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ORIGINAL ARTICLE

Congenital Malformation Among Newborns at Dr. Pirngadi Hospital Medan During 1981 - 1984

by

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Abstract

A study on the incidence of congenital malformation had been assessed among 15185 newborns delivered in the Neonatal Unit Dr. Pirngadi Hospital Medan during 1981 - 1984. Still-births were not included in this study.

Out of these 15185 newborns there were 77 cases (0.51%) of congenital malformation.

The four leading malformations were pes-equinovarus 7 cases (9.1%), labiognatho-palatoschizis, hydrocephalus and anencephalus 6 cases each (7.7%).

The number of congenital malformation was higher in the age group of mothers older than 35 years (0.78%) and in the group of babies born in the birth order as third and further (53.85%) and as first born babies (33.33%).

From 77 cases with congenital malformation only 2 (2.56%) were operated soon after birth, while 49 cases (64.1%) went home without surgical intervention, and 28 cases (35.9%) died during hospitalization.

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Introduction

Congenital malformation has a large aspect especially in developing countries so that WHO declared the year 1981 as the International Year of Deformity with one of the objectives, congenital malformation cited by Nartono Kadri et al. (1982).

Congenital malformation is an unnatural morfologic case which can be found as deformity or malformation of one of the organs, which occured in the embryonic period. This malformation can go together with abnormal function of that organ.

The cause of congenital malformation is still not much known, but originally it is influenced by intrinsic and extrinsic factors or both. Abnormal gene and chromosome belong to the intrinsic factor, while to the extrinsic factor belong to infection, medicine, chemicals, mother's age, hormonal, radiation, and birth order. The environment or the external factor greatly influences the growth of the embryo especially on the first trimester, because at this period the growth of the organs take place, called as organogenesis period (Lubis et al., 1981; Nartono Kadri et al., 1982; Schaffer and Every, 1977).

Congenital malformation can be great or small and can be single or multiple. A great deformity needs serious medical treatment or plastic surgery while a small deformity does not need serious medical treatment (Holmes, 1982).

It is counted that 2% of newborns were born with great congenital malformation. This incidence will be more than 5% if congenital malformation discovered among children in their early childhood had been included (Holmes, 1983).

Simatupang et al. (1977) found that the incidence of congenital malformation at Dr. Pirngadi Hospital Medan was 8.4 per 1000 live born babies, while Lubis et al. (1981) found 3.3 per-1000 live born babies.

This study is the follow up of the two earlier studies done by Simatupang et al. (1977) and Lubis et al. (1981).

The aim is to know the incidence of congenital malformation and the mother's age who give birth to this deformed babies during the period of 1981–1984 at Dr. Pirngadi Hospital Medan.

Materials and Methods

This study was a retrospective study. The materials consisted of all newborns at Dr. Pirngadi Hospital Medan during the period of January 1981 to December 1984.

The diagnosis of malformation was based primarily on physical examination, but if necessary radiological, cardiological, neurological and haematological investigations were carried out.

Results

Table 1 shows an incidence of 77 cases (0.51%) of congenital malformation from 15185 newborn infants at Dr. Pirngadi Hospital Medan (1981-1984).

Table 1 : *Incidence of congenital malformation*

Year	Newborns	Congenital malformation	%
1981	4421	13	0.29
1982	3347	13	0.39
1983	4624	23	0.52
1984	2793	28	1.01
Total	15185	77	0.51

The number of mothers in the age group of less than 35 years was 13.163, which was the majority among the delivering mothers (see table 2).

Table 2 : *Age distribution of delivering mothers*

Age (Years)	1981	1982	1983	1984	TOTAL	%
<35	3769	2873	4078	2443	13.163	86.6
⩾35	652	474	546	350	2.022	13.4
TOTAL	4421	3447	4624	2793	15.185	100

It came out that the highest number of congenital malformation occured among mothers older than 35 years (see table 3).

Table 3 : *Distribution of congenital malformation related to mother's age*

Mother's age (Years)	Newborns	Congenital malformation	%
<35	13.163	61	0.47
⩾35	2.022	16	0.78
TOTAL	15.185	77	0.51

It was found that the highest percentage of congenital malformation was among neonates weighing above 2500 grams (see table 4).

Table 4 : *Correlation between birth weight and congenital malformation*

Weight (gram)	1981	1982	1983	1984	TOTAL	%
>2500	5	4	5	8	22	28.21
⩾2500	8	9	18	20	55	71.79
TOTAL	13	13	23	28	77	100

The percentage of congenital malformation was higher in primiparae followed by mothers who delivered their third babies there after (see table 5).

Table 5 : *Correlation between birth order and congenital malformation.*

Birth order	Congenital malformation				TOTAL	%
	1981	1982	1983	1984		
1	4	4	9	9	26	33.33
2	1	2	4	3	10	12.82
⩾3	8	7	10	16	41	53.85
TOTAL	13	13	23	28	77	100

The two cases (2.56%) which were immediately operated were cases with atresia ani and 28 cases (35.9%) died while they were still hospitalized (see table 6).

