

# Incidence and distribution of congenital malformations in newborns at a tertiary teaching hospital in Kolhapur Maharashtra

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## Abstract

**Background:** According to the World Health Organization (WHO) document of 1972, the term congenital malformations should be confined to structural defects at birth. **Aims and Objectives:** To study Incidence and Distribution of Congenital Malformations in Newborns at a Tertiary Teaching Hospital in Kolhapur Maharashtra. **Methodology:** This was a cross-sectional study carried out in the Department of Pediatrics at the Tertiary Teaching Hospital in Kolhapur Maharashtra during the Year January 2015 to December 2015. All the Neonates who were delivered at this hospital at OBGY department. All the neonates were examined and detail clinical histories was noted and were screened for the all congenital anomaly that can be detected clinically only was recorded. From this the incidence of congenital anomaly was calculated. **Result:** The incidence of congenital anomalies were 1.32% Incidence of congenital anomalies/1000 births was 13.2 %. The most common system affected was CNS 0-38.35% followed by GIT-28.76%, Musculo-Skeletal 15.06%; ENT -6.84%; GUT-6.84%; Ophthalmology-4.10% and most common anomaly found was Meningomyocele, Bilateral cleft lip and cleft palate, Congenital Talipesequinovarus, Micro-otia, Hypospadias, Anophthalmos respectively in systems. **Conclusion:** In our study we have seen incidence of congenital anomalies were 1.32% Incidence of congenital anomalies/1000 births was 13.2 %The most common system affected was CNS followed by GIT, Musculo-Skeletal, ENT, GUT, Ophthalmology and most common anomaly found was Meningomyocele, Bilateral cleft lip and cleft palate, Congenital Talipesequinovarus, Micro-otia, Hypospadias, Anophthalmos respectively in systems.

**Key Words:** Congenital Malformations, Newborns, GIT (Gastro intestinal System), Musculo-Skeletal, ENT (Ear Nose Throat), GUT (Genito-Urinary System).

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should be confined to structural defects at birth.<sup>1</sup> However, as per the more recent WHO fact-sheet of October 2012, congenital anomalies can be defined as structural or functional anomalies, including metabolic disorders, which are present at the time of birth.<sup>2</sup> Congenital anomalies are an important cause of neonatal mortality both in developed and developing countries. It accounts for 8-15% of perinatal deaths and 13-16% of neonatal deaths in India.<sup>3,4</sup> It is not only a leading cause of fetal loss, but also contributes significantly to preterm birth, childhood and adult morbidity along with considerable repercussion on the mothers and their families. The pattern and prevalence of congenital anomalies may vary over time or with geographical location, reflecting a complex interaction of known and

## INTRODUCTION

According to the World Health Organization (WHO) document of 1972, the term congenital malformations

unknown genetic and environmental factors including socio-cultural, racial and ethnic variables.<sup>5</sup> With improved control of infections and nutritional deficiency diseases, congenital malformations have become important causes of perinatal mortality in developing countries like India.<sup>6</sup>

## MATERIAL AND METHODS

This was a cross-sectional study in the Department of Pediatrics at the Tertiary Teaching Hospital in Kolhapur Maharashtra during the Year January 2015 to December 2015 in all the Neonates who were delivered at this hospital at OBGY department. All the neonate were examined and detail clinical history was noted and were screened for the all congenital anomaly that can be detected clinically only was recorded. From this the incidence of congenital anomaly was calculated

## RESULT

**Table 1:** Distribution of the Patients as per the Incidence of congenital anomalies

Total no. of deliveries	5526
Total no. of twin deliveries	81
Total no. of new borns	5607
Total no. of malformed newborns	73
Incidence of congenital anomalies	1.32%
Incidence of congenital anomalies/1000 births	13.2 %

Total no. of deliveries during the one were 5526 out of that Total no. of twin deliveries were 81. So total no. of new born were 5607 out of that total no. of malformed new born were 73%. So incidence of congenital anomalies were 1.32% Incidence of congenital anomalies/1000 births was 13.2%.

**Table 2:** Distribution of the Patients as per the congenital anomalies of various Systems

System	Anomalies	No.	Total (%)
CNS	Meningomyelocele	11	
	Hydrocephalus	7	28
	Anencephaly	5	
	Spina bifida occulta	3	(38.35%)
	Encephalocele	1	
	Meningocele	1	
	Bilateral cleft lip and cleft palate	9	21
	Tracheo-esophageal fistula	7	(28.76%)
GIT	Imperforated anus	3	
	Cleft palate	1	
	Omphalocele	1	
	Congenital Talipesequinovarus	7	11
Musculo-Skeletal	Polydactyly	4	
			(15.06%)
ENT	Micro-otia	5	5 (6.84%)
GUT	Hypospadiasis	3	
	Ectopia vesicae	1	5 (6.84%)
Ophthalmology	Absence of urethral meatus	1	
	Anophthalmos	3	3 (4.10%)
<b>Total</b>		<b>73</b>	<b>73 (100%)</b>

The most common system affected was CNS 0-38.35% followed by GIT-28.76%; Musculo-Skeletal 15.06%; ENT -6.84%;GUT-6.84%; Ophthalmology-4.10% and most common anomaly found was Meningomyelocele, Bilateral cleft lip and cleft palate, Congenital Talipesequinovarus, Micro-otia, Hypospadiasis, Anophthalmos respectively in systems.

