that by the age of 2 years the average child had 2 carious lesions; it increased according to the older the age, and the periods of greatest activity are 4 to 8 years in the primary dentition and at 12 to 18 years in the permanent dentition.


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**CONGENITAL HEART DISEASE**

by

**HARUN ALRASYID, SUHADI, SUTARYO, ROSYID RIDHO, A. SAMIK WAHAB and ISMANGOEN**

(From the Department of Child Health, Medical School Gajah Mada University Hospital, Yogyakarta)

**Abstract**

This paper reports 54 cases of Congenital heart disease which were diagnosed by simple methods, without Cathetherisation and Angiocardiography.

These consisted of: 1). 37% Ventricular septal defect. 2). 24% Atrial Septal defect, second type. 3). 11,11% Patent Ductus Arteriosus Botalli. 4). 9% Tetralogy of Fallot. 5). 7,5% Stenosis pulmonals. 6). 3,7% Atrial septal defect primary type. 7). 1,8% Aorta stenosis. 8). 2% Others.

Early signs and symptoms were: frequent cough, growth retardation, dyspnée d’effort, Electrocardiographic and Rentgenologic abnormalities.

With simple examinations we can almost accurately diagnose congenital heart disease.

We suggest to build up more cardiac centres to overcome congenital heart disease problems.

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Introduction

Cardiovascular diseases in children occur as a consequence of congenital heart disease and rheumatic fever (Kaplan, 1975).

In Indonesia, the major problems of heart disease fall in the fields of: Congenital Heart Disease, Rheumatic Heart Disease, Diphtheric myocarditis, Coronary artery disease, Cardiomyopathy, Cardiac Surgery and Epidemiology (Ranti, 1974).

In recent studies from North America as well as from Europe it was found that congenital heart disease occurred in about one per 125 (0.8%) of live born children (Kenneth, 1975), or 0.8 — 1% (Hoffman, 1971) and in one third of these cases no survival is possible without proper diagnosis and treatment (Friedberg and Litwin, 1976). Based on these data in the United States it is assumed that there are about 3200 infants with congenital heart disease born every year (Keneth, 1975).

Initial recognition of congenital heart disease in neonates as well as decision for referral to a cardiac centre for subsequent treatment are most important.

Early detection followed by timely transfer to a cardiac centre, supported by correct diagnosis and surgical technique offer a good outlook for 80% of the patients (Mc Namara, 1975).

This study was undertaken with the purpose to present data on congenital heart diseases found at the Gajah Mada University Hospital and to discuss some of their aspects.

Material and Methods

Maternal consisted of congenital heart disease patients admitted to the Department of Child Health, Gajah Mada University Hospital, Yogyakarta, from January 1975 until December 1977.

The following data were recorded of each patient: history of the disease, physical, rontgenologic and electrocardiographic examinations on admission. The diagnosis of congenital heart disease was based on: history of the disease, clinical, electrocardiographic and radiologic findings.

The patients were re-examined every month or once in six months depending on the severity of the disease to detect the occurrence of complications, e.g. the beginning of pulmonal hypertension, the beginning of congestive cardiac failure and hypoxia.

Results and Discussion

The number of cases of congenital heart diseases and the type of the defects and sex distributions in the Department of Child Health, Gajah Mada University Hospital during 3 years is shown in table 1 and 2.

Statistically it had been proved, that caries formation in breastfed children is significantly different compared to bottle-fed children (p < 0.01) and also significantly different to bottle-fed beside breast-fed (p < 0.01).

But there is no difference in caries formation between bottle-fed compared to breast-fed beside bottle-fed children.

Table 4 showed the age distribution and type of feeding of these children who were suffering from bottle caries, where carious teeth formation was found under the age of one year until the age of five years, while caries formation in breastfed children begins at the age of 42 months.

