

Presentations of Congenital Heart Disease in Children

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ABSTRACT

Congenital heart disease (CHD) is the utmost widely recognized class of natal deserts. CHD involves wide scope of cardiovascular deformities from basic structures exhibiting in the prompt infant time frame to mellow imperfections, for example, bicuspid aortic valve, which might not be predictable till parenthood. Early finding for those below 1yr of age having critical congenital heart disease (CCHD) diminishes both mortality and grimness while postponed analysis has been appeared to prompt noteworthy mortality.

This study aim for study age, gender distribution and frequency of clinical presentation of CHD.

A prospective study accompanied through 3 years since 1st of July 2015 till 1st of July 2018 & encompass 198 patients with CHD consult the outpatient clinic in Al-Diwaniyah city, Al-Qadisiyah, Iraq, each patient was recorded the 1st time diagnosed as CHD; with history, examination, send for x-ray of chest, ECG, & ECHO study & also record the cause of presentation at 1st time when he was diagnosed as CHD.

In our study, total cases were 198, male 118 (60%), female 80 (40%). Age of presentation, in acyanotic CHD results were {<1month 26%, 1-3m 38%, 3-6m 21%, 6-12m 10%, >1year 5%}, in cyanotic CHD results were {<1month 73%, 1-3m 27%}. According to causes of presentation in acyanotic 47% were presented with chest infection, 18% had heart failure & failing to thrive "HF+FTT", 35% had murmur discovered on routine examination of baby at outpatient clinic while in cyanotic type 100% the cause of presentation were cyanosis.

Many patients with CHD discovered by routine physical examination, so full cardiac examination must be done for all patients as a routine role after delivery before discharge from hospital.

Keywords: Congenital heart disease (CHD), ventricular septal defect (VSD), tetralogy of Falot (TOF), patent ductus arteriosus (PDA), pulmonary stenosis (PS), aortal septal defect (ASD).

Introduction

(CHD) had been happen roughly in 0.8% of live birth. The frequency is greater in stillborn (3-4%), unconstrained abortions (10-25%), and untimely newborn children (about 2% barring PDA). The determination is built up by 1wk of age in ~40-50% of patients with CHD and by age of one month in ~50-60% of patients⁽¹⁾

CHD is the utmost well-known class of natal defects^(2,3) CHD contains wide-ranging scope of cardiovascular abnormalities from basic structures

showing in the prompt infant time frame to mellow imperfections, for example, bicuspid aortic valve, which might not be predictable till parenthood. Regardless of noteworthy advancement in clinical consideration for influenced people, CHD relies the main source of baby death amongst natal anomalies ⁽⁴⁾ For babies that surviving early period, there were a great proportion of comorbidities, together cardiovascular and extracardiac & predictable life expectancy was as yet lessened ⁽⁵⁾

In newborn children with a CCHD, the danger of ill health & mortality increments when there is postponement in the determination & opportune referral to tertiary unit⁽⁶⁾

Newborn children with (CCHD) necessitating invasive or catheter intercession within 1st year of lifespan are in danger for cardiovascular breakdown

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or else passing whenever released from the birth emergency clinic deprived of a CCHD conclusion ⁽⁷⁾ If not recognized instantly, CCHDs may have calamitous outcomes ^(8,9). This postponed finding has been appeared to prompt huge mortality just as generous short-and long morbidity for survivors ^(6,7)

The previous 3 decades have seen generous walks in managing heart disease by a 39% decrease in death due to CHD somewhere in the range of 1979 and 1997 ⁽¹⁰⁾. Stagnant, CHD relics a huge reason for natal and baby death in the United States(US), representing 29% of passings because of birth deformities and 5.7% of all newborn child passings. ⁽¹¹⁾ Neonates represent 57% of newborn child death as a result of CHD ⁽¹²⁾. CHD that necessitates obtrusive intercession within 1st month of life had been named CCHD.

Unrecognized neonatal CHD conveys a genuine danger of preventable death, dreariness, & impairment ⁽¹³⁾ Clinical examination earlier to release from hospital and of newborn children at about 45 days of age for any sign of CHD is suggested in Health for All Children ⁽¹⁴⁾

Upgrades in diagnosing, treating, & surgical repairing are changing the survival arrangement of CHD. As of late the survival of progressively complex sorts of inborn CHD has enhanced, prompting an expanding remaining task at hand for development, reinvestigation, and reoperation. Over a similar time, the consideration of grown-ups with CHD has started to create as a different subspecialty ⁽¹⁵⁾. It appears to be likely that everything except those with the least difficult types of CHD will require authority development, & this would be the principle development territory in consideration of those having heart disease ⁽¹⁶⁾

Materials and Method

A prospective study accompanied through 3 years since 1st of July 2015 till 1st of July 2018 & encompass 198 patients with CHD consult the outpatient clinic in Al-Diwaniyah city, Al-Qadisiyah, Iraq, each patient was recorded the 1st time diagnosed as CHD; with history, examination, send for x-ray of chest, ECG, & ECHO study & also record the cause of presentation at 1st time when he was diagnosed as CHD.

