ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 11 | November - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

STUDY OF PREVALENCE & SPECTRUM OF CONGENITAL ANOMALIES AT TERTIARY CARE TEACHING HOSPITAL.

Obstetrics & Gynaecology

Dr. Shrinivas N. Gadappa Professor & Head Of Department Of Obstetrics And Gynaecology, Government Medical College, Chhatrapati Sambhajinagar.

Dr. Smita J. Chavan* Junior Resident, Department Of Obstetrics & Gynaecology, Government Medical College, Chhatrapati Sambhajinagar. *Corresponding Author

Dr. Anurag A. Sonawane Associate Professor, Department Of Obstetrics & Gynaecology, Government Medical College, Chhatrapati Sambhajinagar.

ABSTRACT

Background: Prevalence studies of congenital malformation are useful to establish baseline rates, to document changes over time and to identify clues to etiology. This study was aimed to ascertain the prevalence, spectrum, trend, and outcome of congenital anomalies at a tertiary care teaching hospital. **Material And Methods:** Present study was single-center, prospective, observational study, conducted in pregnant women with more than 28 weeks of gestational age with fetal congenital anomaly, admitted in our labor room for delivery. **Results:** Incidence of congenital anomalies at our hospital was 1.69 % (16.9 per 1000 deliveries). Most common maternal age group was 21 to 25 years (44.09 %) were primigravida (40.15 %), were nulliparous (40.15 %), had no history of previous abortion (49.51 %), fetal anomalies were diagnosed at 20.1- 28 weeks gestational age (56.9 %), all fetal anomalies cases were diagnosed on ultrasound examination (100 %), & parental consanguinity was observed in 54 cases (13.3 %). In the present study, majority neonates had 1500-2499 grams birth weight (46.31 %), were male (51.48 %). In present study, there were 68 stillbirths observed (16.75 %) & 52 cases of Neonatal deaths. 222 neonates were discharged/ Advised follow-up (54.68 %), while 45 neonates had discharge against advice/ Lost to follow up (11.08 %) & 19 neonates were referred to higher center (4.68 %), In present study, majority had single congenital anomaly (62.81 %) & had minor congenital anomaly (72.91 %). Musculoskeletal system was most commonly involved (49.51 %) followed by central nervous system (24.38 %) & gastrointestinal tract (15.27 %). **Conclusion:** The incidence of congenital malformations in the present study is 16.9 per 1000 births. The most common system involved in the study was musculoskeletal system (49.51 %) followed by central nervous system (24.38 %).

KEYWORDS

birth defects, congenital malformations, musculoskeletal system, low birth weight, consanguinity.

INTRODUCTION

Congenital anomalies, also known as birth defects, are structural, functional, or metabolic disorders that are present at birth.[1] Congenital anomalies occur due to genetic, environmental, or unknown factors that affect fetal development during pregnancy. These anomalies are among the leading causes of infant mortality and morbidity worldwide and can lead to long-term disability, which may have significant impacts on individuals, families, healthcare systems, and societies.[2]

The frequency and type of congenital anomalies may vary in different populations due to variations in ethnicity, socio-economic status, nutrition, environmental factors, maternal age and lifestyle among different countries.[3] About 20% of all major congenital malformation are genetically transmitted by a monogenetic abnormality, 5-10% are due to chromosomal anomalies ,2-10% are due to viral infection. In about 60% the cause is unknown and appears to multifactorial.[4] Earlier studies indicate that congenital malformation affected 2.5% of infants at birth and accounted for 10-15% neonatal deaths and 8-18% of perinatal mortality in India.[3]

Studying congenital anomalies in a clinical setting is crucial for early detection and timely intervention. Early diagnosis through prenatal screening and genetic testing allows for better planning and management of the condition, which can significantly improve the quality of life for the affected individual and their family.[5] Prevalence studies of congenital malformation are useful to establish baseline rates, to document changes over time and to identify clues to etiology. This study was aimed to ascertain the prevalence, spectrum, trend, and outcome of congenital anomalies at a tertiary care teaching hospital.