<table>
<thead>
<tr>
<th>Age (in months)</th>
<th>Type of feeding during infancy</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breast</td>
<td>Breast + Bottle</td>
</tr>
<tr>
<td>6 — 11</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12 — 17</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>18 — 23</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>24 — 29</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>30 — 35</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>36 — 41</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>42 — 47</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>48 — 53</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>54 — 60</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>35</td>
</tr>
</tbody>
</table>

Discussion

Tooth decay is one of the commonest problems of civilization, and children are its first victims. It is a progressive destructive lesion of the calcified dental tissue. Untreated, it is eventually resulting in total destruction of the involved teeth.

Caries may destroy both deciduous and permanent teeth. In this survey we found, that 3000 (16.03%) children suffered from various teeth diseases, where chronic caries were prevailing at the age of 3 — 8 years followed by gangrenous pulpaes.

Among preschool age children in Indonesia the prevalence of Dental Caries is about 60 - 70% as stated by Rizali Noor in 1978, while in our survey with gross examination we found 16.03% that suffered from various dental disea-
We also noticed that one child can have more than one diseased tooth, some had either more than four diseased teeth (see Table 2).

**TABLE 2: Number of destroyed teeth on patient in the first survey.**

<table>
<thead>
<tr>
<th>Number of destroyed teeth</th>
<th>1</th>
<th>4</th>
<th>&gt; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>825</td>
<td>258</td>
<td>32</td>
</tr>
<tr>
<td><strong>%</strong></td>
<td>27.5</td>
<td>8.6</td>
<td>1.4</td>
</tr>
</tbody>
</table>

On the second survey in December 1977 we examined 100 children under five years old to look for the relationship of caries formation in breastfed children compared to bottlefed children. From those 100 children we found 32 who got breastfeeding, 15 bottlefeeding and 53 breastfeading respectively besides bottlefeeding. From those 100 children, 54 had dental caries whereas 46 were free from caries. From these 54 carious children, 48 had caries resembling bottlefeeding caries, and the other 6 children suffering from caries that differed from bottle caries.

From those 46 children being free from caries, 26 got breastfed and 20 got bottlefed or bottlefed beside breastfed (see Table 3).

**TABLE 3: Prevalence of caries with different types of feeding in the second survey.**

<table>
<thead>
<tr>
<th>Type of feeding</th>
<th>+</th>
<th>%</th>
<th>-</th>
<th>%</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Breast</td>
<td>6</td>
<td>13</td>
<td>26</td>
<td>2</td>
<td>32</td>
</tr>
<tr>
<td>B. Bottle</td>
<td>13</td>
<td>35</td>
<td>2</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>C. Breast +</td>
<td>35</td>
<td>54</td>
<td>18</td>
<td>46</td>
<td>53</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54</td>
<td>6</td>
<td>46</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

On further examination it came out that of the 48 bottle carious children, 35 (72.92%) got bottlefeeding beside breastfeeding, whereas 13 (27.08%) got only bottlefeeding. We found no dental caries on children who got only breastfeeding until the age of 41 months (see Table 4).

**TABLE 1: Frequency of congenital heart disease**

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of cases of congenital heart disease</th>
<th>%</th>
<th>Number of patients admitted to the hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975</td>
<td>8</td>
<td>0.04</td>
<td>1809</td>
</tr>
<tr>
<td>1976</td>
<td>18</td>
<td>0.09</td>
<td>2003</td>
</tr>
<tr>
<td>1977</td>
<td>30</td>
<td>0.14</td>
<td>2151</td>
</tr>
</tbody>
</table>