Results

In our study, total cases were 198, male 118 (60%), female 80 (40%), as showing in figure-1.

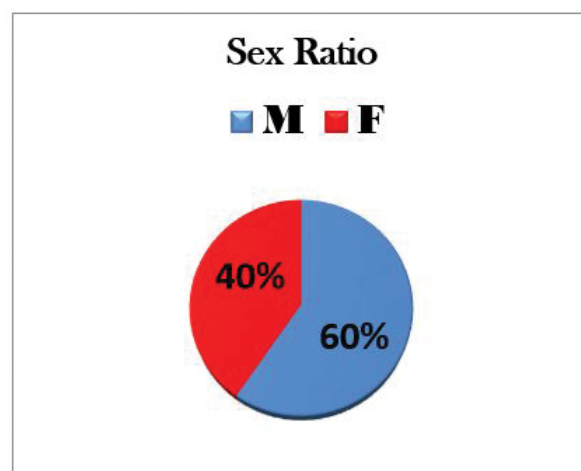


Figure 1: Sex Ratio

Sex distribution in acyanotic CHD was male 92 (60%) & female 62 (40%), while in cyanotic CHD was male 26 (59%) & female 18 (41%), as showing in figure 2.

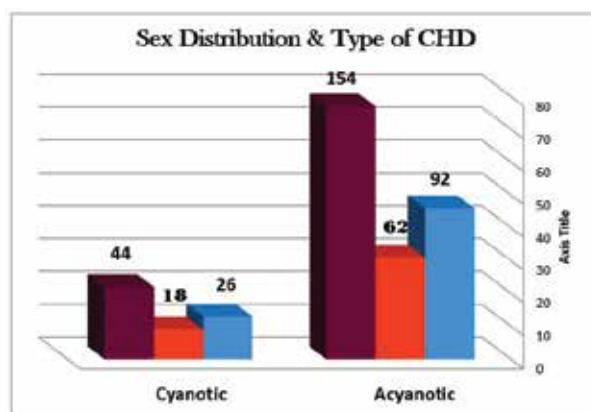


Figure 2: Sex Distribution & Type of CHD

Sex distribution in each specific type of CHD & their percent from total cases as showing in figure 3.

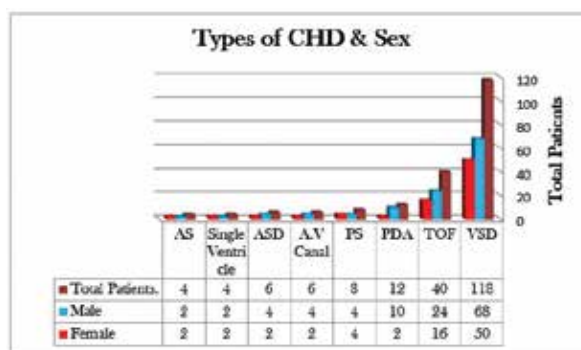


Figure 3: Types of CHD & Sex

According to age of presentation, in a Cyanotic CHD results were {<1month 26%, 1-3m 38%, 3-6m 21%, 6-12m10%,>1year 5%}, in cyanotic CHD results were {<1month 73%, 1-3m 27%} as showing in figure 4.

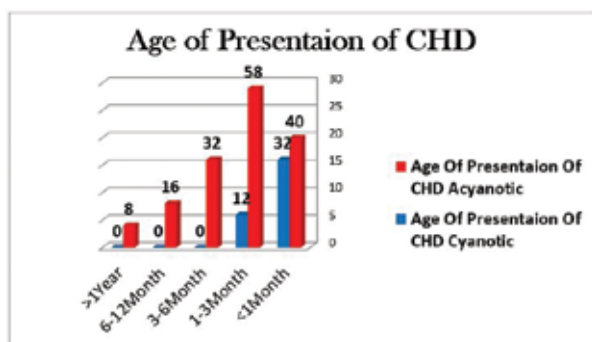


Figure 4: Age of Presentation of CHD

Table 1: Causes of Presentation of CHD

Causes of Presentation CHD					
Causes	% from total	Acyanotic	% from acyanotic	Cyanotic	% from cyanotic
Chest infection	36%	72	47%	0	-
HF + FTT	14%	28	18%	0	-
On Routine Exam	27%	54	35%	0	-
Cyanosis	22%	0	-	44	100%

