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BIRTH DISORDER PREVALENCE IN THE HILLY REGION OF UTTARAKHAND

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ABSTRACT

Birth disorders defined as any abnormality in the newborn during fetal development. These disorders are burden to the family and associated with substantial morbidity and mortality. In developing countries the data on the incidences of congenital disorders is very limited. The main objective of this study is to determine the incidence and profile of the congenital disorders present at birth in the newborn. This is a prospective, observational study conducted in government and private nursing home of Pithoragarh District, Uttarakhand. The information objectives of the survey were reflected in the content of the survey questionnaire included child age, gender, disorders at the time of birth. The data shows 200 cases of child birth disorders and intrauterine foetal death observed during five month period. A total of 144 cases of by birth disorders were reported and 56 cases of child death due to disorders and intrauterine foetal death were observed. 144 cases of child birth disorder included severe birth asphyxia (29.86%), neonatal jaundice (21.52%), caput (20.13%), meconium asphyxia (11.8%), hypothermia (6.94%), low birth weight preterm (4.16%), cleft lip (2.1%), meningocele (1.39%), and hydrocephalus (2.1%). Out of 56 cases, intrauterine foetal death (40%) and death due to severe birth asphyxia (32.5%), meconium asphyxia (15%), pneumonia (5%), neonatal jaundice (5%) and birth defect hydrocephalic meningocele with club paralysis (2.5%) were observed. Our findings showed the incidences of birth disorders. For reducing the infant mortality and improving the health of the children, better understanding of risk factors associated with these disorders is required which will also helps in reducing them.

KEYWORDS: Birth disorders, birth asphyxia, neonatal jaundice, intrauterine foetal death.

INTRODUCTION

The registration data on birth disorders and perinatal deaths is inadequate in developing countries like India. Researchers from all over the world have documented various medical and non-medical factors contributing to these disorders and perinatal deaths. Medical factors include maternal illness like hypertension, anemia, diabetes and cardiovascular complications during pregnancy whereas non-medical factors include antenatal care, maternal age, parity, illiteracy, unattended deliveries and poor socio-economic status in rural areas.[1,2] In developing countries the prevalence of birth or congenital disorders is underestimated by improper diagnosis and lack of reliable health statistics and medical records. Recorded diagnosis and vital statistics focuses on the illnesses and pre-existing congenital disorders which increases the chances of malnutrition and infections.[3] Congenital anomalies in India accounts for 8 to 15% perinatal deaths and 13-16% of neonatal deaths.[4] There is an association between low birth weight and high risk of congenital disorders.[5] Children's with multiple congenital disorders presents a relatively infrequent and a challenge to the pediatrician. Death due to birth disorders is increasing and in the coming decades, is going to be a major cause of morbidity and mortality in the health care centres providing neonatal care.[6] The prevalence of recognizable congenital malformations in newborns is between 2-3% which is similar to that reported in industrialized world. A higher incidence of congenital disorders was significantly found in the preterm babies, low birth weight infants, increased maternal age and birth order.[3, 7, 8, 9, 10] Table No. 1 represents the factors that may contribute to the increased incidences of congenital disorders in developing countries.

MATERIAL AND METHODS

This study was conducted in the government and private hospitals of Pithoragarh district, Uttarakhand. Multistage random sampling approach was used as a sample design. The main objectives of this survey includes the incidences of congenital disorders, types, determination of gender wise, age wise distribution of children's having congenital disorders. This study included 200 registered cases of congenital disorders, death due to these disorders and intra-uterine foetal death, observed over a period of five months.

RESULTS AND DISCUSSION

This study included 200 subjects having congenital disorders, death occurs due to these disorders and intrauterine foetal death. Out of these 200 subjects, 144 cases of by birth

disorders were reported and 56 cases of infant death due to these disorders and intrauterine foetal death were observed. Among the children who are affected with congenital disorders 101 (70%) were males and 43 (30%) were females (Figure 1). The total number of cases of infant death was 56, from which 20 (36%) were females and 30 (54%) were males and 6 (10%) cases were cases of intrauterine foetal death. Maximum number of cases of congenital disorders was observed between the age group between 2 to 3 years. Figure 2 represents the age wise distribution of children's having congenital disorders.

