

**Original Research Article****To Assess Cases and Management of CHDS in Given Population- A Clinical Study**

Authors

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Abstract**Background:** Congenital heart defects (CHD) can cause serious birth abnormalities. The present study was conducted to assess cases and management of CHDs in given population.**Materials & Methods:** The present study was conducted in the department of Cardiology. It comprised of 590 cases with age range from 17 days to 70 years of both. In all cases procedure such as VSD closure, ICR for TOF, AV repair, PDA ligation, MVR+TV repair, bidirectional Glenn shunt (BDGS) and Pericardiotomy etc. was performed.**Results:** Among 590 patients, 390 were males and 200 were females. It was seen that maximum cases were observed at age group of 5-20 years (359) followed by 20-40 years (105), 0-5 years (80), 40-60 years (37) and 60-80 years (9). The difference was significant ($P < 0.05$). Common CHDs was ASD in 262 patients, VSD in 140, TOF in 115, PDA in 65 and BD Glenn shunt in 12. The difference was significant ($P < 0.05$). Common procedure performed was AV repair in 165, ASD closure in 100, ICR for TOF in 75, PDA ligation in 60 and ICR for DORV in 45 etc. The difference found to be significant ($P < 0.05$).**Conclusion:** Authors found that common CHDs among study population were ventricular septal defect, atrial septal defect, tetralogy of fallot, PDA and bidirectional Glenn shunt.**Keywords:** Atrial septal defect, Tetralogy of fallot, Ventricular septal defect.**Introduction**

Congenital heart defects (CHD) is the main reason of serious birth abnormalities. High morbidity and mortality is associated with CHD. The number of correction of birth defects is increasing day by day.¹ 3.7 to 17.5 per 1000 live births of prevalence

is found. It is observed that nearly 26 to 44 per 10000 births suffer from major defects, 40 to 100 per 10000 live births with CHD.²

Common CHDs defects are Tetralogy of fallot (TOF) and septal defect. Among cyanotic diseases of heart, TOF was the first which led to the

emergence of palliative and absolute operative procedures of heart. Hence TOF may be indicative of treated CHD.³

PBP (Percutaneous Balloon Pericardiotomy) or pericardioplasty was initially introduced by Dr. Palacios in USA in 1991, and was mainly indicated for recurrent malignant pericardial effusion when surgery option was too risky.⁴ Other cardiac procedure which got its recognition as palliative measure for intermediate stage in patients having single ventricle anatomy before Fontan process became evident in the field of cardiac operations. The procedure is performed before pulmonary artery (PA) banding operation or systemic pulmonary artery shunt operation in the form of primary procedure or second stage step. The present study aimed to evaluate cases and management of CHDs in given population in both genders.

Materials & Methods

This study was done in the department of Cardiology department. It comprised of 590 cases with age range from 17 days to 70 years of both genders reported to DMC, Hero heart Medical hospital, Ludhiana. The inclusion criteria was all patients with the history of CHDs of both genders. The ethical approval was obtained from institutional ethical committee. A informed written consent was obtained from all participants.

Data related to patients such as name, age, gender etc. was recorded. In all cases procedure such as VSD closure, ICR for TOF, AV repair, PDA ligation, MVR+TV repair, bidirectional Glenn shunt (BDGS) and Pericardiotomy etc. was done. The prevalence of all defects was noted. The obtained result was subjected to statistical analysis with significance of P < 0.05 was considered.

Results

Table I indicates that among 590 patients, 390 were males and 200 were females. Table II, graph I indicates that maximum cases were observed at age group of 5-20 years (359) followed by 20-40 years (105), 0-5 years (80), 40-60 years (37) and 60-80 years (9). The difference was significant (P< 0.05). Table III, graph III shows common CHDs was ASD in 262 patients, VSD in 140, TOF in 115, PDA in 65 and BD Glenn shunt in 12. The difference was significant (P< 0.05). Table IV, graph III shows that common procedure performed was AV repair in 165, ASD closure in 100, ICR for TOF in 75, PDA ligation in 60 and ICR for DORV in 45 etc. The difference found to be significant (P< 0.05).