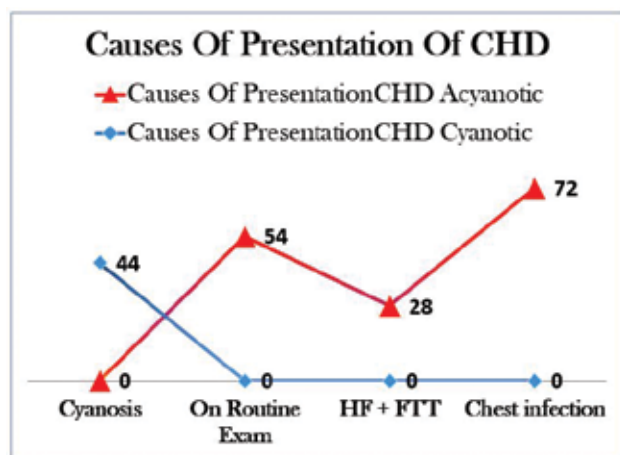


Figure 5: Causes Of Presentation CHD.

Discussion

Cardiovascular anomalies are the most widely recognized gathering of congenital abnormalities. Later planned investigations, with prepared accessibility of timely echocardiographic checkup, have appeared higher of pervasiveness of alive conceived heart anomalies, practically which is all represented by the discovery of even more little ventricular septal defects (17-19). These results similar to results in our study where VSD represent the higher prevalence 60%.

Early acknowledgment of these anomalies is essential in light of the fact that clinical introduction and crumbling might be abrupt (20) and specific

According to causes of presentation in acyanotic 47% were presented with chest infection, 18% had heart failure & failing to thrive "HF+FTT", 35% had murmur discovered on routine examination of baby at outpatient clinic while in cyanotic type 100% the cause of presentation were cyanosis, as showing in table 1 & figure 5.

curable imperfections might even reason for mortality beforehand diagnosing them (21,22)

In our study VSD, ASD & PDA account for 69% which similar to study in the Hospital das Clínicas at Maternity Unit joined the Latin-American collaborative study of congenital malformations, where the results of all clinical presentations of heart diseases were analyzed together (ASD), (VSD) & (PDA) accounted for 62.6% of all imperfections recognized, the results to some extend higher in our study (23)

The most common CHD in our study were VSD & TOF, similar results in study in Iran 2006, also similar results in M:F ratio in both studies CHD higher in males 1.5:1, also in this study results were CHD presented more frequently during infancy (46%), while in our study 96% of presentation at age < 1yr. Acyanotic disease was noticed in 58 (69 %) cases, in our study 95% whereas cyanotic disease was noticed in 26 (31%), in our study 100% of cyanotic discovered at age cases <1yr.

Among acyanotic disease, (VSD) was found in (58.3%) while in our study 60%, (ASD) (4.8%) in our study 3%, defect of endocardial cushion in 2 patients (2.4%) while A.V Canal defect in our study 3%. Amongst cyanotic disease, (TOF) accounted for 13.1% in our study TOF about 20%. These higher results in our study due to new advances occurred in last years in detecting & diagnosing the disease when we in doubt.

In this study, The furthestmost communal clinical arrangements were developmental delay & “failure to thrive” (FTT) (86.9%), shortness of breath (69%), chest infection (52%), heart failure (46%), cyanosis (20.2%), while in our study results were Chest infection (36%), HF + FTT(14%), On Routine Exam(27%), Cyanosis(22%); according to these results cyanosis similar percent while previously FTT was higher which may be due to delayed diagnosis previously in comparison to early diagnosis in recent years ⁽²⁴⁾

So on the routine cardiac examination must be done at delivery room, before discharging baby from neonatal care unit & in those visiting outpatient clinics for any purposes or visiting a health center for routine checkup or for receiving vaccine, because high percent of CHD that discovered on routine checkup (murmur), chest infection, cyanosis or FTT that blamed to CHD.

The importance of early diagnosis for early intervention before missing patient because duct dependent disease or shunt dependent CHD which can lead to death even before diagnosis.

Conclusion

Many patients with CHD discovered by routine physical examination, so full cardiac examination must be done for all patients as a routine role after delivery before discharge from hospital.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

Conflict of Interest: The authors declare that they have no conflict of interest.

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REFERENCES

1. Daniel Bernstein, Epidemiology and Genetic Basis of Congenital Heart Disease, Nelson TextBook Of Pediatrics 19th Ed, 2016 chapter 424; 2182-2187.
2. Reller MD, Strickland MJ, Riehle-Colarusso T, Mahle WT, Correa A. Prevalence of congenital heart defects in metropolitan Atlanta, 1998–2005. *J Pediatr*. 2008; 153:807–813.