**TABLE 2: Type of defect and sex distribution**

<table>
<thead>
<tr>
<th>Type of defect</th>
<th>Yogyakarta</th>
<th>Ey and Johnson</th>
<th>Neison</th>
<th>Rudolph</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>Total</td>
<td>%</td>
</tr>
<tr>
<td>1. Ventricular septal defect.</td>
<td>6</td>
<td>14</td>
<td>20</td>
<td>37.04</td>
</tr>
<tr>
<td>2. Patent ductus arteriosus</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>11.11</td>
</tr>
<tr>
<td>3. Atrial septal defect, type I</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td>24.07</td>
</tr>
<tr>
<td>4. Tetralogy of Fallot</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>9.26</td>
</tr>
<tr>
<td>5. Pulmonary stenosis</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>7.41</td>
</tr>
<tr>
<td>6. Aorta stenosis</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>1.85</td>
</tr>
<tr>
<td>7. Atrial septal defect, type II</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>8. Coarctatio aortae</td>
<td>—</td>
<td>1</td>
<td>1</td>
<td>1.85</td>
</tr>
<tr>
<td>9. Hyperplastic left heart syndrome</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10. Single ventricle</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>23</td>
<td>31</td>
<td>54</td>
<td>99.99</td>
</tr>
</tbody>
</table>

The number of cases increased every year during the last 3 years. This fact may be due to the increasing interest of pediatricians in congenital heart disease or to the awareness of people in general of this disease.
These obtained data (Table 2) are nearly the same as mentioned in the literature although catheterisation and angiographic procedures are not yet performed.

A ge:

42.6% of the cases admitted to the hospital are at the age of less than 6 months. Congenital heart disease should be diagnosed as early as possible, as well as timely transferred to the cardiac centre especially in infants to prevent complications.

It is suggested that Maternity Hospitals, Health Centres, Mother an Child Health Centres and general practitioners should pay more attention to congenital heart disease.

75% of patients with Ventricular Septal Defect were admitted to the hospital at the age of less than 6 months.

This may be due to the fact that Ventricular Septal Defect is the most frequent defect in congenital heart disease whereas the diagnosis of Ventricular Septal Defect is relatively simple.

Nine out of 54 cases died:
— 22.22% due to Congenital heart disease itself.
— 11.11% due to complication after operation.
— 66.7% due to complications of Congenital heart disease or other disease.
66.7% died before the age of six months.

To prevent this high mortality, and to prolong life expectancy of Congenital heart disease patients, early diagnosis is necessary to avoid complications. According to Rowe (1970), the cause of death is often due to coming to the physician too late.

The cause of death from congenital heart disease:

I. Cardiac failure due to the congestion, which leads to haemodynamic disturbances:
   a. The congestion of the pulmonal veins.
   b. Pulmonal volume overload.

II. Systemic hypoxemia:
   a. Restricted pulmonary blood flow.
   b. No transformation of blood flow between the two circulations.

Autopsy data of cardiac malformation in the first months of life are as follows (cited from some centres) (Rowe, 1970):
1. Hypoplastic left heart syndrome.
2. Coarctation of the aorta.
3. Transposition of the great arteries.
4. Hypoplastic right heart syndrome.
5. Tetralogy of Fallot.
6. Truncus arteriosus.
7. Endocardial cushion defect.
8. Ventricular septal defect.

Indication for cardiac surgery:
1. No surgery 16.67%
2. Surgery contra-indicated —

for the orientation of the oral cavity. A probe was used for examining the depth of the destruction and for checking the interproximal area, while fuchsin 4% solution was used as a discoloring solution so that one could know the dental lesions or destruction. The solution was rubbed on the surface of each tooth, and when there was debris which covered the enamel lesions or dentin destruction, so we can see it by the reddish colour of the matter.

Those carious teeth influenced by bottled attacked specific tooth according to the following formula:

\[
\begin{array}{cccc|cccc}
   & a & b & c & d & a & b & c & d \\
   d & c & a & b & d & a & b & c & d \\
   \end{array}
\]

a. central incisor  c. cuspid
b. lateral incisor  d. first molar

According to Mc Donald (1974), children, who still have bottle feeding while they must have already had solid foods, have a great possibility of getting specific caries in the interproximal area, as well as prolonged contact of milk or sweetened liquids with the teeth, called bottle caries.