MATERIAL AND METHODS

Present study was single-center, prospective, observational study, conducted in department of obstetrics & gynaecology, at Government Medical College & Hospital, Chhatrapati Sambhajinagar, India. Study period was from February 2023 to July 2024. Study was approved by institutional ethical committee.

Inclusion Criteria

- Pregnant women with more than 28 weeks of gestational age with fetal congenital anomaly, admitted in our labour room for delivery, delivered at our institute, who are willing to participate in this study.

Exclusion Criteria

- After delivery no anomaly found on radiological and neonatal examination
- Pregnant woman with fetal congenital anomaly delivered outside
- Pregnant women with less 28 weeks gestational age
- Pregnant women not willing to participate in study

Data was collected regarding, demographic factors (Age, address, education, socio economic-status of pregnant, residence), present pregnancy history- Parity, gestational age (Gestational age is calculated from the time elapsed since the first day of the last menstrual period (Naegle's formula) or calculated from first-trimester ultrasonography if the last menstrual period was uncertain), booked or un-booked, antenatal visits, obstetric history (primigravida/ multigravida, details of previous childbirth), antenatal history like maternal illness, ingestion of drugs, exposure to radiation. History of previous pregnancy outcome was obtained in detail.

Detailed examination- was done for general physical condition, vitals – pulse rate (rate, rhythm, characteristics, radio-radial delay, radio-femoral delay) Blood pressure (checked on right arm in supine position), pallor, icterus and noted. Systemic examination (Cardiovascular System, Respiratory System and Central Nervous System) was done in detail and noted. Complete obstetric examination was done. Relevant hematological investigations (CBC, Blood grouping, HIV, HbsAg, LFT, KFT, Thyroid profile, random blood sugar, FBS/PPBS), obstetric USG were done.

All the new born babies were examined thoroughly by the paediatrician to detect the congenital malformation. A meticulous general and systematic examination was carried out by a consultant at the time of birth to detect any malformation. Ultrasound was employed whenever necessary to detect multiple congenital anomalies and to rule out majority of the internal congenital anomalies. Echocardiography with color Doppler was also used for all suspected congenital cardiac problems. Other investigations e.g. intravenous urography was done when needed. C.T and MRI was also done for certain specific cases. All the fetuses and babies having congenital malformation will be taken into account and will be analysed for the

study. Neonatal follow-up was kept for one month.

Relevant information on maternal and neonatal parameters including the outcome of the present pregnancy, age, parity was collected in structured Pro-forma, entered in Microsoft Office Excel format, and statistical analysis was performed using SPSS software. Statistical analysis was performed by using Analytical tool pack of Microsoft excel - 2010.

RESULTS

During study period (February 2022 to July 2023) there were 23609 deliveries were conducted at our hospital. Total number of newborns delivered were 23889, out of which 930 were stillbirths. During study period, 406 neonates were delivered at our hospital, who had pre-natal diagnosis of congenital anomalies, which was confirmed after delivery. Thus, incidence of congenital anomalies at our hospital was 1.69 % (16.9 per 1000 deliveries).

In the present study, maternal age range was 19 years to 41 years. Mean maternal age was 23.79 ± 2.8 years. Most common maternal age group was 21 to 25 years (179 cases, 44.09 %) followed by 26 to 30 years (106 cases, 26.11 %), In the present study, majority of participants in study group were from rural area (64.29 %), were booked (98.52 %), belong to upper lower class (43.35 %).

Table 1: General characteristics

Characteristics	Number of women (N=406)	Percentage (%)
Maternal Age (years)		
19-20	46	11.33 %
21-25	179	44.09 %
26-30	106	26.11 %
31-35	54	13.3 %
36-40	16	3.94 %
>40	5	1.23 %
Mean age (in years)	23.79 ± 2.8	

In the present study, majority of participants were primigravida (40.15 %), were nulliparous (40.15 %), had no history of previous abortion (49.51 %), fetal anomalies were diagnosed at 20.1- 28 weeks gestational age (56.9 %), all fetal anomalies cases were diagnosed on ultrasound examination (100 %), & parental consanguinity was observed in 54 cases (13.3 %).

