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Pattern of Various Congenital Anomalies in Newborns of a Tertiary Hospital in SVRRGGH, Tirupati

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Abstract: ***In this study, we analyse the prevalence and spectrum of various congenital anomalies newborns, in our hospital, svrrggh tirupathi in period of one year. And total of 11, 701 children were born, in a year, children who have congenital anomalies were 114 that accounts (0.97%), and in these children a detail study of maternal risk factors (such as maternal age, consanguinity, maternal exposure to antiepileptic drugs, various maternal illness, such as preeclampsia, gestational diabetes milletus, anemia, hypothyroidism, Rh-incompatibility), various systems affected in newborns, has been studied and compared with other studies.***

Keywords: CNS: Central nervous system, CVS: Cardiovascular system, GIT: Gastrointestinal tract, USG: ultrasonography

1. Introduction

Congenital anomalies are a diverse group of disorders of prenatal origin, which can be caused by: Single gene defects, Chromosomal disorders, multi-factorial inheritance, environmental teratogens, micronutrient malnutrition.

- The incidence of congenital anomalies worldwide is around 2-3%.
- Birth prevalence of congenital anomalies varies from country to country, in United States it is 3%, in india it is 2.5%,
- And 2 to 3 % in United kingdom. The prevalence is low in Japan 1.07% and high in Taiwan. Such a high variations variations in prevalence could be related to racial, social, ecological economic and demographic factors.
- About 6% of birth defects are attributed to chromosomal anomalies

Trisomy21 is one of the most commonest chromosomal abnormality that was clinically described in 1866 by Langdon Down and in 1959 it was determined to be a chromosomal abnormality.

- Infections like syphilis, herpes, rubella, cytomegalovirus, toxoplasmosis in mother during pregnancy can cause birth defects. Mothers with Uncontrolled diabetes mellitus in first trimester with HbA1C levels >6.5% are more likely to have congenital anomalies.
- Detection of structural anomalies in late first trimester scan are mainly based on nuchal translucency of >3-8mm is more likely associated with chromosomal abnormalities in fetus.
- A routine second trimester anomaly scan was suggested in antenatal care to increase the prenatal detection of congenital anomalies.
- In our region. In Government SVRRGGH Hospital, Tirupati nearly on average 11, 000 deliveries takes place year.
- This study was undertaken to estimate the prevalence of congenital anomalies, to estimate type of congenital anomalies and to analyze the risk factors contributing to the congenital anomalous babies delivered at our hospital for a period of 1 year.
- Some drugs like antiepileptics, warfarin, lithium, angiotensin receptor blockers, antithyroid drugs etc. are teratogenic. Folic acid deficiency in preconceptional and conceptional period in pregnant women lead to neural tube defects in newborns.

Aim

To study patterns and prevalence of congenital anomalies of newborns in a Teritary hospital, SVRRGGH, tirupathi.

Objectives

1) To analyse the prevalence of congenital anomalies of newborns in teaching hospital for a period of one year.
2) To assess the pattern of congenital anomalies in teaching hospital.

2. Materials and Methods

a) Study Area:
SVRRGGH, Tirupathi

b) Study Design:
A Prospective Observational Study

c) Study Subjects:
All antenatal women with congenital anomalies in new born babies after delivery who came to SVRRGGH Tirupati.

d) Study Period

1year

e) Sample Size: 114

Inclusion Criteria

All the antenatal women with congenital anomalies of newborns diagnosed immediately after the delivery.

Exclusion Criteria

All neonates with medical and surgical illnesses other than congenital anomalies

3. Results

Total babies born during the study period were 11701, Total babies born with congenital anomalies were 114, accounting to prevalence of (0.97%).

In our study, most of the women with newborns having congenital anomalies are between the age group of 21-35 years accounting for 95 i.e. 83.4% And up to 20 years accounting 19 out of 114 resulting 16.6%.

In our study, new with congenital anomalies with history of consanguity, in those, Non consanguinous marriages noted in 11women out of 114 i, e 9.65%. But second degree consanguinity noted in 81 women i.e. 71%, And third degree consanguinity noted in 22 women which gives 19.3%.