Results

From those 18720 children attending the OPD in 1971 — 1973, 3000 children (16.03%) suffered from various dental abnormalities or diseases. The spectrum and prevalence of dental abnormalities found in those children, namely chronic caries (2020 children), gangrenous pulps (1542 children), persistency (1266 children), radices (895 children), abscess (682 children), pulpitis (213 children), hyperemic pulps (139 children) and irritated pulps (55 children). Chronic caries and gangrenous pulps was prevailing in dental destruction since the age of 3 years until the age of 8 years. Persistency takes the third place in dental problems (see Table 1).

<table>
<thead>
<tr>
<th>Types of teeth diseases</th>
<th>Cases</th>
<th>— 2 years cases</th>
<th>— 3 — 5 years cases</th>
<th>— 6 — 8 years cases</th>
<th>— 9 — 12 years cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic caries</td>
<td>2020</td>
<td>162</td>
<td>979</td>
<td>683</td>
<td>193</td>
</tr>
<tr>
<td>Gangrenous pulps</td>
<td>1542</td>
<td>73</td>
<td>701</td>
<td>584</td>
<td>84</td>
</tr>
<tr>
<td>Persistency</td>
<td>1266</td>
<td>—</td>
<td>—</td>
<td>997</td>
<td>269</td>
</tr>
<tr>
<td>Radices</td>
<td>895</td>
<td>45</td>
<td>376</td>
<td>410</td>
<td>64</td>
</tr>
<tr>
<td>Abscess</td>
<td>682</td>
<td>46</td>
<td>323</td>
<td>224</td>
<td>89</td>
</tr>
<tr>
<td>Pulpitis</td>
<td>213</td>
<td>10</td>
<td>77</td>
<td>57</td>
<td>69</td>
</tr>
<tr>
<td>Hyperemic pulps</td>
<td>139</td>
<td>7</td>
<td>59</td>
<td>44</td>
<td>29</td>
</tr>
<tr>
<td>Irritated pulps</td>
<td>55</td>
<td>8</td>
<td>18</td>
<td>19</td>
<td>10</td>
</tr>
</tbody>
</table>

TABLE 1: Spectrum and prevalence of tooth diseases in the various age group from 3000 children in the first survey
Introduction

Most people think that primary teeth did not need any attention or treatment, because primary teeth will be replaced by permanent teeth. They are unaware that the change from primary teeth into permanent teeth occurs at a certain age, and that early destruction or loss of primary teeth will affect the growth and development of a child, especially of the teeth and jaw.

The condition of the oral cavity is important to physical and psychological health and sense of well-being. The recognition and treatment of oral abnormalities and diseases, particularly in infancy and childhood require cooperative effort between physicians especially pediatricians and dentists. Initially the physicians' role is predominant, afterwards it is the dentist.

It is also important to notice, that any dental destruction or decay can be a focal of infection.

The principal consideration of the oral health of children is the establishment of an intact, balanced, self-maintaining permanent dentition. Dental examination at 2½ to 3 years of age permits careful evaluation of oral health, including the pattern of eruption and completeness of dentition, tooth to tooth and arch to arch relations, facial growth and condition of the enamel dentin.

Needed restoration may be at this time, as well as plans for the treatment of other abnormalities. Regular periodic surveillance is necessary throughout childhood to ensure that teeth are not lost through caries and that malocclusions receive timely correction. Most periodontal disease of adults is often traceable to caries or malocclusions untreated during childhood.

Being aware of the importance of oral health of children, two surveys were made in order to know about the spectrum and prevalence of dental diseases of children. Comparison of dental caries was made in breastfed with bottled group and infants of children, who were attending the OPD (outpatient department) at the Dr. Piringadi General Hospital, Medan, North Sumatera. Both surveys were done in collaboration with the Dental Clinic of the same hospital.

Material and Method

The first survey was done in 1971—1973 and the second in 1977. During the first survey in 1971—1973, there were 18720 children attending the OPD; gross tooth examination was done on every child. If there was any destruction or abnormalities, they were directly sent to the Dental Clinic for further examination and treatment or restoration.