Table 2: Obstetric characteristics

Characteristics	Number of women (N=406)	Percentage (%)
Gestational age at diagnosis (WEEKS)		
≤ 12	0	0
12.1- 20	39	9.61 %
20.1- 28	231	56.9 %
≥ 28.1	136	33.5 %
Diagnostic Test		
Ultrasound	406	100
MRI	11	2.71
Amniocentesis	3	0.74
Parental consanguinity		
Consanguineous marriage	54	13.3 %
Non-consanguineous marriage	352	86.7 %

In present study, maternal anemia was most common high-risk factor noted (46.31 %) followed by preterm labour (41.63%), hypertensive disorders of pregnancy (15.02 %), previous h/o congenital malformation (11.58 %) & no folic acid supplementation (10.84 %).

Table 3 - Maternal high-risk factors

Maternal high-risk factors	Number of women (N=406)	Percentage (%)
Anemia	188	46.31 %
• Mild	111	27.34 %
• Moderate	54	13.3 %
• Severe	23	5.67 %
Preterm labour	169	41.63 %
Oligohydramnios	109	26.85 %
Polyhydramnios	88	21.67 %
Hypertensive disorders of pregnancy	61	15.02 %
Previous H/o congenital malformation	47	11.58 %
No Folic acid supplementation	44	10.84
Maternal diabetes	39	9.61 %
Previous stillbirth	38	9.36 %
Drug in take in the first trimester	4	0.99 %
Substance abuse	0	0
Radiation exposure	0	0

In present study, majority of neonates with congenital anomaly were delivered at gestational age of 37.1- 40 weeks (41.13 %), had spontaneous onset of labour (65.52 %), 27 cases Elective LSCS was done (6.65 %). Augmentation of labour was required in 87 cases, Oxytocin + Artificial rupture of membranes (14.5 %) %1 & Oxytocin alone (14.5 %).

In present study, majority of pregnant women underwent vaginal delivery (80.79 %) followed by Caesarean delivery (18.72 %) & Instrumental delivery (0.49 %). In view of congenital anomalies, we did certain additional interventions such as intrapartum cephalocentesis (aspirating the cerebrospinal fluid to facilitate vaginal delivery), immediate intubation after LSCS in cases of trachea-oesophageal fistula & diaphragmatic hernia.

In present study, common postpartum complications observed were patients required postpartum blood transfusion (6.16 %), Febrile morbidity (3.69 %), postpartum hemorrhage (2.71 %) which was further divided as atonic (1.72 %) & mixed (atonic + traumatic) (0.99 %) & least were surgical site infection (0.74 %). All patients were managed effectively by medical management & no maternal morbidity (at the time of discharge) or mortality was observed in present study.

Table 4: Labour characteristics

Labour characteristics	Number of women (N=406)	Percentage (%)
Gestational age at delivery (weeks)		
28.1- 32 weeks	31	7.64 %
32.1- 34 weeks	39	9.61 %
34.1- 37 weeks	148	36.45 %
37.1- 40 weeks	167	41.13 %
≥ 40.1 weeks	21	5.17 %
Onset of labour		
Spontaneous onset of labour	266	65.52 %
Induction of labour	113	27.83 %
Elective LSCS	27	6.65 %
Augmentation of labour		
Not required	292	77.04 %
Oxytocin + Artificial rupture of membranes	55	14.51 %
Oxytocin alone	32	8.44 %
Mode of delivery		
Vaginal delivery	328	80.79 %
• With episiotomy	39	9.61 %
• Without episiotomy	289	71.18 %
Caesarean delivery	76	18.72 %
• Elective	27	6.65 %
• Emergency	49	12.07 %
Instrumental delivery	2	0.49 %
• Forceps	1	0.25 %
• Vacuum	1	0.25 %
Intervention		
Intrapartum cephalocentesis	13	3.2 %
Immediate neonatal intubation for trachea-oesophageal fistula	2	0.49 %
Immediate neonatal intubation for diaphragmatic hernia	4	0.99 %
Postpartum complications		
Postpartum hemorrhage	11	2.71 %
Atonic	7	1.72 %
Mixed (atonic + traumatic)	4	0.99 %
Required postpartum blood transfusion	25	6.16 %
Febrile morbidity	15	3.69 %
Surgical site infection	3	0.74 %