Table I Distribution of patients

Total- 590		
Gender	Males	Females
Number	390	200

Graph I Distribution of patients

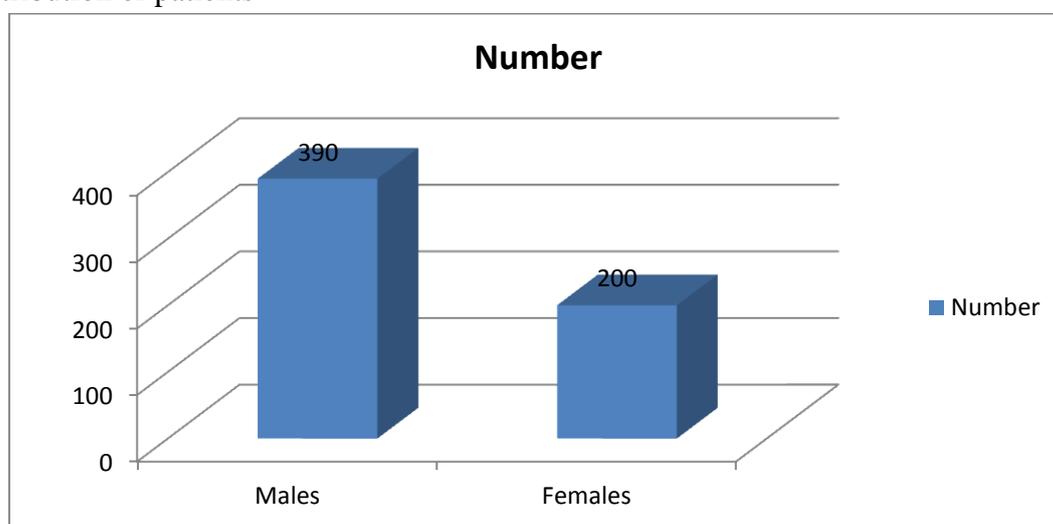


Table II Age wise distribution of cases

Age group (Years)	Number	P value
0- 5	80	0.01
5-20	359	
20-40	105	
40-60	37	
60-80	9	

