ORIGINAL ARTICLE

STUDY OF CONGENITAL MALFORMATIONS IN CENTRAL NERVOUS SYSTEM & GASTRO- INTESTINAL TRACT

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ABSTRACT

Introduction: Congenital malformations comprise 8% of the perinatal mortality in India. They rank fifth as a cause of perinatal mortality, after asphyxia, respiratory problems, infections and cerebral trauma. However, the pattern is changing rapidly with improvement in health care and living standards.
Material & Method: In the present study, authors have tried to study the cases of congenital malformations specially related to Central nervous system and Gastro-intestinal system. 5240 cases of newborn babies were studied and results were analyzed and classified in to various categories.
Findings: The results show that malformations are more common in still birth, more in female babies and more in central nervous system In live born babies the percentage of malformation is0.63 % whereas in still born baby it is6.53 %.
Conclusions: Chances of having malformations increases as the age advances. Parity of mother also influences the incidence. Exposure to radiation & drugs also influences malformations. Incidence of congenital malformation is highest in central nervous system.

Key words: Congenital, Malformations, Central Nervous System, Gastro Intestinal Track, Still birth

INTRODUCTION

The study of birth defects has assumed greater importance these days than in the past because the mortality rates attributed to congenital anomalies have reduced in comparison to other causes of death such as infections and nutritional diseases.Large number of malformations are incompatible with lifeand they involve one or more systems of the body. It is estimated that as many as 50% pregnancies terminate as miscarriage. In majority of cases this is because of faulty development. Experimental teratological study in human being is not possible, whereas the same in animals has advanced phenomenally. As a result of wide range of information that are now available from these experiments, it has become possible to obtain an insight into the causes, mechanism, and preventions of birth defects. However considerable work will be required before these problems can be overcome. In present study authors have made an attempt in this direction.

The aim of present study is:

1. To find out common congenital malformations in Central nervous system and Gastro-intestinal system
2. To determine frequency of malformations of these systems
3. To study causative factors - associated with central nervous system and Gastro-intestinal tract anomalies

MATERIALS & METHODS

New born babies delivered in the Department of obstetrics and gynaecology of various General Hospitals and also treated in the same hospitals including still borns were examined either immediately after birth or within 24 hours after birth for any major congenital anomaly. Mother was specifically asked about, History of trauma, Diabetes mellitus, smoking, alcohol, infection (viral & bacterial), exposure to radiation, exposure to teratogenic drugs, etc. During examination of baby, state of birth, weight, height, Head circumference, associated illness, umbilical cord, and various systems like respiratory, cardiovascular and central nervous system were examined thoroughly. Outcome of all the malformed babies were recorded during the period of mother's hospital stay.The observations and results were noted and presented in tabular form. Ethical committee permission was taken.

OBSERVATIONS & RESULTS

In the present study, authors studied total numbers of 5240 deliveries conducted at civil hospital, Ahmedabad. Out of which 2936 were male & 2304 were female. 5041 were live born & 199 were still born. Out of which 45 babies were having malformations.

Table 1: Incidence rate of various congenital anomalies

Groups	Babies	Malformed Babies	Incidence (%)
Total Babies	5240	45	0.86
Male babies	2936	17	0.58
Female babies	2304	26	1.13
Live born babies	5041	32	0.63
Still born babies	199	13	6.53

From table 1 it is seen that malformation is more prevalent in live born babies than stillborn. It is also more common in female than in male offspring.

Table 2: Age distribution of mothers

Age of Mother (Yrs)	Babies	Malformed Babies (%)
16-20	1540	13 (0.84)
21-25	2847	17 (0.60)
26-30	509	8 (1.57)
31-35	176	3 (1.70)
36-40	105	2 (1.90)
Above 40	63	2 (3.17)
Total	5240	45 (0.86)

Younger age group is also more commonly affected. Malformation is also more common in primi females.