In the present study, majority neonates had 1500-2499 grams birth

weight (46.31 %), followed by 2500 - 3999 grams birth weight (43.1 %). Majority neonates were male (51.48 %) followed by female neonates (46.8 %), while 7 neonates had ambiguous genitalia (1.72 %). In present study, there were 68 stillbirths observed (16.75 %). In remaining 338 neonates, 201 neonates (59.47 %) required NICU admissions for various causes. Among 338 livebirth neonates, majority neonates received supportive management (52.66 & surgical management (6.8 %), while no treatment (observation) (40.53 %) required in remaining neonates. In present study surgical management was done in neonates with cleft lip with or without cleft palate (39.13 %), anal atresia (30.43 %), gastroschisis (13.04 %), omphalocele (8.7 %) & congenital diaphragmatic hernia (8.7 %).

In present study, among 406 neonates there were 68 stillbirths (16.75 %) & 338 live births (83.25 %). We observed 52 cases of Neonatal deaths (12.81 %) out of which 21 had early neonatal death (5.17 %) while 31 had late neonatal death (7.64 %), 222 neonates were discharged/ Advised follow-up (54.68 %), while 45 neonates had discharge against advice/ Lost to follow up (11.08 %) & 19 neonates were referred to higher center (4.68 %),

Table 5 – Neonatal characteristics

Neonatal characteristics	Number of neonates (N=406)	Percentage (%)
Birth weight (grams)		
<1000	19	4.68
1000-1499	21	5.17
1500-2499	188	46.31
2500 - 3999	175	43.1
>4000	3	0.74
Gender		
Male	209	51.48
Female	190	46.8
Ambiguous genitalia	7	1.72
NICU Admission		
Yes	201	59.47 %
No	137	40.53 %
Management		
Supportive management	178	52.66 %
No Treatment (Observation)	137	40.53 %
Surgical management	23	6.8 %
• Cleft lip + cleft palate	9	39.13 %
• Anal atresia	7	30.43 %
• Gastroschisis	3	13.04 %
• Omphalocele	2	8.7 %
• Congenital Diaphragmatic Hernia	2	8.7 %
Neonatal outcome		
Stillbirth	68	16.75 %
Live birth	338	83.25 %
Discharge against advice/ Lost to follow up	45	11.08 %
Referred to higher center	19	4.68 %
Discharged/ Advised follow-up	222	54.68 %
Neonatal death	52	12.81 %
• Early neonatal death	21	5.17 %
• Late neonatal death	31	7.64 %

In present study, majority had single congenital anomaly (62.81 %) & had minor congenital anomaly (72.91 %). In present study, among 406 neonates commonly involved system with congenital anomalies was musculoskeletal system (49.51 %) followed by central nervous system (24.38 %), gastrointestinal tract (15.27 %), genitourinary system (14.29 %), others (11.33 %), cardiovascular system (10.59 %) & syndromes (1.48 %). Among the musculoskeletal anomalies, CTEV and valgus (51.24 %) were the commonest anomalies observed followed by polydactyly (21.39 %) & syndactyly (10.45 %). Among the 99 cases of central nervous system anomalies, the most common anomaly was found to be Hydrocephalus (32.32 %) followed by myelomeningocoele (13.13 %) & microcephaly (9.09 %). Among gastrointestinal tract anomalies common anomalies were involving cleft palate (32.26 %) followed by Diaphragmatic hernia (24.19 %) & Cleft lip and palate (16.13 %). Among the genitourinary system anomalies, hydronephrosis was found to be commonest (37.93 %) followed by Ambiguous genitalia (12.07 %), Polycystic kidney (10.34 %) & PUJ obstruction (10.34 %).

