

## Pattern and Clinical Presentation of Congenital Heart Diseases in Port-Harcourt

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### Abstract

**Introduction:** Congenital heart disease is an important cause of morbidity and mortality in infancy and accounts for two thirds of all birth defects. This study was done to obtain the pattern and clinical presentation of congenital heart diseases in the University of Port-Harcourt Teaching Hospital Teaching Hospital, Port-Harcourt, Nigeria.

**Method:** This was a prospective hospital based study of children up to the age of 16 years admitted into the Paediatric Cardiology Unit of the University of Port-Harcourt Teaching Hospital with clinical and echocardiographic features compatible with congenital heart disease.

**Results:** A total 41 patients with congenital heart disease were managed from 1<sup>st</sup> January 2007 to 30<sup>th</sup> June 2008 in the Paediatric Cardiology Unit of the University of Port-Harcourt Teaching Hospital. There were 18 males and 23 females giving a ratio 1:1.3. Majority 33(80.5%) of the cases were acyanotic congenital heart disease. Thirty (73.2%) of the cases seen were infants. Ventricular septal defect was the most prominent congenital heart disease accounting for 34.1% of all cases. Tetralogy of Fallot was the most common cyanotic congenital heart disease and accounted for 87.5%. Fast breathing and poor weight gain were the commonest mode of clinical presentation.

**Conclusion:** Congenital heart diseases are not uncommon in our environment. The modes of presentation are protean, therefore high index of suspicion, early diagnosis, close monitoring and timely intervention is required in all cases. This will go a long way in reducing the morbidity and mortality associated with it.

**Key Words:** Pattern, Presentation, Congenital heart disease, Port-Harcourt

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### Introduction

Congenital heart defects are structural heart abnormalities that are present at birth.<sup>1</sup> The incidence is approximately 8

cases per 1000 live births.<sup>1</sup> The cause is usually unknown. In some cases it may be hereditary or may develop in the fetuses of mothers with intrauterine infections or who are exposed to radiation or other toxic substances during pregnancy.<sup>1</sup> Some defects are severe enough to cause death while others resolve spontaneously without treatment. Babies with large defects usually require surgery while children with corrected defect go on to lead normal lives but usually require lifelong monitoring of their condition.<sup>1</sup>

Pattern of congenital heart disease is well documented in western countries<sup>2, 3</sup>. Congenital heart diseases may present in any age group from neonatal age to adolescent age group. Presentation varies, in some patients it may present with or without cyanosis, some with congestive cardiac failure, cyanotic spells, while some children may be asymptomatic but with a cardiac murmur detected during examination for any other illness.

Children having congenital heart defects are at increased risk for developing complications such as heart failure, endocarditis, atrial fibrillation and valvular abnormalities.<sup>1</sup> Congenital heart disease if left untreated is an important cause of morbidity and mortality in children, therefore early diagnosis and proper intervention is most important.<sup>4</sup> The aim of this study, therefore, was to determine the prevalence and clinical features of congenital heart diseases in the University of Port-Harcourt Teaching Hospital, Port-Harcourt,

Nigeria.

### Materials and Methods

This was a prospective study of children from birth to the age of 16 years, carried out over 18 month period (from 1<sup>st</sup> January 2007 to 30<sup>th</sup> June 2008) in the University of Port-Harcourt Teaching Hospital, (UPTH), Port-Harcourt, Nigeria. The Teaching Hospital was established in 1979. It is the only tertiary hospital located in the metropolis of Port Harcourt, the capital of Rivers State, Nigeria. Port Harcourt lies between longitudes 60 55' and 70 15' east and latitudes 40 35' and 40 46' north. The hospital serves as a general/referral centre for neighboring states.

Patients were included in the study if they had both clinical and echocardiographic evidence of congenital heart disease. Basic details such as, age, sex, maternal age, medications taken during pregnancy, maternal illness during pregnancy, symptoms at presentation (breathlessness, fast breathing, cyanosis, paleness, cough, poor weight gain, refusal to feed and weakness), full blood count, chest X-ray, electrocardiogram and two-dimensional echocardiography findings were noted in pre-structured formats. Data were analyzed using descriptive statistics.

### Results

During the study period there were 1,506 admissions in the Paediatric unit; forty one children aged from birth to 16 years with proven congenital heart disease formed the study group. There were 18 males and 23 females, with a male to female ratio of 1:1.3. There were 33 cases (80.5%) of acyanotic congenital heart disease (ACHD) and 8 (19.5%) cases of cyanotic congenital heart disease (CCHD). The sex distribution and the percentages are shown in Table I. Majority, 33 (80.5%) of the cases presented in the first year of life. Patent ductus arteriosus (PDA) was the only congenital heart defect seen in the neonatal period (Table II). Mothers between the ages of 35-39 years with a mean age of 36.5 ± 1.3 years were noticed to have the highest tendency of having a child with congenital heart disease. The age distribution and the number of children affected are shown on (Table III). Maternal ingestion of native concoction was the most frequently associated risk factor; other risk factors are shown on Table IV. Twelve (29.3%) of the cases had other associated conditions such as: Down syndrome 7 (17.1%) and congenital rubella syndrome 5 (12.2%). The commonest symptoms were fast breathing 39 (95.1%), poor weight gain 32 (78.1%), others are shown on Table V.

