Original article:

Study of clinical profile of Congenital Heart Disease in paediatric age group

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Abstract:

Introduction: Congenital heart disease is a structural and functional heart disease present at the time of birth even if it is detected later on. Congenital heart disease as a whole occurs with equal frequencies in male and female but some lesions like coarctation of aorta, aortic stenosis, transposition of great vessels and tetralogy of fallot are more common in males whereas ASD, PDA are more common in females.

Material and methods: All the patients attending Paediatrics IPD and OPD during the study period; with symptoms suggestive of congenital heart diseases were screened. The subjects who satisfied the following inclusion and exclusion criteria were enrolled in the study after obtaining informed consents from parents or legal guardians. This is a Descriptive observational Hospital Based study, done on 120 children of congenital heart disease.

Observations and results: Acyanotic congenital heart diseases formed about 2/3rd of the total congenital heart diseases. 8.33% of the patients were found to have family history of CHD. All of the cases with positive familial occurrence; was observed in their siblings. By applying chi-square test association between family history and congenital heart disease was found to be statistically significant (p<0.05).

Conclusion: In our present study we observed consanguinity among parents of children with CHD to be 40 cases (33.33%). All of those were third degree consanguineous marriage. By applying chi square test association between consanguineous marriage and congenital heart disease was found to be statistically significant (p<0.05). Among the 40 cases; whose parents had consanguineous marriage 28 were ACHD and 12 were CCHD.

Introduction:

Congenital heart disease is a structural and functional heart disease present at the time of birth even if it is detected later on\(^1\). Congenital heart disease according to Mitchell et al. is a gross structural abnormality of heart or intra thoracic great vessels that is actually or potentially of functional significance\(^2\). The cause of most congenital heart disease is unknown. Most of the congenital heart diseases are thought to be multi factorial and result from combination of genetic predisposition and environmental stimulus\(^3\). Congenital heart disease as a whole occurs with equal frequencies in male and female but some lesions like coarctation of aorta, aortic stenosis, transposition of great vessels and tetralogy of fallot are more common in males whereas ASD, PDA are more common in females\(^3\).

Material and methods:

The study was conducted in Dept. of Pediatrics of Rural Medical College, Loni over a period of two years from September 2012 to August 2014 after obtaining approval from the Institutional Ethics Committee. (PMT / PMIS/RC/2012/110)

All the patients attending Paediatrics IPD and OPD during the study period; with symptoms suggestive of congenital heart diseases were screened.

The subjects who satisfied the following inclusion and exclusion criteria were enrolled in the study after obtaining informed consents from parents or legal guardians. This is a Descriptive observational Hospital Based study, done on 120 children of...
congenital heart disease. All the new cases of CHD (both IPD and OPD patients) who attended pediatric department during the study period 1st September 2012 to 31st August 2014 at Rural medical Hospital, Loni.

INCLUSION CRITERIA

□ Children from birth to 12 years of age; who were freshly diagnosed to have congenital heart disease; from OPD and IPD (admitted in neonatal ICU ward and paediatrics ward) of Rural Medical College, Loni were included.

EXCLUSION CRITERIA

□ Old cases of CHD evaluated by Echocardiography
□ Children with acquired Heart disease
□ Unstable suspected CHD patients who died before confirming the disease

Methodology:
The suspected CHD patients were subjected to a detailed history and thorough clinical examination as per the proforma attached. Relevant investigations were done as per individual case requirement.

Observations and results:

Table 1: Age distribution of patients with CHD Age at admission (0-12 years)

<table>
<thead>
<tr>
<th>Age at admission (0-12 years)</th>
<th>No of patients (N=120)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 month</td>
<td>60 (50.0%)</td>
</tr>
<tr>
<td>1 month–1 year</td>
<td>18 (15.0%)</td>
</tr>
<tr>
<td>1 year–5 year</td>
<td>26 (21.67%)</td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>16 (13.33%)</td>
</tr>
</tbody>
</table>

Table 2: Sex distribution of the patients with CHD Sex (N=120)

<table>
<thead>
<tr>
<th>Sex</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>71 (59.17%)</td>
</tr>
<tr>
<td>Females</td>
<td>49 (40.83%)</td>
</tr>
</tbody>
</table>

Acyanotic congenital heart diseases formed about 2/3rd of the total congenital heart diseases.