Among the cardiovascular anomalies, left to right shunt defects e.g.: VSD, ASD, and PDA constitute the maximum number and among which Ventricular septal defect (39.47 %) is more common followed by Patent ductus arteriosus (21.05 %) & Atrial septal defect (10.53 %). Respiratory System, congenital anomalies were laryngomalacia (8.7 %), choanal Atresia (4.35 %) & pulmonary Hypoplasia with Congenital Diaphragmatic Hernia (4.35 %). In dermatological system, congenital anomalies were skin Tag Over Face and Hand (45.65 %), Preauricular Tag (23.91 %), Hemangioma (10.87 %) & Giant Hairy Nevus (6.52 %). In ophthalmic system congenital anomalies were microphthalmia (6.52 %), anophthalmia (4.35 %) & congenital ptosis (4.35 %). Other miscellaneous congenital anomalies were Hydrops Fetalis (23.91 %), Facial Dysmorphism (6.52 %) & Congenital Rubella (4.35 %). In present study, we had 6 cases of various syndromes, containing Downs Syndrome (33.33 %), Pierre Robbins Syndrome (33.33 %), Turners Syndrome (16.67 %) & Trisomy 18 (16.67 %).

Table 6: Congenital anomalies observed

Congenital anomalies observed	Number of neonates (N=406)	Percentage (%)
Single	255	62.81 %
Multiple	151	37.19 %
Congenital anomalies observed		
Major	110	27.09 %
Minor	296	72.91 %
SYSTEM		
Musculoskeletal system	201	49.51 %
Central nervous system	99	24.38 %
Gastrointestinal tract	62	15.27 %
Genitourinary system	58	14.29 %
Others	46	11.33 %
Cardiovascular system	38	10.59 %
Syndromes	6	1.48 %

DISCUSSION

In the recent years, congenital disorders are becoming to be public health issue in developing countries, due to an epidemiological transition, which involves significant decline in infant mortality rates due to reduction of infections and malnutrition and relative increase of morbidity and mortality due to congenital malformations. Congenital anomalies are not considered to be a priority health problem in India in spite of the fact that it has the highest number of children with birth defects. In India, birth defects prevalence varies from 61 to 69.9/1000 live births.[7]

Congenital anomalies are broadly classified into either single-system or multiple-system malformations. The first type affects a single organ system or body part, and the second affects more than one organ system or body part. Major congenital anomalies are defined as those that, if uncorrected, could result in considerable impairment of the normal body functions or even reducing the life expectancy. Minor congenital anomalies include the anomalies that cause no disability or have no significant physical or functional effects and can be regarded as normal variants.[8,9]

In the present study, the prevalence of congenital malformations in the newborns were 1.69 %. A recent meta-analysis by Bhide P et al.,[10] found the pooled prevalence of 184.48 per 10,000 births (95% CI 164.74–204.21). Marwah et al.,[11] Doddabasappa et al.,[12] from India reported the incidence of 1.7% and Sachdeva et al.,[13] to be 1.6%. 1.38%, which is comparable with the earlier studies from India, which reported incidence by Alakananda et al.,[14]as 1.9%.

Though elderly age group and higher parity are considered as risk factors for congenital anomaly, in our study higher incidence was observed in younger age group. Similar findings were reported by Alakananda et al.,[14] Chikkagowdra S, et al.,[15] & Sangwan V et al.,[16] Previous studies have reported significantly higher incidence of malformations among the multiparas.[14] Our result is consistent with this finding, which indicates a positive correlation between the birth order and the incidence of congenital anomalies.

