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## Study of incidence of congenital anomalies in new borns in Western Rajasthan

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### Abstracts

In this study, all the newborns delivered at obstetrics department of Umaid hospital were examined for congenital malformations over a period of twelve months. Purpose of study is to find out the overall incidence of clinically detectable congenital anomalies in newborns in hospital deliveries. Twenty four thousand three hundred seventy seven newborn babies of consecutive deliveries were examined at birth for the presence of congenital malformations. The overall incidence of malformations was 0.43%. Neural tube defects were commonly found. The incidence of congenital malformations was higher in still born, low birth weight, male and preterm babies. Also we know immediate outcome in live born malformed babies for study of prognosis of various malformations.

**Keywords:** congenital malformation, anomalies

### 1. Introduction

In a developing country like India due to high incidence of infectious diseases, nutritional disorders and social stress, the developmental defects are often overshadowed, but the present scenario is changing rapidly. A recent study shows that congenital anomalies contribute to 9% of perinatal deaths as compared to 8% a decade ago. About 2% newborn infants have major anomalies. The incidence is as high as 5% if one includes anomalies detected later in childhood such as abnormalities of heart, kidney, lungs and spine.

Anomalies are more common among spontaneous abortions. Many anomalies are severe and cause abortion. Congenital anomalies represent defective morphogenesis during early fetal life. A broader definition includes metabolic or microscopic defects at a cellular level.

Major anomalies have serious medical, surgical and cosmetic consequences.

In this study we have calculated overall incidence of congenital anomalies both in live born and stillborn babies.

### 2. Material and Methods

Present study was conducted at the department of Anatomy, Dr. Sampurnanand Medical College Jodhpur, Rajasthan, India. It's an observational analytical cross sectional type of study. Twenty four thousand three hundred seventy seven newborn babies of consecutive new born babies delivered at the Department of Obstetrics and Gynecology, Umaid hospital, associated with the Dr. Sampurnanand Medical College, Jodhpur were examined at birth for the presence of congenital malformations. They were examined soon after birth for major and/or minor congenital malformations. Baby's gestational age, birth weight, sex and symptoms in postnatal period were noted. The detailed general and systemic examinations of the babies were carried out. As per the performa made, complete medical, family, antenatal and personal history has taken by the hospital record. Thorough physical examinations of newborn babies were done. High risk newborns were examined in detail within 12 hours of birth. Immediate outcome of all malformed babies were recorded during the period of the mother's hospital stay.

### 3. Observations and Results

A total of 24377 consecutive births were studied for congenital malformation. There were 105 malformed babies found. The overall incidence of congenital malformations was found to be 0.43% as shown in table No. 1.

**Table 1:** Incidence of Anomalies

<b>Total No. of deliveries</b>	<b>25113</b>
Total No. of twin deliveries	251
Total No. of triplet deliveries	6
Total No. of newborns	24377
Total No. of malformed newborns	105
Incidence of anomalies	0.43%

Congenital malformations of the central nervous system were the highest followed by gastrointestinal system, musculoskeletal system, cardiovascular system, respiratory system and chromosomal as shown in Table No. 2.

**Table 2:** Showing Incidence of System wise Anomalies

S. No.	Name of system	No. of Malformed babies			Percentage
		Male	Female	Total	
1	Nervous System	40	4	44	41.09%
2	Multiple congenital anomalies	14	7	21	13.33%
3	Gastrointestinal tract	13	10	23	12.38%
4	Musculoskeletal system	10	5	15	9.52%
5	Cardiovascular system	2	6	8	7.62%
6	Respiratory system	2	2	4	3.80%
7	Genetic disorders	2	0	2	1.9%
	Total	76	29	105	

**Table 3:** Sexual Variation in Incidence of Anomalies

Sex of baby	Total number of babies	No. of malformed babies	Percentage
Male	12657	76	0.60
Female	11720	29	0.25
Total	24377	105	

Incidence of malformations in general was found to be apparently more in male (0.60%) than in female (0.25%)