The total birth disorder cases were 144, including severe birth asphyxia (29.86%), neonatal jaundice (21.52%), caput (20.13%), meconium asphyxia (11.8%), hypothermia (6.94%), low birth weight preterm (4.16%), cleft lip (2.1%), meningocele (1.39%), and hydrocephalus (2.1%). Table No. 2 and Figure 3 represents the types of birth disorders and number of cases observed in government hospitals and private nursing home of Pithoragarh district.

Out of 56 cases of foetal deaths, intrauterine foetal death (40%) and death due to severe birth asphyxia (32.5%), meconium asphyxia (15%), pneumonia (5%), neonatal jaundice (5%) and birth defect hydrocephalic meningocele with club paralysis (2.5%) were observed (Table No. 3 and Figure 4).

Birth asphyxia is a condition of impaired gas exchange which if persists, leading to progressive hypoxia and hypercapnia. It is the most common cause of congenital seizures, but the exact mechanism that triggers seizures is not known.[11] This disorder is associated with a broad spectrum of neurodevelopmental and neurological disorders, as well as disability in life.[12] The incidence rate of birth asphyxia ranges between 2 to 30 per 1000 live births.[13, 14] The cases of birth asphyxia are much higher in developing countries due to the quality of obstetric and prenatal care. Globally 23 % of neonatal deaths and 8 % of childhood death occurs due to severe birth asphyxia.[15] Neonatal jaundice is another common clinical birth disorder which is encountered in the first week of life.[16, 17] Approximately 8 to 11% of neonates develop hyperbilirubinemia, when the total serum billirubin level rises above 95% of age i.e. high risk zone.[18, 19] Findings of this study focuses on the incidences of the by birth disorders and foetal death caused by these disorders in the Pithoragarh district of Uttarakhand. From this data it was observed that majority of infants suffer from severe birth asphyxia and neonatal jaundice. Maximum percentage of intrauterine foetal death and death due to severe birth asphyxia was observed. Intrauterine foetal death is defined by WHO, as death prior to birth at any gestational age, involving indications like absence of heart beats,

breathing, movement of voluntary muscles, ad pulsation of umbilical cord.[20] There is a need to develop effective methods in order to identify antenatal predictive factors for intrauterine foetal death and the mechanism of the pathological processes that leads to intrauterine death during gestational period. Conducting population based survey monitors the trends of birth disorders and detects emerging health concerns. Research on risk factors, cure, treatment and prevention of these disorders is required. Periconceptional maternal nutrition role in preventing congenital disorders needs to get recognized. Adequate intake of micronutrients like folic acid, iron, and calcium are essential in women's nutritional diet during pregnancy. Intake of folic acid during periconception period i.e. three months before and after conception can be targeted. One of the risk factors for development of congenital disorders is unplanned pregnancy.[21, 22]

Table No. 1: Factors that contributes to increased incidences of congenital disorders.[3]

S.N	Factors
1	Folic acid deficiency (inadequate intake during periconceptional period
2	Deficiency of iodine during periconceptional period
3	Lack of vaccination against Rubella
4	Maternal age (after 35 Years)
5	Consanguineous marriage
6	Alcohol intake during pregnancy
7	Teratogenic medicines, oral contraceptives
8	Low birth weight

Table No. 2. Birth disorders and number of cases observed in government hospitals and private nursing homes of Pithoragarh district.

S.No.	Types	Cases	Valid Percent
1	Severe birth asphyxia	43	29.86
2	Neonatal jaundice	31	21.52
3	Caput	29	20.13
4	Meconium asphyxia	17	11.8
5	Hypothermia	10	6.94
6	Low birth weight (preterm)	6	4.16
7	Cleft lip	3	2.1
8	Hydrocephalus	3	2.1
9	Meningocele	2	1.39
	TOTAL	144	100

Table No. 3: Neonatal death due to birth disorders observed in government hospitals and private nursing homes of Pithoragarh district.

S.No.	Types	Cases	Valid Percent
1	Intrauterine foetal death	23	29.86
2	Severe birth asphyxia	17	21.52
3	Meconium asphyxia	8	20.13
4	Pneumonia	3	11.8
5	Neonatal Jaundice	3	6.94
6	Birth defect hydrocephalic meningocele with club paralysis	2	4.16
	TOTAL	56	100

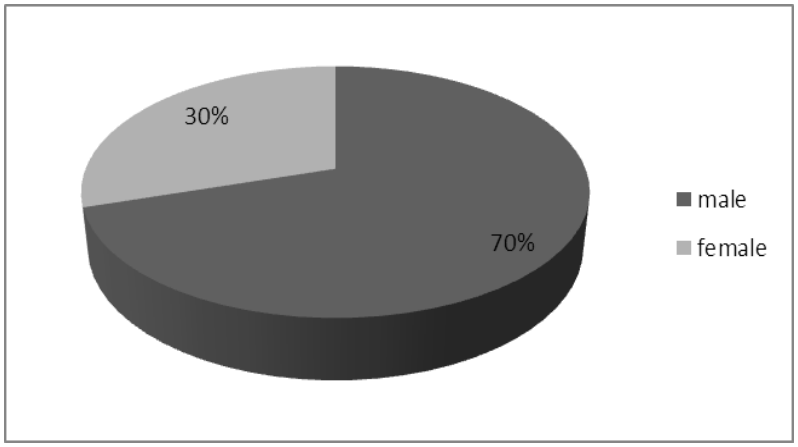

Figure 1: Gender wise distribution of children's having congenital disorders.

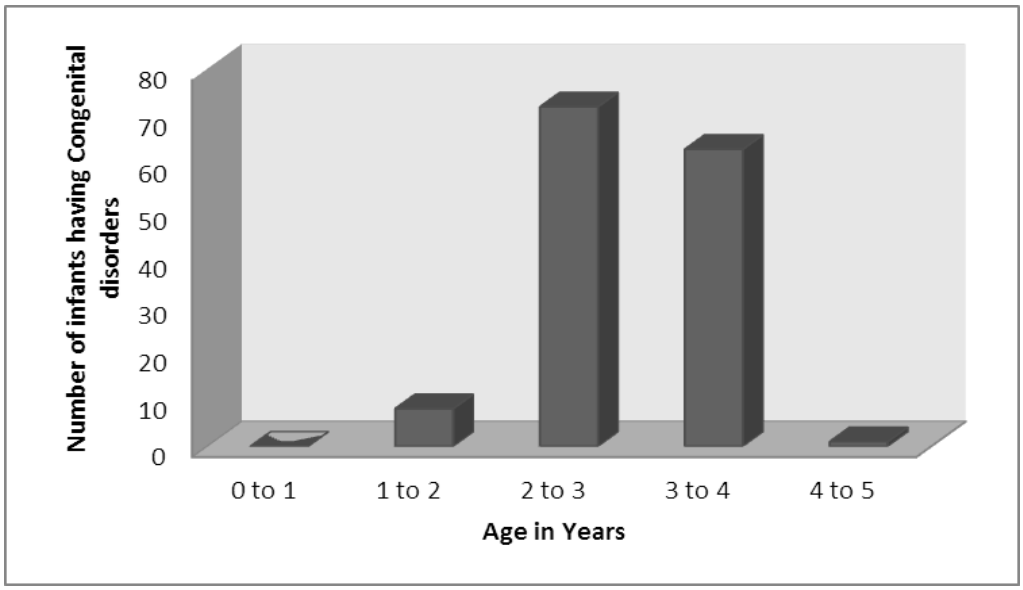

Figure 2: Age wise distribution of children's having congenital disorders.

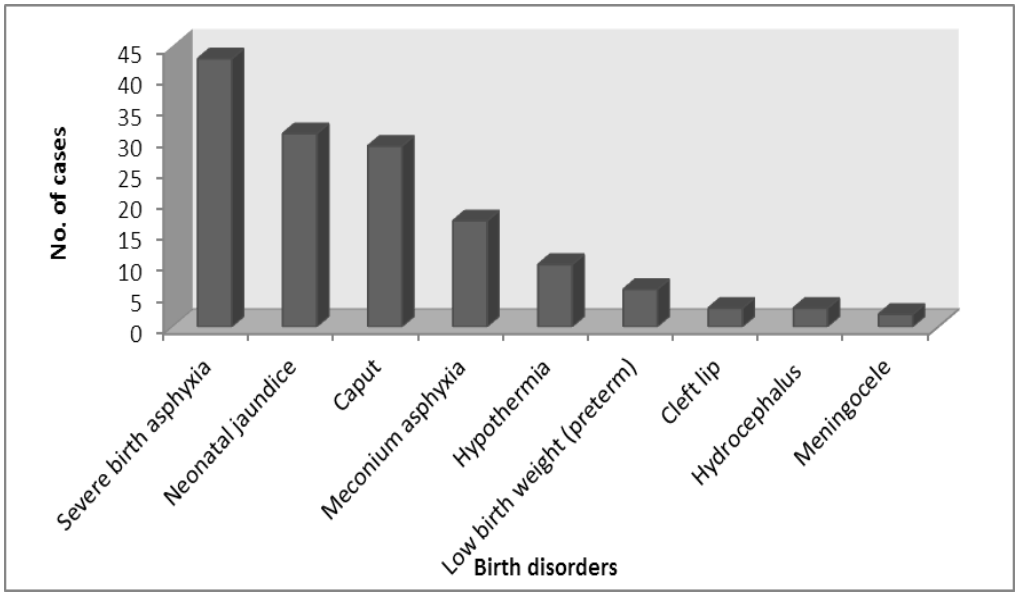

Figure 3: Birth disorders cases observed in government hospitals and private nursing homes of Pithoragarh district.

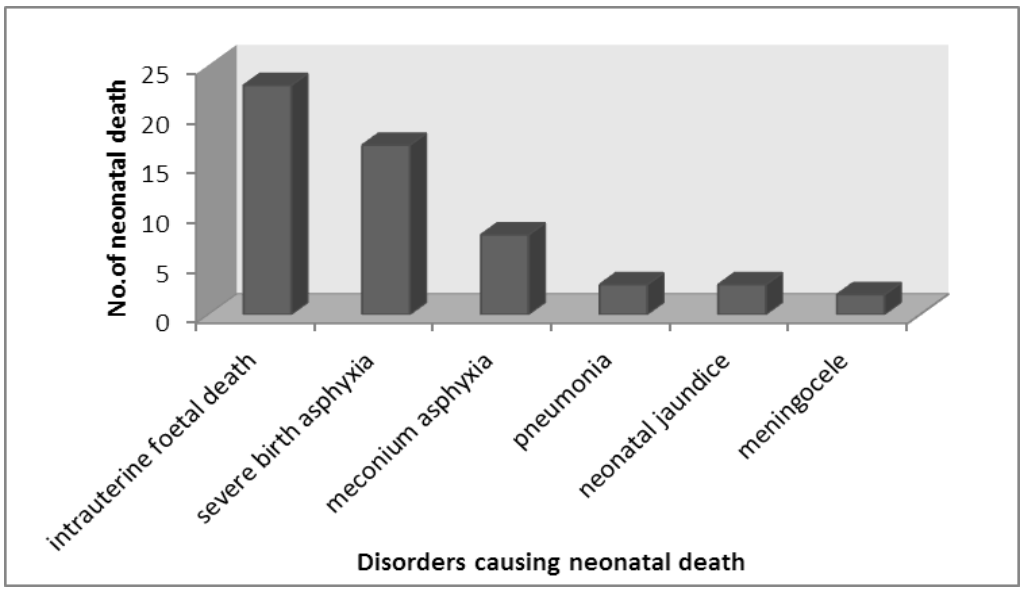

Figure 4: Neonatal deaths due to birth disorders observed in government hospitals and private nursing homes of Pithoragarh district.

CONCLUSION

Birth disorders are a major cause of stillbirths, infant mortality and morbidity. Life threatening congenital disorders must be identified by thorough clinical examination. Periconceptional counseling and adequate intake of nutritional supplement reduces the incidences of congenital disorders. There is a limited knowledge about the process of pregnant women during childbirth, labor and birth conditions. Therefore health organizations

should arrange workshops, training and seminars for pregnant females regarding pre, ante and postnatal care. Precautionary measure must be adopted by parents and clinicians for the diagnosis and treatment of congenital disorders. Researchers should search for new preventive measures and treatments having no adverse effects and capable of fast recovery in babies.

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