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STUDY OF CONGENITAL ANOMALIES OF THE NEWBORN

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ABSTRACT

Aims and objectives
The present study was carried out to determine the overall incidence, types and distribution of various congenital anomalies in newborn in India and also its relationship with maternal and fetal factors.
Material and methods
This was a prospective study carried out at V.S. General hospital during a period of June 2012 to May 2014 at obstetrics and gynaecological department and department of paediatrics.
Result
Out of 16269 deliveries with 16481 babies, 210(1.27%) babies were congenitally malformed. Of them most of the babies were born to age group > 30yrs(29) with 2.36% among them consanguinity present in 176 babies with 83.8 %.most common related condition was fever in 1st trimester of pregnancy(46 cases) with 21.9% followed by anaemia (37) and pregnancy induced hypertensive emergency cases(1.78%) and Polyhydramnios found in 61 cases (29.04%)
Most common anomalies are related to central nervous system 112(53%), musculoskeletal29(13.8), genitourinary 16(10%) craniofacial 16(7.6%).
Most delivery were spontaneous vaginal 134(66.19%) and others are 71(33.8%)
Preterm delivery occur in 74 (4.83%) and term delivery in 109 (0.73%) with 27 cases of abortion spontaneous or induced. Incidence of congenital malformations was significantly higher among still born 52 cases (8.88%) baby weight less than 1500gm,48 cases (11.5%) than live born 131 cases (0.8%) and baby weight more than 1.5 kg.

KEYWORDS Congenital malformation, incidence pattern

INTRODUCTION

- Early intrauterine period during 3rd to 8th week of gestation is the vital period of life for the normal development of organ system or organogenesis.
- Congenital anomalies defined as Structural or functional anomalies including metabolic disorders which are present at the time of birth.
- Congenital anomalies (also referred as birth defects), estimated 1 in 33 infant and result in approximately 3.2 million birth defect-related disabilities every year. Estimated 270000 newborn die during the first 28 days of life every year from congenital anomalies.(WHO Fact sheet 2014).
- The most common severe congenital anomalies are heart defects, neural tube defects and Down's syndrome.
- Although congenital anomalies may be genetic, infectious or environmental in origin most often it is difficult to identify the exact cause.
- Many congenital anomaly can be prevented. For example vaccination , adequate intake of folic acid, iodine and antenatal care are keys for prevention.

Results:

With the improvement in the obstetrics management and control of infection and nutritional deficiency with a better care of premature newborns, congenital anomalies would probably a leading cause of the deaths in the west and important determinants of perinatal mortality in developing country like India[1].

TABLE 1INCIDENCE OF CONGENITAL MALFORMATION

Total delivery	16289
Twins	212
Singleton	16057
Total no. of babies	16481
No. of malformed babies	210
Incidence of malformation	1.27%

The study shows that out of total 16269 delivery there were 210 baby delivered with one of the malformation .From them 212 were twin delivery and total of 16481 baby delivered with approximately 1.27% incidence comparable with Vasanti Munot et al(1.24%)[2].

TABLE 2MATERNAL AGE AND CONGENITAL MALFORMATION

Maternal age(years)	Mothers(n)	Congenital malformed baby	Percentage(%)

< 20	2989	35	1.17
21-25	8512	100	1.17
26-30	3468	46	1.33
>30	1230	29	2.36

The incidence of congenital malformation was high (2.36%) in mother with age of >30 yrs .Other study have even higher incidence of malformation about 7.8%.(P.K.chinara et al)[3]

Down's syndrome is an important example of age related malformation[4].

In present study the incidence of congenital malformation decline with increasing birth orders. Among malformed babies 53.69% were born to primigravidas. The relative higher incidence of malformation is obscured in multigravida 9.2%[5] .

In our study emergency patient are more as they were referred from outside for NICU and paediatric surgery.

TABLE- 3CONSAUGUINITY OF MARRIAGE

History n=16269	Malformed baby	Incidence
Present in n=7436	176(4.9%)	83.8%
Absent in n=8833	34(0.8%)	16.2%

In the present study higher incidence were found in consanguineous marriage (4.9%) as compared to (0.8%) in non consanguineous marriage which was comparable with Mosayebi z.et al[6].

TABLE-4RISK FACTORS ASSOCIATED WITH MALFORMATION

Associated factors	N=210 cases	Incidence(%)
Fever during first trimester	46	21.9
Anaemia	37	17.6
PIH	24	11.4
Drug intake during pregnancy	17	8
Past h/o anomalous child	6	2.9
Infertility	6	2.9
Past h/o recurrent abortion	4	1.9
h/o diabetes	2	1.0

In the present study most common risk factor was fever during 1st trimester (21.9%) followed by anaemia (17.6%) and pregnancy induced hypertension.

Hyperthermia during 1st trimester is an extremely potent teratogen affecting the development of the CNS and Musculoskeletal system and causing congenital malformations.[7]

TABLE-5DISTRIBUTION OF CONGENITAL ANOMALY

Distribution of congenital anomaly	n=210	Percentage
CNS	112	53.3
Musculoskeletal	29	13.8
Genitourinary	11	10
Craniofacial	16	7.6
Cardiovascular system	10	4.8
Respiratory	8	3.8
Gastrointestinal	7	3.33
Genetic	3	1.4
Multiple congenital anomaly	2	0.95
Miscellaneous	2	0.95

In present study CNS is by far the most common system i.e 53.3 %(112/210cases) followed by musculoskeletal and genitourinary which is comparable to Vasanti et al[2].

This can be reduced by providing folic acid in preconceptional period apart from that early diagnosis of NTD and early termination of affected pregnancy with lethal anomaly helps in decreasing the existing prevalence rate at birth.

TABLE-6

Gestational age	No. of malformed Baby(n=210)	Incidence
Preterm	74	4.83
Term	109	0.73
Abortion	37	
Birth weight		
<1.5 kg	48	11.5
1.5-2 kg	57	4.16
2.1-2.5 kg	38	0.6
>2.5 kg	67	0.54
Still birth	52	8.88
Live Birth	131	0.82

Incidence of congenital malformation significantly higher among low birth weight <1500 grams in comparison to >1500 grams. A significant higher incidence of congenital malformation observed among still birth (8.88%) in present study which is consistent with earlier reports [8]. Above table also shows the higher incidence of congenital malformation in preterm babies (4.83%) which is comparable to Grandi et al and AIIMS.

''Birth defects contributes to spontaneous preterm births"

CONCLUSION

The study definitely helps to know the incidence, pattern of congenital anomalies and the relation to gestational and familial factors. Use folic acid prior to and during 1st trimester

can prevent neural tube defects. Consanguity and maternal age are associated with increased incidence of anomaly so it should be prevented or discouraged.

Genetic counselling plays a vital role for the high risk parents. It provides information regarding various procedure and diagnostic techniques, the risk of consequence of some of the procedure as well as about others available option. Genetic counselling at different time period helps in reduction of congenital anomalies, morbidity and mortality resulting from these anomalies.

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