Epidemiological Profile of Congenital Malformation in a Tertiary Care Teaching Hospital in Eastern India

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Abstract

Background: Congenital malformation causes significant mortality and morbidity in paediatric population. With increase nutritional state of mother, improved sepsis control congenital malformation becomes lone of the leading cause of neonatal mortality. Here we try to study the epidemiological profile of congenital malformation. **Methods:** It is a prospective descriptive study took place in a teaching hospital of Eastern India. All newborns born in this hospital were screened for congenital malformation twice, who were positive were included in study. Body weight, sex, Apgar score, gestational age, system at fault were noted. Data put on excel sheet and appropriate statistical analysis was done. **Result:** Total 55 newborns out of 1870 were found to have congenital malformation. Pre-term baby, male baby, low birth weight baby were more likely to develop congenital malformation. Most common system involved was CVS (Cardio vascular system) and most common malformation was CTEV (congenital talipes equino varus). **Conclusion:** Incidence of congenital malformations in this part of India similar to other parts of India.

Key Words: Congenital Malformation, Neonatal Mortality and Morbidity.

INTRODUCTION

Congenital malformation is one of the common cause of morbidity and mortality of pediatric population. It is defined by WHO as, congenital malformation is structural or functional malformation, including metabolic disorders, which are present at the time of birth.[1]

As this malformation are also externally visible to all, this create psychological pressure over parents and patient itself. As congenital malformation required extensive resources for management, except high income country it is a significant cause of neonatal mortality and morbidity. It accounts for 8-15% of perinatal deaths and 13-16% of neonatal deaths in India.[2,3]

There is paucity data from eastern part of India, here we tried to study the epidemiological profile of congenital malformation.

METHODS

It was a descriptive study done over 1 year from July 2014-June 2015 at a tertiary care teaching hospital in South 24 Pargonas, West Bengal. All the babies born in this institute were screened for congenital malformation at birth and before discharge. All the babies born with congenital malformation during this period were included. Still borns were excluded from this study. Congenital malformation were diagnosed by Pediatric doctor and with help of relevant investigation like x-ray, ultra sonography, MRI, echocardiography, chromosomal studies. In each cases birth weight, sex, apgar score, gestational age, system involved were noted. Mortality within 28 days due to congenital malformation was noted.

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Birth weights >2.5 kg were considered to be normal; where as, birth weights <2.5 kg and <1.5 kg,<1kg were termed as low birth weight (LBW), very low birth weight (VLBW), extremely low birth weight (ELBW) respectively. Babies born at <37 completed weeks (i.e., <259 days), calculated from the 1 st day of last menstrual period, were considered as premature.

Institutional ethical clearance were taken Data was entered into excel data sheet and appropriate statistical analysis was performed. Proportion was calculated.

RESULTS

Total newborn diagnosed with congenital malformation 55 in 1 year where number of delivery was 1870.Incidence rate was 2.94%. Male female ratio was 3:2. Out of these newborn baby 24 term and 31 preterm baby making the ratio preterm: term 1.29:1.

Table 1: Classification as per birth weight

ELBW	VLBW	LBW	Normal
1	5	28	21

Only 2 baby had low apgar score.

Most common system involved was CVS (30.09%), followed by musculoskeletal system (23.64%), multisystem (14.54%) skin-soft tissue and genitourinary (10.90%) each. 3 patient were syndromic (5.45%).

Table 2: Number of cases in different system

CVS	17
Muskulo-skeletal system	13
Skin –soft tissue	6
Genito-urinary system	6
Gastrointestinal	3
CNS	2
Multi system	8
Total	55

Most common malformation were CTEV followed by VSD.

Table 3: Number of cases of individual malformation

CTEV	9
VSD	5
PDA	4
Cyanotic heart diseases	6
ASD	2
Dextrocardia	1
Meningomyelocele	3
Hydrocaphalus	3
Polydactyly	3
Rt Calcaneo Valgus Deformity	1
Rocker bottom foot	1
Hydrocele	3
Hypospadius	2
Hydronephrosis	2
Inguinal hernia	1
Multicystic kidney disease	1
Anorectal malformation	3
Dermoid	2
Cleft lip,palate	2
Lipoma	1
Epulis	1
Pre auricular skin tag, sinus	3
Polythelia	2

Out of 55 newborns 3 died within 28 days of life. Mortality rate is 5.4%.

DISCUSSION

The epidemiology of congenital malformation may vary over time or with geographical location, reflecting a complex interaction of known and unknown genetic and environmental factors including socio-cultural, racial and ethnic variables.[4] With improved control of sepsis,, maternal infection and nutritional deficiency diseases, congenital malformations have become important causes of perinatal mortality in developing countries like India.[5]

Incidence of congenital malformation in our study is 2.97% which is comparable to other studies from India where reported incidence of 2.72% and 1.9%.[6,7] Other studies from different parts of the world representing different frequency of congenital malformations.[8,9] Difference in methodology, geographic area, universal newborn screening are the common cause of this difference.

Male preponderance of our study was similar to the other studies.[5,6] Association between low birth weight and congenital malformation well documented. Our study also reflected this.[5] The incidence of congenital malformation was higher in preterm babies as compared with the full term babies in our study, which is in conformity with the previous studies reported from India.[10,11]

Regarding pattern of congenital malformation most common system affected in our study was CVS followed by muskulo-skeletal system. Though other study in same state showed highest incidence of musculoskeletal followed by gastrointestinal system.[11] Some studies however recorded higher incidence of CNS malformations followed by GIT and musculoskeletal system,[12] whereas Suguna Bai et al,[13] reported GI malformations as the most common one. P.C. Misra et al. in their study found that multiple malformation most common followed by CNS malformation.[14] Again Ronya R et al reported the commonest systems affected were the gastro-intestinal tract and the genito-urinary tract (20.4% each) followed by the central nervous system (17.3%).[15]

Different methodology, time frame and catchment area were responsible for this difference.

Most common congenital malformation in our study was CTEV which is in accordance with other study.[3] Next common lesion was VSD.

CONCLUSION

Our study has many limitation like single cantered study, small sample size, short duration study but still this study enlighten about pattern of common congenital malformation. Future study may be done to find out any preventable risk factor to reduce the burden.

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