Graph II Age wise distribution of cases

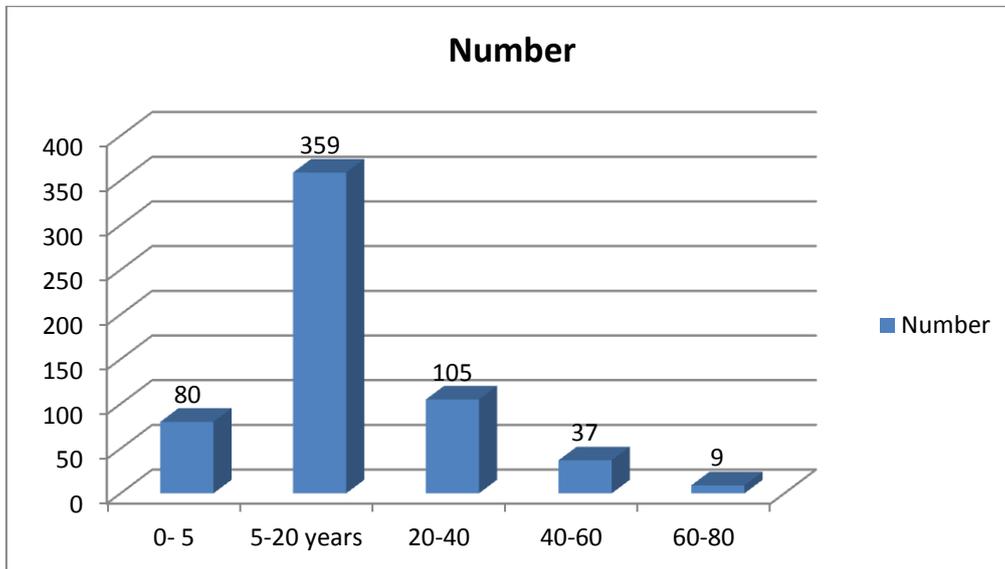


Table III Distribution of CHDs

CHDs	Number	P value
VSD	140	0.02
TOF	115	
ASD	262	
PDA	65	
BD GLENN SHUNT	12	

Graph III Distribution of CHDs

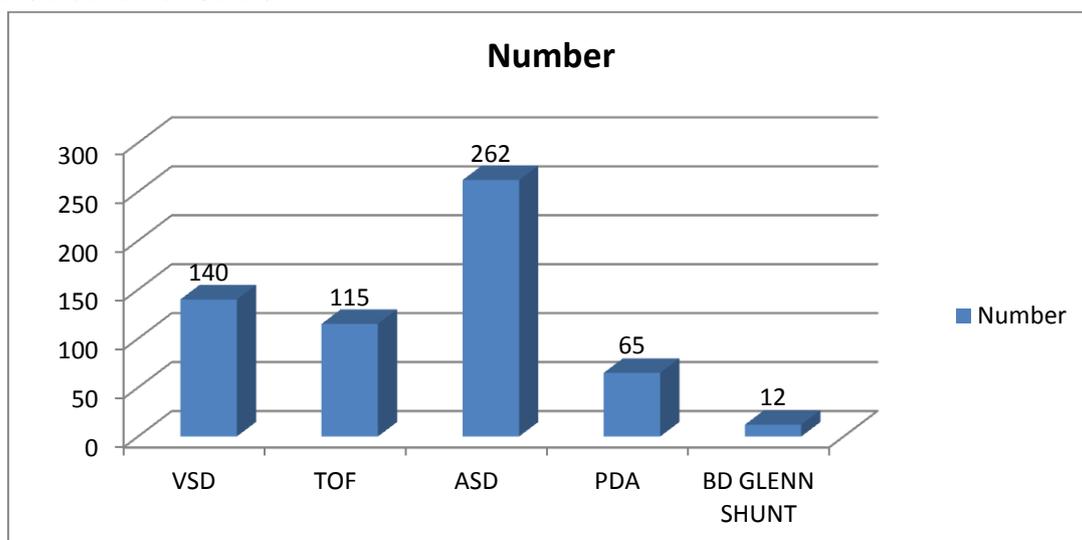
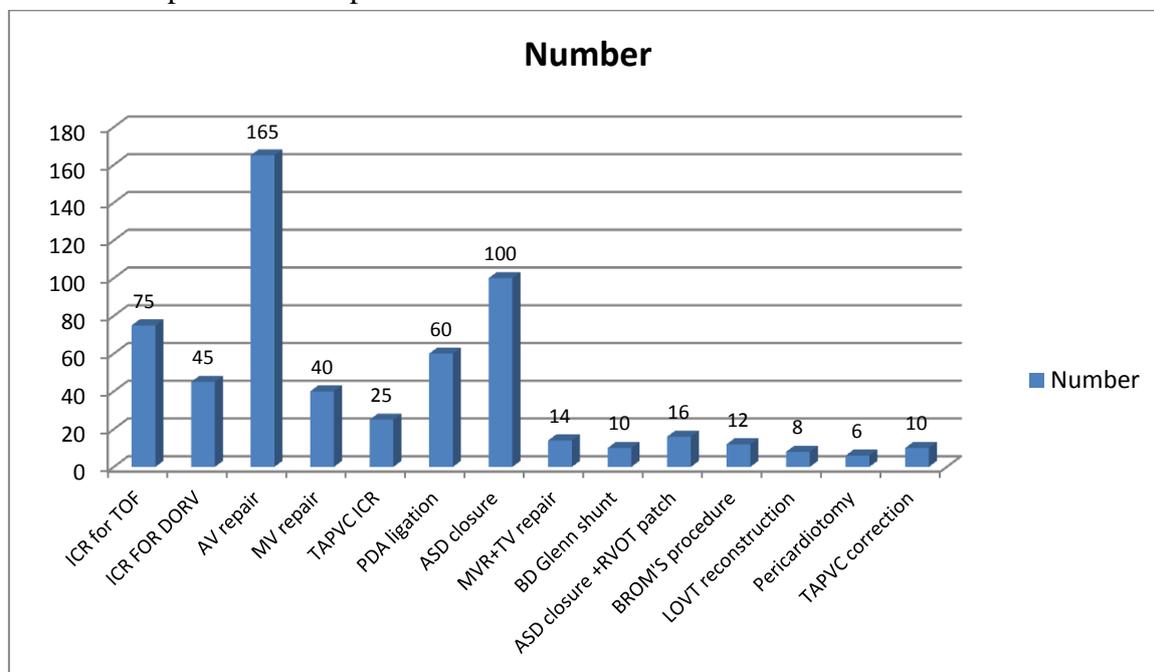