3. Braverman AC, Güven H, Beardslee MA, Makan M, Kates AM, Moon MR. The bicuspid aortic valve. *Curr Probl Cardiol*. 2005; 30:470–522.
4. Yang Q, Chen H, Correa A, Devine O, Mathews TJ, Honein MA. Racial differences in infant mortality attributable to birth defects in the United States, 1989–2002. *Birth Defects Res Part A Clin Mol Teratol*. 2006; 76:706–713.
5. Tennant PW, Pearce MS, Bythell M, Rankin J. 20-year survival of children born with congenital anomalies: a population-based study. *Lancet*. 2010; 375:649–656.
6. Kuehl KS, Loffredo CA, Ferencz C. Failure to diagnose congenital heart disease in infancy. *Pediatrics*. 1999; 103(4 Pt 1):743–747
7. Mahle WT, Newburger JW, Matherne GP, et al; American Academy of Pediatrics Section on Cardiology and Cardiac Surgery, 2009; 120(5):447–458.
8. Bonnet D, Coltri A, Butera G, et al. Detection of transposition of the great arteries in fetuses reduces neonatal morbidity and mortality. *Circulation*. 1999; 99(7):916–918.
9. Soongswang J, Adatia I, Newman C, Smallhorn JF, Williams WG, Freedom RM. Mortality in potential arterial switch candidates with transposition of the great arteries. *J Am Coll Cardiol*. 1998; 32(3):753–757.
10. Boneva RS, Botto LD, Moore CA, Yang Q, Correa A, Erickson JD. Mortality associated with congenital heart defects in the United States: trends and racial disparities, 1979 –1997. *Circulation*. 2001; 103(19):2376 –2381
11. National Perinatal Statistics. March of Dimes Perinatal Data Center; 2002. Available at: www.marchofdimes.com/professionals/680_1239.asp. Accessed February 20, 2008
12. Live Births by Race of Mother, Infant Deaths, and Infant Mortality Rates by Race of Mother and 130 Selected Causes of Death, United States, 2000. National Center for Health Statistics. Available at: www.cdc.gov/nchs/datawh/statab/unpubd/mortabs.htm. Accessed September 29, 2003

13. Silove ED. Assessment and management of congenital heart in the newborn by the district paediatrician. *Arch Dis Child* 1994; 70:F71-4.
14. Hall DMB, ed. Health for all children. Report of the third joint working party on child health surveillance. Oxford: Oxford University Press, 1996.
15. Perlo V JK. Congenital heart disease in adults. A new cardiovascular subspecialty. *Circulation* 1991; 84:1881-90.
16. Connelly MS, Webb GD, Somerville J, et al. Canadian consensus conference on adult congenital heart disease 1996. *Can J Cardiol* 1998; 14:395-452.
17. Ainsworth SB, Wyllie JP, Wren C. Prevalence and clinical significance of cardiac murmurs in neonates. *Arch Dis Child* 1999; 80:F43-5.
18. Hiraishi S, Agata Y, Nowatari M, et al. Incidence and natural course of trabecular ventricular septal defect: Twodimensional echocardiography and color Doppler flow imaging study. *J Pediatr* 1992; 120; 409-15.
19. Roguin N, Du ZD, Barak M, Nasser N, Hershkowitz S. High prevalence of muscular ventricular septal defect in neonates. *J Am Coll Cardiol* 1995; 26; 1545-8.
20. Hall DMB, ed. Health for all children. Report of the third joint working party on child health surveillance. Oxford: Oxford University Press, 1996.
21. Abu-Harb M, Hey E, Wren C. Death in infancy from unrecognised congenital heart disease. *Arch Dis Child* 1994; 71:3-7.
22. Abu-Harb M, Wyllie J, Hey E, Richmond S, Wren C. Presentation of obstructive left heart malformation in infancy. *Arch Dis Child* 1994; 76:F179-83.
23. Lúcia F. P. Amorim, Catarina A. B. Pires, Ana Maria A. Lana, Ângela S. Campos, Regina A. L. P. Aguiar, Jacqueline Domingues Tibúrcio, Arminda Lúcia Siqueira, Cleonice C. C. Mota, Marcos J. B. Aguiar. Presentation of congenital heart disease diagnosed at birth: analysis of 29,770 newborn infants. *Jornal de Pediatria* - Vol. 84, No. 1, 2008.
24. Shah GS, Singh MK, Pandey TR, Kalakhetti BK, Bhandari GP. Incidence of congenital heart disease in tertiary care hospital. *Kathmandu University Medical Journal*, 2008, Vol. 6, No. 1, Issue 21, 33-36.