

Incidence of Congenital Malformations of the Musculo-Skeletal System in New Live Borns in Jammu

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Abstract

Two thousand new live born babies were examined for various musculo-skeletal congenital malformations. The overall incidence of various musculo-skeletal congenital malformations was 13 per thousand live births. The per thousand incidence of talipes, neonatal hip dysplasia, polydactyly, spina bifida cystica, genu recurvatum, arthrogryposes multiplex congenita and absence of fibula was 5.5, 2.5, 2.5, 2.0, 1.0, 0.5, and 0.5 respectively. Relationship of the incidence with environmental factors such as socio-economic status, season at the time of birth, parental age, parity, presentation, maternal nutritional status and dietary habits, consanguinity, religion, urban-rural status and history of use of drugs etc. during the pregnancy have been studied. Attempt has been made to delineate the various problems in the management of neonates born with these malformations.

Key Words :

Musculo Skeletal System, Malformations, Congenital, Incidence

Introduction

Congenital malformations have defied fully satisfactory solution till this day, even in the present atomic age. The incidence of malformations in the new borns differ from country to country and one region to another within the same country. The incidence of total malformations of the various systems of the body in live borns ranges from 1.7 to 3% (1). In India, many workers undertook the study of incidence of congenital malformations of various systems but again there is marked variation of figures (2,3). This study was undertaken to find out the incidence of congenital

malformations of the musculo-skeletal system in new live borns in Jammu.

Material and Methods

A prospective study was conducted at Govt. SMGS Hospital, Govt. Medical College, Jammu for a period of one year. The study material comprised of 2000 live births and their 1974 mothers (26 mothers gave birth to twins babies). The mother as well as baby were examined within 24 hours of the birth. The mothers were interviewed regarding medication, smoking, diet, history of exposure to

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radiation, chemicals maternal disease during pregnancy, any chronic disease in mother, requiring prolonged medication, familial or genetic predisposition to any particular disease and history of consanguinity. In addition, age of the mother, parity, presentation, season at the time of birth, urban - rural status, socio - economic status and detailed obstetric history was also taken. The neonate was examined in detail from head to toe. The examination was carried out according to the predesigned proforma.

Results

Out of the two thousand live born neonates examined for various musculo-skeletal malformations, 26 (13/1000 live births) babies revealed malformations.

Table - I
Sex distribution of musculo-skeletal malformations

S.No.	Sex	No. of births	Babies with Malformations	Incidence
1.	Male	1134	14	1.23%
2.	Female	866	12	1.38%

The incidence of congenital musculo-skeletal malformations was found to be apparently higher in female babies as compared to male babies (Table I). But the difference was not significant statistically.

Table-II
Relationship of the incidence of musculo-skeletal malformations with the Parity

S.No.	Parity	No. of births	Babies with malformations	Incidence
1.	P0	1120	13	1.116%
2.	PI	511	6	1.17%
3.	PII	252	3	1.19%
4.	PIII	77	1	1.29%
5.	PIV	28	2	7.14%
6.	PV & above	12	1	8.33%

The highest frequency of the musculo-skeletal malformations were observed in para IV and above. The incidence was comparatively low in para I, II, III and the difference was significant statistically. ($P = <0.05$) (Table-II).

Table-III
Relationship of the incidence of the musculo-skeletal malformations with the Presentation

S. No.	Presentation	No. of babies with presentation	No of babies with malformatins	Incidence
1.	Vertex	1894	22	1.16%
2.	Breech	95	4	4.21%
3.	Shoulder	8	-	-
4.	Brow	2	-	-
5.	Face	1	-	-

The incidence of the musculo-skeletal malformations was 4.21% in the breech presentation and 1.16% in the vertex presentation and the difference was significant statistically ($P = <0.05$) (Table-III).

Table-IV
Maternal age distribution of the musculo-skeletal malformations.

S.No.	Various agegroups (in yrs.)	No. of babies born	Babies with malformations	Incidence
1.	16-20	159	2	1.25%
2.	21-25	950	12	1.26%
3.	26-30	731	12	1.64%
4.	31-35	148	—	—
5.	36-40	12	—	—
6.	41-45	—	—	—

Both paternal and maternal age was considered separately. The incidence was statistically not significant among babies born to the mothers in different age groups (Table IV).

Table-V
Birth weight distribution of the musculo-skeletal malformations.

S.No.	Weight of babies	No. of babies born	Babies with malformations	Incidence
1.	>2.kg	1874	23	1.22%
2.	<2.5kg	126	3	2.38%

There were 126 babies with low birth weight (<2.5kg) and 1874 babies with normal birth weight (>2.5kg). The difference in the incidence among the two groups was not significant statistically (Table V).

Socio-economic status, season of the time birth, material nutritional and dietary habits, urban-rural status of the mother, religion, consanguinity did not show any specific relation with the occurrence of these malformations.

There was no significant relationship between toxæmia of pregnancy, hydramnios, teratogenic agents taken during pregnancy and the incidence of musculo-skeletal malformations.

Table - VI
Table showing incidence of various anomalies encountered in our series.

Malformation	Incidence (per thousand live births)
a. Talipes	5.5
(i) Calcaneovalgus	3
(ii) Equinovarus	2.5
b. Neonatal hip dysplasia	2.5
c. Polydactyly	2.5
d. Spina bifida cystica	2.0
e. Genu recurvatum	1
f. Arthrogryposis multiplex Congenita	0.5
g. Congenital absence of fibula	0.5

Discussion

The present data in the series is largely on structural musculo-skeletal defects observed in live born babies in Jammu only. The incidence of congenital malformations of the musculo-skeletal system varied from 2.25/1000 in India to 86/1000 in New York (3,4) Most of the studies like the present one were on assessment of malformation seen during the hospital stay of few days only. While others like that of Mc Intosh et al were after a long follow up (5). They observed that less than half (14.28/1000) of the musculo-skeletal malformations were suspected or noted among live borns at birth. Simpkins and Lowe series was comparable with other series including the present one yet there was striking differences in the incidence of particular musculo-skeletal malformations eg. out of overall incidence of 17.40/1000, polydactyly accounted for 13.53/1000 (6). Bick observed a significantly higher incidence (86/1000) of musculo-skeletal malformations. he stressed that the immediate neonatal examination by the paediatrician must include the musculo-skeletal system (4).

The incidence of talipes equinovarus was 2.5/1000 and talipes calcaneovalgus was 3/1000 live births thus giving an overall incidence of talipes as 5.5/1000. The incidence of talipes was found to range from 0.42/1000 in Calcutta to 10.85/1000 in Panama city (7). The per thousand incidence varies from 0.81 to 6.3 as reported by different workers (2, 8-12). The incidence of neonatal hip dysplasia varies from 0.12/1000 in Africa and 28.7/1000 in Hungary (13-14). The incidence of CDH per thousand live births in different series varies from 0.13 to 6.4 (9, 12, 15, 16).

Polydactyly is commoner in Africa, 13.53/1000 as opposed to its infrequent occurrence in other races (6). The incidence of polydactyly in the present series is 2.5/1000 which is quite lower than other studies (5, 12, 17).

In the present series the incidence of spina bifida cystica is 2/1000 and is comparable to the other Indian series (2). As compared to the present series, the incidence of spina bifida cystica is comparatively low in Singapore (12), America (5) India (11) but it is higher in Britain (18).

Karyotype study was conducted in these four babies. In one baby aneuploidy of chromosome number 20 was found. Since in other series chromosomal studies have not been done, so comparison can not be made. However, it is inferred that some chromosomal aberration might be playing role in the etiology of spina bifida cystica.

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