The second survey was conducted on 100 children under five years of age at their first attending in December 1977, as a comparative study of caries formation in breastfed and bottlefed children. Those 100 children were examined at the Dental Clinic.

During the dental examination at the Dental Clinic, reflection mirror was used

3. Surgery indicated:
   — Urgent 29.63\% 62.96\%
   — Non urgent 33.33\% 62.96\%

4. Inoperable 7.40\%

5. Surgery not indicated because of associated anomalies 8\%

Indication for cardiac surgery is based on the criteria as suggested by Loh (1970).

Loh findings are as follows:
1. Non surgery 18\%
2. Surgery contra indicated —
3. Surgery indicated 64\%
4. Inoperable 10\%
5. Surgery not indicated because of associated anomalies 8\%

62.96% of our cases were indicated for surgery but only in 5 out of 34 cases (14.7\%) surgical treatment could be carried out. This is due to social, economical and psychological problems of the parents and the patient as well, so it is important to take into account these various aspects, in managing congenital heart diseases.

During the last three years the patients were sent to a cardiac centre with the following results:

YEAR 1976:
Sent with the diagnosis of:
1. Persistent Ductus Botalli/Atrial septal defect with pulmonary hypertension (one patient)

YEAR 1977:
2. Persistent Ductus Botalli (one patient)

Diagnosis from the centre:
1. Atrial septal defect with pulmonary hypertension and mitral insufficiency

YEAR 1976:
1. Atrial septal defect type I (one patient)

YEAR 1977:
3. Persistent Ductus Botalli, pulmonary hypertension (one patient)
5. Pulmonary stenosis (one patient)

Diagnosis from the centre:
— Atrial septal defect, type I with pulmonary hypertension.
— Persistent Ductus Botalli
— Pulmonary stenosis. Differential diagnosis: Atrial septal defect.

Clinical symptoms on admission to the hospital were:
1. Frequent cough 53.7\%
2. Dyspnea/Dyspnée d'effort 55.55\%
3. Cyanosis 37.04\%
4. Abnormal growth 66.66\%
5. Heart failure 14.8\%
6. Electrocardiographic abnormality 79.63\%
7. Radiographic abnormality 81.48\%
8. Organic murmur 96.3\%

Frequent cough, dyspnea d'effort, lack of growth are the most important symptoms of our patients. So if the three symptoms above were found on examination, congenital heart disease had to be considered, and in case of organic murmurs electrocardiographic and radiogra-
2. with the diagnosis of specific congenital heart disease : 3.7%
3. with the diagnosis of specific congenital heart diseases but different from our diagnosis : 11.1%

Indications for referral to the cardiac centre (Namara, 1975):
It is suggested to refer to the cardiac centre if one or more of the following cardiopulmonary symptoms either specific or not are found:
1. Persistent tachypnea under basal resting condition.
2. Difficulty in taking food.

REFERENCES

Diseases of the Teeth of Children Attending the Outpatient Department in the Dr. Pirngadi General Hospital Medan

by

ZAKARIA SIREGAR, HELENA SIREGAR and DACRUL ALDY

(From the Department of Child Health, School of Medicine, University of North Sumatera, Medan, Indonesia)

Abstract

Two surveys were conducted on children attending the Child Outpatient Department in the Dr Pirngadi General Hospital Medan, to know about the spectrum and prevalence of the diseases of the teeth, and also the comparison of carious teeth formation between breastfed and bottlefed children.

The first survey was done in 1971 — 1973 on 18720 children, where 3000 (16.03%) of them had various dental diseases and abnormalities. We found that dental decay is prevailing at the age group of 3 — 8 years.

The second survey was done in December 1977 on 100 children under five years of age, of whom 54 had caries while 46 of them had caries resembling bottle-feeding caries. No dental caries were found on children who got breastfeeding until the age of 41 months; bottlefeeding in infancy influences carious teeth formation.

*) This paper has been presented at the 3rd Asian Congress of Pediatrics, Bangkok, November 19 - 23, 1979.