## DISCUSSION

In our study we have seen incidence of congenital anomalies were 1.32% Incidence of congenital anomalies/1000 births was 13.2 %this is similar to Taksande A *et al*, Anand *et al* and Karla *et al* showed

incidence of congenital anomalies were 1.24%, 1.2%, 1.91%, 2% and 1.98% respectively.<sup>7,8,9-11</sup> Studies like Desai N *et al* and Saifullah *et al* showed slightly higher incidence (3.6%) than our study.<sup>12,13</sup> The most common system affected was CNS 0-38.35% followed by GIT-28.76%; Musculo-Skeletal 15.06%;ENT -6.84%;GUT-6.84%; Ophthalmology-4.10% and most common anomaly found was Meningomyelocele, Bilateral cleft lip and cleft palate, Congenital Talipesequinovarus, Micro-otia, Hypospadiasis, Anophthalmos respectively in systems. These findings are similar to Other studies like Swain *et al*, Anand *et al* and Karla *et al* also found most common involvement of central nervous system while Datta *et al*,

Taksande A *et al* and Desai N *et al* demonstrated maximum involvement of musculoskeletal system<sup>7,8,10-13</sup> but Contradictory to Shatanik Sarkar *et al* (2013)<sup>14</sup> where The predominant system involved was Musculo-skeletal system (33.2%) followed by gastro-intestinal (GI) system (15%) and central nervous system (CNS) (11.2%). Talipes (17.1%) was the most common anomaly seen in the musculoskeletal group and likewise cleft lip (6.6%) and cleft palate (3.5%) in GI system and meningomyelecele (6.3%) in CNS.

## CONCLUSION

In our study the we have seen incidence of congenital anomalies were 1.32% Incidence of congenital anomalies/1000 births was 13.2 %.The most common system affected was CNS followed by GIT, Musculo-Skeletal, ENT, GUT, Ophthalmology and most common anomaly found was Meningomyelocele, Bilateral cleft lip and cleft palate, Congenital Talipesequinovarus, Microtia, Hypospadiasis, Anophthalmos respectively insystems.

## REFERENCES

1. Patel ZM, Adhia RA. Birth defects surveillance study. Indian J Pediatr. 2005; 72:489–91. [PubMed: 15985737]
2. World Health Organization. Section on congenital anomalies. [Cited on 2012 Oct]. Available from: <http://www.who.int/mediacentre/factsheets/fs370/en/>
3. Bhat BV, Ravikumara M. Perinatal mortality in India-Need for introspection. Indian J Matern Child Health. 1996; 7:31–3.
4. Agarwal SS, Singh U, Singh PS, Singh SS, Das V, Sharma A, et al. Prevalence and spectrum of congenital malformations in a prospective study at a teaching
5. hospital. Indian J Med Res. 1991;94:413–9. [PubMed: 1774092]
6. Birch MR, Grayson N, Sullivan EA. AIHW Cat. No. PER 23. Birth Anomalies Series No. 1. Sydney: AIHW National Perinatal Statistics Unit; 2004. Recommendations for development of a new Australian birth anomalies system: A review of the congenital malformations and birth defects data collection.
7. Mohanty C, Mishra OP, Das BK, Bhatia BD, Singh G. Congenital malformations in newborns: A study of 10,874 consecutive births. J AnatSoc India. 1989;38:101–11.
8. Datta V, Chaturvedi P. Congenital malformations in rural maharastra. Indian paediatrics. 2000; 37:998- 1001.
9. Swain S, Agarwal A, Bhatia BD. Congenital malformations at birth. Indian paediatrics. 1994; 31:1187-91.
10. Meherban S. Hospital based data on perinatal and neonatal mortality in India. Indian paediatrics. 1986; 23:579-84.
11. Geschwind SA, Stolwijk JA, Fitzgerald E, Stark A, Olsen C et al. Risk of congenital malformations associated with proximity to hazardous waste sites. Am J Epidemiol. 1992; 135(11):1197–207.
12. Taksande A, Vilhekar K, Chaturvedi P, Jain M. Congenital malformation at birth in central India, Indian journal of human genetics. 2010; 16:159-63.
13. Anand JS, Javadekar BB, Mala B. Congenital malformations in 2000 consecutive births. Indian Pediatr. 1988; 25:845-51.
14. Ajay K, Kalra K, Sharma V, Singh M, Dayal RS. Congenital malformations. Indian paediatrics. 1984; 21:945-9. 1.
15. ShatanikSarkar, Chaitali Patra, Malay Kumar Dasgupta, KaustavNayek, and Prasanta Ray Karmakar. Prevalence of Congenital Anomalies in Neonates and Associated Risk Factors in a Tertiary Care Hospital in Eastern India. J Clin Neonatol. 2013 Jul-Sep; 2(3): 131–134.

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