In present study, maternal anemia was most common high-risk factor noted (46.31 %) followed by preterm labour (41.63%), hypertensive

disorders of pregnancy (15.02 %), previous h/o congenital malformation (11.58 %) & no folic acid supplementation (10.84 %). Marwah et al.,[11] Naseha et al.,[17] reported association between CBDs with bad obstetric history.24,25 In Abhilasha S et al.,[18] study, 16.3% mothers of CBD cases had bad obstetrical history as compared to 4.3% in the control mothers. Although it was statistically not significant (p = 0.08). In present study no folic acid supplementation by mothers was observed in 44 mothers (10.84 %). In Abhilasha S et al.,[18] study, 26.1% mothers did not take folic acid compared to 12% mothers of controls (0.015). This was statistically significant.

In present study, parental consanguinity was observed in 54 cases (13.3 %). Consanguineous marriages are reported to play a major role in the occurrence of congenital malformations. In Abhilasha S et al.,[18] study, consanguinity was present more among cases (7.6%) than (1.1%) in controls and was statistically significant (p = 0.030).

In a study by Naseha A et al.,[17] multiple anomalies were present in 15% of cases. High proportion of babies with multiple defects in our study may be due to referral of such high-risk pregnant mothers to our center for delivery. In present study, among 406 neonates commonly involved system with congenital anomalies was musculoskeletal system (49.51 %) followed by central nervous system (24.38 %), gastrointestinal tract (15.27 %), genitourinary system (14.29 %), others (11.33 %), cardiovascular system (10.59 %) & syndromes (1.48 %)

With regard to pattern of congenital anomalies in the Anuja Bhalerao, Richa Garg[19] study, the most common system involved was musculoskeletal system (36.9%), followed by CNS (25%), gastro-intestinal tract (GIT) (16.6%), genitourinary (10.7%), and cardiovascular system (3.5%). In Abhilasha S et al.,[18] study of 92 neonates, 69 (75.0%) had isolated CBDs, while 23 (25.0%) had involvement of more than one system. Among those involving single system, musculoskeletal system (52.2%) was the predominant involved system followed by CNS (28.3%), GIT (26.1%), CVS (16.3%) and genitourinary (7.6%) system. Of 23 neonates with multiple CBDs, most common was musculoskeletal system (91.30%) in combination with other systems.

Studies by Marwah et al.,[11] & Sangwan V et al.,[16] reported higher incidence of CNS malformations, whereas Taksande et al.,[20] Padmanabhan et al.,[21] reported CVS malformations as the most common system. CVS defects emerged as the most common CBDs in Pune urban birth defect study (PUBOS) too.[22]

In present study, majority of pregnant women underwent vaginal delivery (80.79 %) followed by Caesarean delivery (18.72 %) & Instrumental delivery (0.49 %). In study Sangwan V et al.,[16] 94.2% of the patients were delivered vaginally and only 5.7 % underwent cesarean section. It contrasts with the study done by Sachdeva et al.,[13] in which caesarean rate (4.36%) was more than vaginal deliveries (0.62%). Most of the malformed babies were born in the third trimester.

Association of LBW with increased risk of congenital malformations is very well- documented.[19] Our finding is in accordance with that. The incidence of congenital anomalies was significantly higher in low-birth-weight babies as compared with the babies weighing more than 2.5 kgs, which is in conformity with the previous studies reported from this country.[19] In Abhilasha S et al.,[18] study, there was no association of CBDs with low birth weight, prematurity. Most of the babies were term (64.1%) and had a mean gestational age of 36 weeks.

In the present study, male neonates (51.48 %) were marginally more than female neonates (46.8 %), while 7 neonates had ambiguous genitalia (1.72 %) at birth. More male babies with congenital anomalies than females were noted in the present study. It may be because of the fact that the females were afflicted with more lethal congenital malformations and could not survive to be born with signs of life.