Table 3: Parity distributions

Parity	Cases	Cases with malformation (%)
I	2899	20 (0.69)
II	791	6 (0.76)
III	892	9 (1.01)
IV	443	6 (1.35)
V	120	2 (1.67)
VI	95	2 (2.11)

DISCUSSION

In the present study, the incidence rate of congenital malformations was found to be 0.86%. This included both live, still briths and major malformations. Out of this, C.N.S malformations were found to be 4.96% and G.I.T 4.01%. Further from table-1, it is observed that malformations are much more common in still births (6.53%) as compared to live births (0.63%). Hospital based studies carried out in various cities in India, also show that the incidence was significantly higher in still born babies. A study conducted in Ajmer by Gupta1 (1971) , reported congenital malformation 1.9 % in live born where as 20.4% in still born babies, Study by Purandare2 (1966) in Mumbai shows live born malformations to be 1.4 % and still born malformations 9.5%.

Table 4: Malformations of different systems

Type of Malformation	Cases	Percentage
Central nervous system		
Microcephaly	3	10.34
Hydrocephaly	4	13.80
Meningocele	2	6.90
Spina Bifida	3	10.34
Enencephaly	12	41.38
Encephalocele	2	6.9
Meningomyelocele	3	10.34
Gastrointestinal System		
Imperforated anus	5	16.67
Anal stenosis	1	3.33
Oesophageal Atresia	2	6.67
Cleft palate	7	23.33
Cleft lip	8	26.67
Tracheo-	2	6.67
Omphalocele	1	3.33
Rectovesical Fistula	2	6.67
Rectovaginal Fistula	1	3.33

The values were 1.79 % and 11.4 % by Chandra & harilal3 (1977)at Madras , 1.4 % and 12.00 % by Mathur4 (1975) in Hyderabad area . In another study carried out by Gupta1 et al the percentage of C.N.S & G.I.T malformations were 0.75% & 0.33% respectively. In study by Purandare2 it was 0.36% & 0.06% , In Mathur4 0.76% & 0.37%, In Saifullah5 it was 1.3% & 0.4%, Where as in present study it was 0.49% & 0.4% respectively. It is seen that babies are born alive with G.I.T malformations where as most of the C.N.S malformed babies are born dead, Out of the C.N.S malformed babies those with anencephaly born dead-are 100%. Out of 26 cases of C.N.S malformations, 14 were still born and percentage works out to be 53.85% and out of 21 cases of G.I.T malformations no still birth was recorded. Chances of giving birth to malformed baby increases as the age of mother advances, particularly after 40 years As the parity increases the incidence of malformed baby also increase. In fourth para the incidence is three times more than primi. The incidence of babies having malformations is definitely higher in mothers exposed to radiations during pregnancy. Chances of malformations also increase in consanguineous marriage.

CONCLUSION

Present study provides us an idea regarding prevalence of cases of congenital malformations and factors affecting it , in Indian environment .We can also come

on conclusion that CNS & GIT are two most commonly affected systems. Factors affecting development of the embryo should be found & it should be eliminated during antenatal management.

REFERENCES

1. Gupta BM, Mathur HC, Sharda DC. A study of congenital malformations in central Rajasthan (Ajmer) Arch child Health 1971;13:30.
2. Purandare VN, Stevenson AC, Johnston HA, Stewart MI, Golding DR. Congenital malformations - A report of a study of Congenital births in 24 centres. Bull WHO. 1966; 34 (Suppl):*24*.
3. Chandra P, Harilal KT. Congenital malformations- A study of consecutive births. Abstract from conference (Madurai). Indian academy of pediatrics Tamilnadu state branch 1977.
4. Mathur HC, Sheila karan, Vijaya Devi KK. Study of Congenital malformations in the newborn. *Indian J of Pediatr.* 1975;12:179-83.
5. Saiffulah S, Chandra RK, Pathak IC, Dhait GI. Congenital malformations in new born. *Indian J of Pediatr.* 1967; 4:,251-6
6. Sagunabai NS, Mascarene M, Syamalan K, Nair PM. An aetiological study of congenital malformations in new born , *Indian J of Pediatr*. 1982;19:1003-7.