, Haque MA, Bari MI, Ali MA. Pattern and clinical profile of congenital heart disease in a teaching hospital. TAJ: Journal of Teachers Association. 2008;21(1):58-62.
- [20]. Wasim Khasawneh, Fakhri Hakim, Omayma Abu Ras , Yara Hejazi and Abdullah Abu-Aqoulah Incidence and Patterns of Congenital Heart Disease Among Jordanian Infants, a Cohort Study From a University Tertiary Center. *fped.2020.00219*.
- [21]. Fuad I. Abbag, Congenital heart diseases and other major anomalies in patients with Down syndrome ,Saudi Med J 2006; Vol. 27 (2): 219-222.