In present study, among 406 neonates there were 68 stillbirths (16.75 %) & 338 live births (83.25 %). We observed 52 cases of Neonatal deaths (12.81 %) out of which 21 had early neonatal death (5.17 %) while 31 had late neonatal death (7.64 %), In present study, 222 neonates were discharged/ Advised follow-up (54.68 %), while 45 neonates had discharge against advice/ Lost to follow up (11.08 %) & 19 neonates were referred to higher center (4.68 %), Though most of the anomalies are compatible with life the increase in perinatal mortality was mainly due to associated preterm labor, prematurity, polyhydramnios, maternal diabetes, IUGR, Consanguinity is single most important factor which was found to increase the risk of CA in our study.

Limitations of present study were, we only considered external congenital anomalies or those detected by ultrasonography, we did not include anomalies which were terminated before 28 weeks, chromosomal as well as metabolic disorders were not identified, absence of postmortem examination of stillborn infants, all of these may have resulted in an underestimation of the overall prevalence of birth defects. Hence, prevalence calculated in this study cannot be projected to the total population. A community based prospective study should preferably be carried out for true assessment of incidence of CA in a population.

Prenatal diagnosis of congenital anomalies facilitates informed decision-making for parents and clinicians regarding the management of the pregnancy. This includes the option of terminating the pregnancy or continuing with it, as well as effective planning for potential complications during labour, after birth, and the immediate management of postnatal birth defects. Additionally, it aids in identifying potential risk factors for future pregnancies. Therefore, accurately predicting and diagnosing congenital defects during the period around conception can serve as a valuable tool in decreasing both the morbidity and mortality rates during the perinatal period.

Screening high-risk cases, routine prenatal folic acid supplementation, regular antenatal visits, early prenatal diagnosis, and termination of fetuses with lethal anomalies before attaining viability can reduce perinatal morbidity and mortality. Additionally, establishing a registration system for congenital abnormalities is necessary. More research is needed to determine the factors underlying the various types of congenital malformations encountered in this region.

CONCLUSION

The incidence of congenital malformations in the present study is 16.9 per 1000 births. The most common system involved in the study was musculoskeletal system (49.51 %) followed by central nervous system (24.38 %). Congenital anomalies were more likely to be associated with low birth weight, primi-parity, maternal age (between 20 to 30 years) and consanguinity.