Table 6 : *Babys condition when discharge*

Year	Operated		Condition when discharged			
	Cases	%	a live	%	died	%
1981	1	1.28	8	10.2	5	6.4
1982	-	-	8	10.2	5	6.4
1983	1	1.28	13	17.9	10	12.8
1984	-	-	20	25.8	8	10.2
TOTAL	2	2.56	49	64.1	28	35.9

We found 37 kinds of congenital malformations consisting of 26 kinds single congenital malformation and 11 with two or more congenital malformations. Pes-equinovarus is the prominent congenital malformation namely 7 cases (9.1%) followed by labiognathopalatoschizis and hydrocephalus and anencephali 6 cases each (7.7%) (see table 7).

Table 7 : *The types of congenital malformation*

No.	The type of congenital malformation	This study	Lubis et al. (1981)	Simatupang et al. (1977)
1.	Pes-equinovarus	7	1	-
2.	Anencephaly	6	1	2
3.	Hydrocephalus	6	1	13
4.	Labiognathopalatoschizis	6	16	30
5.	Labioschizis	5	-	-
6.	Down syndrome	5	3	9
7.	Hydrocele	4	2	12
8.	Congenital heart disease	3	2	-
9.	Palatoschizis	3	-	-
10.	Cardiomegaly	2	-	-
11.	Oesophageal atresia	2	-	-
12.	Polydactily	2	1	-
13.	Labiopalatoschizis	2	-	-
14.	Anophthalmia	1	-	-
15.	Cyste umbilicalis	1	-	-
16.	Cryptorrchismus	1	-	-
17.	Hypospadia	1	1	4
18.	Hernia diaphragmatica	1	1	-
19.	Macrocephaly	1	-	-
20.	Microcephaly	1	1	2
21.	Palatognathoschizis	1	-	-
22.	Phocomelia	1	1	1
23.	Digiti V extremitas superior dextra rudiment	1	-	1
24.	Scophocephaly	1	-	1
25.	Spina bifida	1	-	-
26.	Talipes varus	1	-	19
27.	Down Syndrome + R.A.H	1	-	-
28.	Pes-equinovarus sinistra + labioschizis	1	-	-
29.	Phocomelia + omphalocele	1	-	-
30.	Microcephaly + porencephaly	1	-	-
31.	Atresia ani + retrovaginal fistel	1	-	-
32.	Atresia ani + meningocele + retrovaginal fistel	1	-	-
33.	Atresia ani + transposition of the great arteries + retrovaginal fistel	1	-	-
34.	Pes-equinovarus + hernia umbilicalis + atrial septal defect	1	-	-

35. Labiopalatognathoschizis + syndactily + rudiment of right ear	1	-	-
36. Hydrocephalus + meningocele + Pes-equinovarus + spina bifida	1	-	-
37. Hydrocephalus + anophthalmia dextra + atrophy alae nasi dextra + congenital anomaly of right hand	1	-	-
TOTAL	77	31	94

Discussion

It revealed that from 15.185 newborns there were 77 cases (0.51%) of congenital malformation at Dr. Pirngadi Hospital Medan during 1981 - 1984. This number is smaller compared to the finding of Simatupang, et al. (1977) which was 0.84 % but larger if compared to the finding of Lubis et al. (1981) which was 0.33%.

The finding of the study is smaller if compared to the finding of Nartono et al. (1982) which was 1.16% and from Irawan et al. (1983), which was 1.64%.

Nartono Kadri et al. (1982) commented that difference of results might be caused by the different ways in gathering data.

When we look on the number of congenital malformation at Dr. Pirngadi Hospital Medan since 1970 to 1984 it appeared that the numbers were not the same for every year.

The results of Lubis et al. (1981) was less compared to the results of Simatupang et al. (1977).

In this study we found that the four prominent congenital malformations were pes-equinovarus 7 cases (9.1%) and hydrocephalus, labiognathopalatoschizis and anencephaly 6 cases each (7.7%). In this study it was found that the incidence of pes-equinovarus was more compared to the results of Lubis et al. (1981) which was 2.1% and Simatupang et al. (1977) which was 0%. But the incidence of hydrocephalus was less compared to the finding of Simatupang et al. (1977) which was 13.8%. Anencephaly was more if compared to the finding Lubis et al. (1981) which was 2.1% and Simatupang et al. (1977) which was 1.4%.

In this study we found that the incidence of congenital malformation is more in the group of mothers older than 35 years which was 0.78%. This finding is the same as the finding of Cockburn and Drillien (1974). He found that the incidence of congenital malformations became larger in the group of mothers above 35 years, in particular the chromosomal trisomies and defect of the cardiovascular system.

This study revealed that congenital malformation was more in the third born and there after (53.85%) and the first born (33.33%). We got the same results as Cockburn and Drillien's (1974).

He said that there was a correlation between parity of the mother and increased incidence of abnormallity in the first born and in third and subsequent pregnancies.

From 77 cases with congenital malformation only 2 cases (2.56%) were directly operated, both were cases of atresia ani and 49 cases went home alive (64.1%), and 28 cases (35.9%) died during hospitalization.

Conclusion

The prominent malformation in this study was pes-equinovarus (8.9%). Cases with congenital malformation were mostly found on babies delivered by mothers above 35 years age, on first born and third born and there after.

Out of these babies with congenital malformation 35.9% died during hospitalization.

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