**4. Discussion**

In present study, attempts have been made to find out the total and individual incidence of anomalies in hospital deliveries. The overall incidence of congenital malformations was 0.43% in present study. Compares well with the observations of Marden *et al.* (1964) <sup>[1]</sup> 2-4%, Goravalingappa & Nashi (1979) <sup>[5]</sup> 3.13%, Ghose *et al.* (1985) <sup>[4]</sup> 1.5%,Graham (1988) 2%, Mishra PC & Baveja R (1989) <sup>[7]</sup> 1.46%, Mohanty *et al.* (1989) <sup>[8]</sup> 1.61%,Verma IC *et al.* (1991) <sup>[11]</sup> 3.6%, Guha AK (1995) <sup>[6]</sup> 2%, Kanan Shah *et al.* (2013) 2.38, Akruiti *et al.* (2009) 0.88, Arjun Singh *et al.* (2009) 1.5, Swain *et al.* (1994) 1.2, Samina *et al.* (2010) 13.22, Herbert *et al.* (2012) 2.8 and Rizk Francine *et al.* (2014) 2.4, Aman Taksande, *et al.* (2010) 1.9, Shatanik Sarkar *et al.* (2013) 2.22, it was very less. (Table No. 4)

The relative difference in the occurrence of various malformations might be due to geographic and racial differences. The true incidence of congenital anomalies depends upon several factors and therefore two studies are never strictly comparable.

In present study Congenital malformations of the central nervous system were the highest (41.09%) followed by malformations of the gastrointestinal system (13.33%),

malformations of the musculo-skeletal system (9.52%), malformations of the cardiovascular system (7.62%), malformations of the respiratory system (3.8%), malformations of the chromosomal (2).

Goravalingappa & Nashi (1979) <sup>[5]</sup> and Guha AK (1995) <sup>[6]</sup> also found high incidence of central nervous system malformations. While Mishra PC & Baveja R (1989) <sup>[7]</sup> found high incidence of multiple congenital anomalies. Ghose *et al.* (1985) <sup>[4]</sup> and Mohanty *et al.* (1989) <sup>[8]</sup> found higher incidence of musculoskeletal system malformations.

In present study it was found that incidence of congenital anomalies was high in male babies. Ratio of malformed male to female babies was found 0.60:0.25. As we compared with the other study Mohanty et a 1.91:1.27, Kanan Shah *et al.* 2.4 : 2.2, Rizk Francine *et al.* 7:5, Arjun Singh *et al.* 1.6:1.4, Samina *et al.* 31:26, Aman Taksande, *et al.* 1.63:1 and Shatanik Sarkar *et al.* 2.9:1.5, found similar results. Opposite to that Akruiti *et al.* 1: 1.6 and Swain *et al.* 1.08:1.33 found that Incidence of Congenital is higher in female babies. (Table No. 4)

**Table 4:** Showing the Incidence of Congenital Anomalies in different Areas.

S. No.	Author	Area	Incidence of Congenital Anomalies	Male: Female
1	Present Study (2015)	Western Rajasthan	0.43	0.6: 2.5
2	Kanan Shah <i>et al.</i> (2013)	Ahmedabad	2.38	2.4 : 2.2
3	Akruti <i>et al.</i> (2009)	Bhavnagar	0.88	1: 1.6
4	Arjun Singh, <i>et al.</i> (2009)	Jammu	1.5	1.6 : 1.4
5	Swain, <i>et al.</i> (1994)	Varanasi	1.2	1.08 : 1.33
6	Aman Taksande, <i>et al.</i> (2010)	Wardha Central Maharashtra	1.9	1.6:1
7	Shatanik Sarkar <i>et al.</i> (2013)	Kolkata	2.22	2.9:1.5
8	Samina, <i>et al.</i> (2010)	Karachi	13.22	31 : 26
9	Herbert <i>et al.</i> (2012)	Enugu, Nigeria	2.8	-
10	Rizk Francine <i>et al.</i> (2014)	Lebanon	2.4	7 : 5

Incidence of congenital malformed babies appears more now days as compared to past because of advanced diagnostic facilities and availability of neonatal intensive care unit which leads to increase chances of survival of malformed babies.

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