Conflict of Interest: None to declare
Source of funding: Nil

REFERENCES

1. DeSilva M, Munoz FM, Mcmillan M, Kawai AT, Marshall H, Macartney KK, Joshi J, Oneko M, Rose AE, Dolk H, Trotta F, Spiegel H, Tomczyk S, Shrestha A, Kochhar S, Kharbanda EO; Brighton Collaboration Congenital Anomalies Working Group. Congenital anomalies: Case definition and guidelines for data collection, analysis, and presentation of immunization safety data. Vaccine. 2016 Dec 1;34(49):6015-6026.
2. Rappazzo KM, Warren JL, Davalos AD, Meyer RE, Sanders AP, Brownstein NC, Luben TJ. Maternal residential exposure to specific agricultural pesticide active ingredients and birth defects in a 2003-2005 North Carolina birth cohort. Birth Defects Res. 2019 Apr 1;111(6):312-323.
3. Kumar J, Saini SS, Sundaram V, Mukhopadhyay K, Dutta S, Kakkar N, Kumar P. Prevalence & spectrum of congenital anomalies at a tertiary care centre in north India over 20 years (1998-2017). Indian Journal of Medical Research. 2021 Sep 1;154(3):483-90.
4. Dey S, Pal A.C, Nandi MK, Agarwalla P. A study on prevalence and pattern of clinically recognisable congenital malformations in babies born in a rural medical college hospital in West Bengal, India. Int J Pediatr Res. 2018;5(11):557-563.
5. Feldkamp ML, Carey JC, Byrne JL, Krikov S, Botto LD. Etiology and clinical presentation of birth defects: population based study. bmj. 2017 May 30;357.
6. Morris, J.L., Winikoff, B., Dabash, R., Weeks, A., Faundes, A., Gemzell-Danielsson, K., Kapp, N., Castleman, L., Kim, C., Ho, P.C. and Visser, G.H.A. (2017), FIGO's updated recommendations for misoprostol used alone in gynecology and obstetrics. Int J Gynecol Obstet, 138: 363-366.
7. Tarapada Ghosh, Sumanta Das, Mahesh Prasad Mohanta, Bidyut Kumar Khuntdar, Spectrum of Congenital Malformations and Associated Factors: A Cross-sectional Study from Eastern India, Indian Journal of Neonatal Medicine and Research. 2022 Apr, Vol-10(2): PO46-PO50
8. Sharma R. Birth defects in India: hidden truth, need for urgent attention. Indian J Hum Genet. 2013;19(2):125–9.
9. Anyanwu LJC, Danborno B, Hamman WO. Birth prevalence of overt congenital anomalies in Kano Metropolis: overt congenital anomalies in the Kano. Uni J Pub Health. 2015;3(2):89–96.
10. Bhide, P Kar, A. A national estimate of the birth prevalence of congenital anomalies in India: Systematic review and metaanalysis. BMC Pediatr 2018; 18:175.
11. Marwah A. Profile of gross congenital malformations among live newborns and its associated risk factors from a tertiary care rural teaching institute. Asian J Biomed Pharm Sci. 2016;6(55):16.
12. Doddabasappa PN, Adarsh E, Divya N. Prevalence of congenital anomalies: a hospital-based study. Int J ContempPediatr. 2018;5:119–123.
13. Sachdeva S, Nanda S, Bhalla K, Sachdeva R. Gross congenital malformation at birth in a government hospital. Indian J Public Health 2014;58:54-6.

14. Alakananda, Choudhury SS, Neiting C. A study on prevalence of Congenital anomalies in fetuses among pregnant women in a tertiary care hospital and its association with socio-demographic factors. The New Indian Journal of OBGYN. 2015; 2(1):46-50.
15. Chikkagowdra S, Tabassum AA, Mathada VKC. Study of Spectrum of Congenital Anomalies at Tertiary Care Hospital. J South Asian Feder Obst Gynae 2023;15(6):725–729.
16. Sangwan V. Khandelwal S. Mahendru R. Lakra P. Siwach S. Pregnancy Wastage Due to Fetal Congenital Malformations. Gynecol Obstet Reprod Med 2020
17. Naseha A, Iqbal Y. Incidence of congenital anomalies in tertiary health care centre. J. Evolution Med. Dent. Sci. 2016;5(67):4826–4833.
18. Abhilasha Sinha, Shalini Tripathi, Nitu Nigam, Mala Kumar, S.N. Singh, Profile of neonates born with congenital birth defects in a tertiary care hospital of North India: An observational study, Clinical Epidemiology and Global Health 14 (2022) 100999.
19. Anuja Bhalerao , Richa Garg, Pattern of Congenital Anomalies at Birth, International Journal of Obstetrics and Gynaecology Research (IJOGR) Vol. 3 (2016) No.7, pp. 420-426
20. Amar Taksande, Krishna Vilhekar, Pushpa Chaturvedi, Manish Jain, Congenital malformations at birth in Central India: A rural medical college hospital based data, Indian Journal of Human Genetics September-December 2010 Volume 16 Issue 3
21. Padmanabhan R, Venkatasubramanian R, Heber A. Prevalence and Pattern of Congenital Malformations among Neonates in a Medical College Hospital - A Retrospective Study. Int J Sci Stud 2019;6(12):28-31.
22. Bhide P, Gund P, Kar A (2016) Prevalence of Congenital Anomalies in an Indian Maternal Cohort: Healthcare, Prevention, and Surveillance Implications. PLoS ONE 11(11): e0166408