Table 1: Showing number of congenital anomalies with history of maternal risk factors

Risk factors	Number	Percentage
Anti epileptic drugs usage	5	4.3
Preeclampsia	3	2.6
Hypothyroidism	4	3.5
Gestational Diabetes mellitus	5	4.3
Anemia	2	1.7
Rh Negative Pregnancy	1	0.8
Syphilis	2	1.7

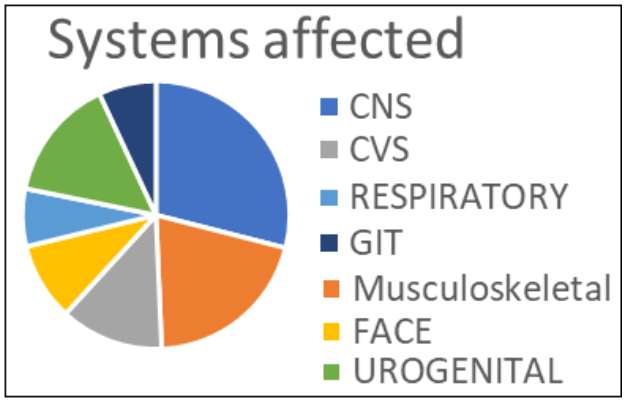

Figure 1: Showing various systems involved with congenital anomalies

In those: CNS (32.4%), Musculoskeletal (15.8%), CVS (14%), urogenital (11.6%), face (10.6%), Respiratory (7.8%), GIT (7.8%).

In CNS anomalies, hydrocephalus (10.6%), Arnold chiari malformation (9.5%) Anencephaly (5.3%), microcephaly (3.5%), myelomeningocele (3.5%).

In Musculoskeletal Anomalies-Clubfoot (11.7%), polydactyly (2.3%), DDH (1.8%).

In CVS-Tetralogy of fallot (4.5%), Ventricular Septal Defect (6.2%), Hypoplastic left heart syndrome (0.75%), Atrio ventricular septal defects (0.75%), Atrialseptal defects (1.8%).

Genitourinary-Hydronephrosis (1.8%), Hypospadias (1.8%), Congenital hydrocele (1.8%), Ambiguous genitalia (1.8%), Renal agenesis and hypoplasia (3.6%).

Facial deformity-Cleft lip and palate (6.1%), Ear anotia and microtia (2.8%), preauricular tag (1.7%).

GIT: analatresia (1.75%), ascites (4.4%), gastrochisis (0.85%), omphalocele (0.85%).

4. Clinical Pictures

5. Discussion

Prevalence of congenital anomalies when compared to other studies:

In our study prevalence of congenital anomalies were 0.97%, when compared to other studies: Agarwal et al., 2019 (0.84%), Jayasree and D`couth 2018 (0.84%), Tiwari et at., 2020 (0.52%), Rathod and Samal 2020 (2.28%),

Table 2: And compared to maternal as a risk factor maternal age

	Present Study	S. Lakshmi Vinodh et al	Prathyusha et al	Mahela et al
Up to 20 yrs	16.6%	5.8%	27%	11.1%
20 to 35 yrs	83.4%	78.7%	66%	73.3%
More than 35yrs	0	15.5%	7%	15.56%

Table 3: CNS anamolies compared other studies

CNS Anomalies	Present study	Ameen et al	Mahela S et al	Vishal M Sharma et al	Prathyusha et al
Total	32.4%	61.1%	42.2%	84%	51%

Genitourinary anomalies compared to other studies: present study 11.5%, S. Lakshmi vinodh et al., (16.4%), prathyusha et al (13%), mahela S et al (6.6%).

6. Conclusion

The main objective of present study was, to know the prevalence of anomalies in the hospital population.

- Most common system involved in anomalies is CNS followed by musculoskeletal system.
- Though we cannot prevent congenital anomalies totally but if detected early women can be offered counseling and the option of termination in case of a major lethal anomalies which can reduce the incidence of congenital anomalies.
- As there are 6 cases of anencephaly, it shows the need for pre and peri conceptional folate supplementation and routine ultrasound in 1st trimester.

7. Limitation of the Study

As the prevalence in our hospital being a tertiary care centre, cannot be projected into total population, community based studies are needed to determine the exact prevalence of congenital anomalies.

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