Table IV Procedure performed on patients

Procedure	Number	P value
ICR for TOF	75	0.02
ICR FOR DORV	45	
AV repair	165	
MV repair	40	
TAPVC ICR	25	
PDA ligation	60	
ASD closure	100	
MVR+TV repair	14	
BD Glenn shunt	10	
ASD closure +RVOT patch	16	
BROM'S procedure	12	
LOVT reconstruction	8	
Pericardiotomy	6	
TAPVC correction	10	

Graph IV Procedure performed on patients



Discussion

Recent study done in India indicated that there is prevalence of 3.9/ 1000 in live births of congenital heart diseases. Hence, the incidence of occurrence of congenital heart diseases is variable throughout the country. An Arterio- septal defect is occurrence of hole or opening in the septum between two auricles of heart.⁶ It is present since birth in all newborns as is considered normal fetal opening that allows blood to deviate away from the lungs before birth. Following birth, there is closure of this opening as this is not required at all

later on. It may take few weeks for this opening to either closed completely or to became thinner. Incidence of persistence of this opening larger than normal has been seen which fails to close after birth. In those cases, the obvious reason is unknown. There can be other heart defects along with ASD in children.⁷ The present study aimed to evaluate cases and management of CHDs in given population in both genders.

The present study comprised of 590 patients of CHDs, of which males were 390 and females were 200. In a retrospective study conducted by Kapoor

et al⁸ in 10,641 patients over a five-and-a-half years, the incidence of occurrence of CHDs was 26.4/1000 patients. All the relevant data such as clinical findings, echocardiography findings and color doppler findings was retrieved from departmental record. In 21.3% of patients had ventricular septal defect and atrial septal defect was seen in 18.9% of cases and PDA (patent ductus arteriosus) in 14.6%. In 4.6% of cases, Tetralogy of Fallot was the commonly occurring defect. Maximum number of children with heart disease (82.9%) was found between 0-3 years of age.

We found that common CHDs was ASD, VSD, TOF, PDA and BD Glenn shunt. Pei et al⁹ in their study found prevalence of 76.0/10000 live infants out of total of 29098 live infants. It was observed that the incidence of major CHD was 26.1/10000 and minor CHD was 49.8/ 10000 live infants. Study revealed that twin and multi-fetal infants had high prevalence rate ratio of CHDs as compared to singleton infants as obtained from Poisson regression analysis. Author used southern Shaanxi and found that the PRR of CHD were lower in northern and central Shaanxi province. Mothers above 30 years had higher PRR as compared to below 25 years of age. PRR was higher mothers with ≥ 3 parity as compared to mothers with only 1 parity. Other useful finding of the study was that the risk for CHD among live infants was positively correlated with family history of CHD. Moreover CHD was more commonly seen in permanent population as compared to the floating population.

It is stated that Lillehei's original TOF repairs (CPB) usually results in bigger right ventricular incision for visualizing both ventricular septal defect (VSD) and RVOTO. The relatively favorable long term results have been noted in numerous studies. Moreover, it is found that arrhythmias, myocardial injury, right ventricular dysfunction and coronary injury are linked to part of the right ventricular incision, especially in the context of transannular patching and free pulmonary insufficiency.¹⁰

The advantage of a bidirectional cavopulmonary shunt procedure are that it prevents volume overload of the single ventricle and its attending sequelae, it avoids the distortion of pulmonary arteries seen with systemic pulmonary artery shunts and PA bands, it prevents the development of pulmonary vascular obstructive disease often seen with systemic-pulmonary artery shunts; (d) it provides an opportunity to perform other necessary surgical procedures like PA plasty, repair of co-existing lesions etc.^{11,12}

Conclusion

Authors found that common CHDs among study population was ventricular septal defect, atrio septal defect, tetralogy of fallot, PDA and bidirectional Glenn shunt.

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