Table 2: Parental consanguinity among patients with CHD Congenital Heart Disease (N=120)

<table>
<thead>
<tr>
<th>Congenital Heart Disease</th>
<th>Non-consanguineous parents (%)</th>
<th>Consanguineous parents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyanotic</td>
<td>53 (44.17%)</td>
<td>28 (23.33%)</td>
</tr>
<tr>
<td>Cyanotic</td>
<td>27 (22.50%)</td>
<td>12 (10.0%)</td>
</tr>
<tr>
<td>Total</td>
<td>80 (66.67%)</td>
<td>40 (33.33%)</td>
</tr>
</tbody>
</table>

8.33% of the patients were found to have family history of CHD. All of the cases with positive familial occurrence; was observed in their siblings. By applying chi-square test association between family history and congenital heart disease was found to be statistically significant (p<0.05).
Discussion:
CHDs may be diagnosed at virtually any age. Some conditions are always discovered in neonates; others rarely are identified during infancy. In our present study neonates constituted the largest group with 60 cases (50%) and from 1 month to 1 year there were 18 cases (15%). From 1 year to 5 year age group there were 26 cases (21.67%). More than 5 years accounted 16 cases (13.33%).

Begic et al (an east European Study) found CHD in infancy upto 70% of all cases, with 29.3% cases in non-infants. The frequency of CHD in infancy was 51.66% in by Suraj Gupta et al, 53% by Walloopillai et al, and 39.46% by Tank et al. Among non-infants under five children 23.33% by Suraj Gupta et al, 28.57% in Tank et al, 29% in the Ceylonese study of Walloopillai et al. Our study was similar to Begic et al with infancy forming 65%.

Male female ratio
In the present study there were 71 males (59.17%) and 49 females (40.83%). Male to female ratio obtained was 1.45:1. Tank et al observed 1.88:1, whereas Chaddha et al and Pai et al arrived at 1.30:1 and 1.25:1 respectively. In the BWIS, there was no major gender disparity in the prevalence of CHD in live births except, in case of TGA, wherein a male predominance was found. Khalil et al, in an Indian study found no gender disparity in the incidence of CHD in live births.

Tank et al, pai et al, chadda et al were all hospital based studies, and in all male preponderance was observed similar to our study. Our study had similar findings; like those of Tank et al, pai et al, chadda et al with male preponderance. Based on above findings one can say that, though there is no much gender disparity at birth, but still male predominance is seen when it comes to hospital admission which is observed in many Indian hospital based studies. This underscores the still existing social stigmata regarding the “girl child” and the Indian population has to be educated in regard to the need for proper medical care for both the sexes.

Distribution of congenital heart disease
Congenital heart diseases are classified into Acyanotic congenital heart disease and Cyanotic congenital heart disease. In the present study we have observed that 81 patients (67.5%) had ACHD and 39 cases (32.5%) had CCHD. A retrospective analysis of 3790 admitted cases in a government major cardiac center in Bangalore, by Vijayalaxmi et al had ACHD in 77.9% and CCHD in 22.1%. Though a smaller sample size, Suguna Bai et al found similar results with ACHD in 74% and CCHD in 26%. Kasturi et al in a study of 108 cases found ACHD in 82% and Discussion 107 CCHD in 18% of cases. Pai et al in a study of 200 cases of CHD found ACHD in 71.5% and CCHD in 28.5%.

Role of consanguity
In our present study we observed consanguinity among parents of children with CHD to be 40 cases (33.33%). All of those were third degree consanguineous marriage. By applying chi square test association between consanguineous marriage and congenital heart disease was found to be statistically significant (p<0.05). Among the 40 cases; whose parents had consanguineous marriage 28 were ACHD and 12 were CCHD.

In a study done in Sri Sathya Sai Institute of higher medical sciences in Andhra Pradesh, Gnanalingam et al, found parental consanguinity in 31.1% of patients with CHD compared to 12.5% in the control group. Since in our present study we do not have any control group and no data could be obtained about the prevalence of consanguinity in local area, we can only say that 33.33% cases were offsprings of consanguineous parents and nothing more can be commented upon. In our present study we observed family history of congenital heart disease in 10 cases (8.83%). All 10 cases had family history of congenital heart disease in their siblings. Among the 10 cases; 4 were
ACHD and 6 were CCHD. By applying chi-square test association between family history and congenital heart disease was found to be statistically significant (p<0.05).

Fahim ul haq et al in a study in Pakistan found positive family history in 14% cases of congenital heart disease. Risk of recurrence for most of congenital heart diseases, if one of the siblings is affected is cited as 1-3%13 but if there are two affected sibs, the risk increases to 10%.50. Our findings were similar to study done by Thakur et al14

Conclusion:

In our present study we observed consanguinity among parents of children with CHD to be 40 cases (33.33%). All of those were third degree consanguineous marriage. By applying chi square test association between consanguineous marriage and congenital heart disease was found to be statistically significant (p<0.05). Among the 40 cases; whose parents had consanguineous marriage 28were ACHD and 12 were CCHD.

References: