



Pattern of Congenital Anomalies in Newborn : A Hospital Based Prospective Study

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Abstract

This hospital based prospective descriptive study highlights the point prevalence of congenital anomalies in one year. The number of congenital anomalies were more in males (M: F = 1.6:1.4), in neonates of young (= 20 years) and elderly mothers (= 35 years). The pattern of congenital anomalies included musculoskeletal (30.6%), CNS (20.5%), GIT (18.5%), skin (7.6%), genitourinary (4.7%), CVS (4%) etc. In musculoskeletal group, talipes was most common malformation followed by spina bifida and polydactyly. In CNS, group meningomyelocele was the most common malformation followed by anencephaly and hydrocephalus. Frequency of congenital anomalies were more common in Muslims as compared to Hindus (1.77% vs. 1.4%), in cesarean born babies as compared to vaginally delivered (1.96% vs. 1.48%), in LBW babies (4.95%) and still born as compared to live born babies (4.46% vs. 1.39%). Present study stresses upon the importance to carrying out a thorough clinical examination of neonate at birth.

Key Words

Congenital, Abnormalities, Neonates

Introduction

The rapid decline in the infant mortality and morbidity in the developed countries has focused the attention of pediatricians on the problem of congenital malformations. In the past the causes of the infant mortality used to be traced mostly in the prevalence of infectious diseases. The introduction of the new antibiotics and advances made in the field of preventive medicine and immunology has arrested the tendency and it was found that death in infancy were more due to malformations than infectious diseases. This however, may not be true for a developing country like India. It was also observed that better maternal care and improved standards of living have very little effect on the overall frequency of congenital malformations (1,2). A congenital anomaly may be narrowly defined in terms of physical structure as a malformation, an abnormality of physical structure or form usually found at birth or during the first few weeks of life; or defined more widely to include functional disturbance as a defect, any irreversible condition existing

in a child before birth in which there is sufficient deviation in the usual number, size, shape, location or inherent character of any part, organ, cell or cell constituent to warrant its designation as abnormal (2,3). A congenital anomaly is thus any alteration present at birth of normal anatomic structure and has cosmetic, medical or surgical significance. The birth of an infant with major malformations, whether diagnosed antenatally or not, evokes an emotional parental response (4). Early recognition of anomalies is important for planning care, with some such as tracheoesophageal fistula, diaphragmatic hernia, choanal atresia and intestinal obstruction, immediate medical and surgical therapy is essential. Parents are likely to feel anxious and guilty on learning of the existence of a congenital anomaly and require sensitive counseling. (5) The worldwide incidence of congenital disorder is estimated at 3-7%, but actual numbers vary widely between countries (6). Although different studies have been undertaken in different parts

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of world as well as in India, but no such study has been undertaken in J&K state to best of our knowledge. The people belong to different religions and have varied cultural practices including exposure during antenatal period to various environmental factors like medicaments and desire for a particular sex. Thus this study was intended to document the pattern of congenital anomalies in newborns at birth in this region.

Material and Methods

This prospective study was undertaken in SMGS hospital of Government Medical College, Jammu. All babies born in the department of Obstetrics and Gynaecology from Jan 2002 to Dec 2002 were included in the study. Both mother and the baby were examined as a unit within 24 hours of birth and were further followed upto 72 hours. A detailed history was taken including all familial and gestational factors and a meticulous examination of baby was done.

Results

During this one year study, there were 9308 deliveries. Out of 9308 newborns, 140 had one or other congenital anomaly accounting to an incidence of 1.5%. Out of these, 87 had single congenital anomaly and rest 53 had multiple malformations. Thus, there were total of 210 anomalies amongst 140 newborn babies. The pattern of congenital anomalies is shown in *table-1*. The congenital anomalies were seen more (4.93%) in neonates born to young mothers (= 20 years) and again there was an increase (9.01%) in risk as maternal age advanced (= 35 years). With the increasing parity frequency of congenital anomalies also increased. It accounted for 6.34% anomalies when the neonates were born to mother having 4 or more siblings. There was higher frequency of congenital anomalies in males as compared to female babies (1.6% vs 1.38%) and also more in muslims as compared to hindus (1.77% vs 1.48%). Frequency of congenital anomalies was more in cesarean born babies as compared to vaginal route (1.96% vs 1.40%). Congenital anomalies were more common in stillborn babies as compared to live born babies. The correlation of various factors to the cause of various congenital malformations is shown in *table-2*.

Consanguinity was noted in 5 parents out of 140 deliveries who had malformed babies. All of these babies were born to muslim parents. Exposure to drugs was noted in four mothers who delivered congenital malformed babies. The offender drugs were alprozolam and diuretics,

oral contraceptives, nifedipine and unidentified drug for enteric fever. Family history of congenital anomaly was forthcoming in one woman who herself was a patient of congenital heart disease (ASD with Ebstein's anomaly). None of mothers who delivered congenitally malformed babies gave history of exposure to radiation, smoking or alcohol during the pregnancy.

Discussion

In the present study, the overall incidence of congenital anomalies was 1.5%, which was almost comparable with other studies (7-11). The incidence varied from 1.2% to 1.81% in these studies. With regard to pattern of congenital anomalies in the study, the most common system involved was musculoskeletal system (30.6%), followed by CNS (20.5%), GIT (18.5%), skin (7.6%), genitourinary (4.7%), CVS (4%) etc. This was comparable to studies conducted by other workers (7-11). Some studies however recorded

Table 1: Pattern of Congenital Anomalies

S. No.	Type of Anomaly	Number	% Age
1.	Musculoskeletal System Telipes, Spina bifida, Polydactyly, Syndactyly, Others.	75	30.6
2.	Central Nervous System Meningomyelocele, Anencephaly, Hydrocephalus, Others.	53	20.5
3.	Gastrointestinal System Trecheoesophageal fistula, Harelip, Inguinal Hernia Imperforate anus, Cleft Palate.	39	18.5
4.	Skin Pre-auricular tag, Hemangioma, Others.	16	7.6
5.	Genitourinary System Coronal hypospadias, Hydronephrosis.	10	4.7
6.	Cardiovascular System VSD, ASD, TOF, TGA.	8	4

Table 2: Correlation of Various Factors to the Causation of Congenital Malformations

	Factors	Percentage
Maternal age	= 20 years	4.93
	= 35 years	9.01
Sex	Male	1.61
	Female	1.38
Religion	Hindus	1.48
	Muslims	1.77
Nature of Delivery	Vaginal	1.40
	Cesarean	1.96
Birth Weight	> 2.5 kg	1.01
	<2.5 kg	4.95
Birth	Still Born	4.46
	Live Born	1.39



higher incidence of CNS malformations followed by GIT and musculoskeletal system (12,13). It was observed in present study the congenital anomalies were more common in babies born to young mother (age = 20 years) and again in mother aged 35 years and above. Similar observations were recorded in other studies also (4, 12, 13). The congenital anomalies were seen more frequently in mothers who had parity of four and above which in our study was comparable to observations made by various authors (4, 7,8). Chaturvedi *et al* (14) recorded increase in frequency of CNS anomalies in primi and fourth gravida mothers. The study also revealed relationship of congenital anomalies with religion and found a higher incidence of 1.77% among muslim community as compared to hindus (1.48%). More prevalence of consanguinity among Muslims probably appears to be one of the important contributory factors. Consanguinity as a factor, significantly increased rate of congenital malformations as reported by other authors too (4, 13,14). Higher incidence of congenital anomalies in still born babies (4.96%) compared to live born babies (1.39%) was reported in our study which was comparable with study by Khrouf *et al* (15) who recorded incidence of congenital malformation in still born babies to be 13% as compared to 3.7% in live born babies. The incidence of congenital malformations of the musculoskeletal system in one of the studies conducted at Jammu was reported to be 13 per thousand live births (16). The incidence of telipes, spina bifida and polydactyly was 5.5, 2.5 and 2 per thousand in this study (16). In one of the other studies conducted in Jammu regarding spina bifida and hydrocephalus, it was revealed that the CNS anomalies include meningocele, anencephaly, hydrocephalus etc were common. The spina bifida was associated with hydrocephalus (17). The present study helps to know the pattern of congenital malformations prevalent in this part of the country. Observations made in this study also help us to know the possible correlation of various factors as to the cause of congenital malformations. Most of the observations are comparable with the similar studies undertaken in other parts of the country. However, some of the observations differ which is expected given the different nature of various studies like hospital versus community based, difference in geographical and environmental factors, difference in time period for follow up, criteria for classification used etc.

Conclusion

The study definitely helps to know the pattern of congenital anomalies and the relationship of various gestational and familial factors in relation to congenital anomalies and to plan future strategies for prevention, early diagnosis & timely management.

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