Table I: Sex Distribution of Congenital Heart Diseases

CHD Type	Male	Female	Total	Percentage
ACHD	18	23	41	80.5%
CCHD	0	8	8	19.5%
<b>Total</b>	<b>18</b>	<b>31</b>	<b>49</b>	<b>100%</b>

Table II: Age Distribution of Cases of Congenital Heart Diseases

Age	Types	Number	Percentage
≤ 1 month	VSD (3) ASD (1) PDA (3) TOF (1) AVCD (0) SV (0)	8	19.5
1yr- 5yrs	VSD (4) ASD (2) PDA (0) TOF (0) AVCD (1) SV (0)	7	17.1
6 yrs- 9 yrs	VSD (0) ASD (1) PDA (0) TOF (0) AVCD (0) SV (0)	1	2.4
<b>Total</b>		<b>33</b>	<b>80.5</b>

Table III: Maternal Age at Birth and number of children affected.

Age (years)	Affected children	Percentage
15-19	2	4.9
20-24	6	14.6
25-29	6	14.6
30-34	10	24.4
35-39	17	41.5

Table IV: Risk Factors Identified

Factors	Number	Percentage
Fast breathing	39	95.1
Poor weight gain	32	78.0
Maternal ingestion of native concoctions	10	24.4
Maternal rubella infection	5	12.2
Prematurity	3	7.3
Maternal exposure to irradiation	2	4.9

Table V: Presenting features of the study group.

Poor feeding	11	26.8
Weakness	1	2.4
Poor neck control	5	12.2

### Discussion

The prevalence of congenital heart disease during the study period was 2.7%. This is similar to reports from other studies.<sup>5-8</sup>

There are gender differences in the occurrence of specific heart lesions.<sup>2, 4</sup> Our study showed a female preponderance of congenital heart disease. The gender differences in specific heart lesions in the study showed that TOF and atrioventricular canal defect were slightly more common in boys, whereas VSD, PDA, ASD were more common in girls. This finding is at variance with studies by Chadha et al<sup>9</sup> and Bidwai et al<sup>10</sup> which showed the reverse pattern. Racial differences may have contributed to the observed pattern.

In this series there were 33 cases of acyanotic congenital heart disease, accounting for 80.5% of all cases while there were 8 cases of cyanotic congenital heart disease representing 19.5%. The preponderance of acyanotic congenital heart disease is in concordance with the results of other studies.<sup>5-7</sup> VSD was the commonest congenital heart disease seen in our study (34.1%), which is similar to other studies.<sup>5-7</sup> ASD was the second commonest congenital heart disease in this study and it accounted for 22.0%; this is in agreement with the results of other studies.<sup>2,4</sup>

Most (80.5%) children in our series presented during infancy with few (3 out of 41) cases during the neonatal period. All the cases seen in the neonatal period were PDA. The absence of other cardiac lesions such TGA in the neonatal period could be due to the fact that most die before being detected and foetal echo-cardiography which would have detected most of the heart defects in utero is currently unavailable in the study centre. Congenital heart diseases often have associated non cardiac conditions.<sup>1</sup> It is known that 90% cases of Trisomy 18, 50% cases of Trisomy 21 and 40% cases of Turner's syndrome have congenital heart diseases complicating the affected children.<sup>1</sup> In our study, Down syndrome was found to be the most frequently associated condition accounting for as high as 17% and that most of the mothers were of advanced age. As the mother's age increases the risk of having a baby with Down syndrome also increases. This means that advanced maternal age is an important factor in the occurrence of congenital heart

particularly during infancy. High index of suspicion, early diagnosis, close monitoring and timely intervention is required in all cases of congenital heart disease to permit optimal growth and development. This will go a long way in reducing the morbidity and mortality of this disease condition.

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diseases in our environment. This pattern, however, is similar to previous studies.<sup>3, 4, 9</sup> The second most frequent association in our study was congenital rubella syndrome which affected 5 out of 41 patients representing 12.2%. These confirm the role of chromosomal defects and intra uterine infections in the aetiology of congenital heart diseases.<sup>1</sup>

Ingestion of native concoctions was the commonest identified risk factor in this study. These concoctions were usually prepared by traditional midwives for treatment of pregnancy related symptoms and sometimes to augment labour. These concoctions may contain chemical compounds that have teratogenic effects on the fetus. It will, therefore, be interesting to subject them to toxicological studies in order to identify the chemical compound and to evaluate their effects on the fetus. Similar teratogenic complications and their negative impacts on the developing fetus have been reported by many authors previously.<sup>11,12</sup>

The symptoms of congenital heart disease is protean.<sup>13,14</sup> In this series fast breathing was the commonest symptom seen in 95.1%, followed by poor weight gain in 78.0% and cough in 41.5%. This is not surprising as fast breathing is a common accompaniment of congenital heart disease and may be as a result of cardiac decompensation or hypercapnea. Poor weight gain is also a major symptom of congenital heart defect. It is possible that feeding difficulty and inadequate food intake may have accounted for the poor weight gain encountered in this study. These findings have been demonstrated previously.<sup>15, 16</sup>

## Conclusion

A cardiac evaluation with echocardiography is advised in cases of fast breathing, poor weight gain and cough

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