ORIGINAL RESEARCH PAPER
Volume-8 | Issue-12 | December - 2019 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

PREVALENCE OF CONGENITAL ANOMALIES IN A TERTIARY HEALTH CARE CENTER,AURANGABAD, MAHARASHTRA

Radiodiagnosis

Dr. Asmita pravin suryavanshi — Associate Professor , Department of Radiodiagnosis MGM Medical College Aurangabad.

Dr. M. Mathew james* — Junior resident II , Department of Radiodiagnosis MGM Medical College Aurangabad. *Corresponding Author

Dr. Ishwar Agarwal — Junior resident III, Department of Radiodiagnosis MGM Medical College Aurangabad.

ABSTRACT

Introduction : Congenital anomalies vary in proportion in different geographical locations. Our study is a hospital based cross-sectional study to see the prevalence of congenital anomalies in department of radio diagnosis , MGM Medical College.
Aims: To study the prevalence of congenital anomalies in a tertiary centre and know the percentage of specific system wise anomalies from the data.
Materials and methods : Consenting antenatal women who are undergoing ultrasonography anomaly scans during august 2017 to September 2018 in the department of radiology , MGM Medical College, are included in the study and congenital anomalies were distributed system wise .
Results: A total of 13414 patient scanned out of which 114 patients had babies affected with some congenital anomalies .The prevalence of congenital anomalies in our study is 0.84%.The prevalence of congenital anomalies is more in multigravida than in primigravida .The most common system involved was central nervous system.

KEYWORDS

Congenital anomalies , prevalence, ultrasonography anomaly scans.

INTRODUCTION

Congenital anomalies have emerged as an important cause of infant morbidity and mortality worldwide(1).

Earlier in the 20th century, the proportion of perinatal deaths due to anomalies was not as high, as there were commoner causes like infections or metabolic problems. As the incidence of the latter reduced due to improved health care, there has been an increase in the percentage of perinatal deaths due to congenital anomalies(2).

India lacks a national birth defects surveillance, indicating that there is no data on the magnitude of congenital anomalies in the country. Thus, systematic data on the magnitude of congenital anomalies, the most prevalent types of congenital anomalies, their healthcare impact and their impact on neonatal health are required, especially as India has announced a programme for the management of children born with selected birth defects (3).

The detection of anomalies occurs relatively late, especially in a developing country like India and more so in rural India [4]. With the advent of prenatal diagnostic techniques, it is possible to make early detections and offer timely solutions (2).

Data on the magnitude of congenital anomalies are also needed as some of these conditions can be prevented through primary care interventions targeted towards women in the preconception, intra-conception and antenatal periods (5).

As to the time in pregnancy at which ultrasound screening should be performed, it should be first noted that most structural anomalies are increasingly detected with advancing gestation (6) In early pregnancy, it is possible to recognize with confidence certain types of fetal malformations, like anencephaly, which can be reliably diagnosed at 10-14 weeks of pregnancy (7)

In some cases omphalocele and limb anomalies are also definable using ultrasound in the first trimester, while other structural anomalies, like urinary tract abnormalities, are detectable later in pregnancy(8).

MATERIALS AND METHODS:

Study was done in Department of Radiology in MGM medical college and hospital. All out patient and in patient referred to radiology department from routine 2nd and 3rd trimester antenatal scan from august 2017 to September 2018 were included in the study.

Sonography was Done on Philips IU-22 and Voluson E 8 ultra-sonography machines .

Written and verbal consent of the patient was taken . The sex of the fetus was not taken into consideration in this study as prohibited by the PCPNDT act .

A questionnaire was prepared including the USG findings , age of the patient , gestational age of the fetus , parity of mother and congenital anomaly finding of the fetus. The data was then compiled and analyzed.

The prevalence of congenital anomaly was the divided into different system according to ICD -10 classification.

In routine second trimester scan following parts of the various fetal parts are to be thoroughly scanned for presence of any congenital anomaly.

Fetal head :Fetal skull: integrity and shape Fetal brain: Ventricles and choroid plexus, Cavum septum pellucidum . Posterior fossa, and cisterna magna, Nuchal Fold Thickness.

Fetal face :Nasal bone, Orbits and lenses, Upper lip and palate, Mandible Fetal heart and chest Fetal heart rate and rhythm, Cardiac situs, Four Chamber View, outflow tract views, aortic and ductal arches, diaphragm and lungs

Fetal abdomen :
Liver, stomach (including situs), kidneys and renal arteries, abdominal wall, umbilical cord insertion, bladder, umbilical arteries, presacral space Fetal musculoskeletal system Spine - transverse, longitudinal +/- coronal views and skin line Upper limb - humera, including humeral length (HL), radius/ulna: both sides, Fingers and thumbs, including hand Lower limb - both femors, including femoral length (FL) as part of biometric assessment, both tibia/fibula: saggital views to demonstrate orientation of the ankles to screen for talipes, both feet .

Ancilliary findings Fetal lie, cervical length, placenta, liquor volume, umbilical cord including the number of cord vessels and evaluation of knots.

RESULTS:

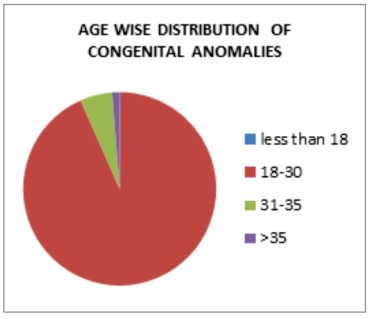
A total of 13414 pregnant women undergone routine antenatal USG in MGM medical college and hospital ,Aurangabad over a

period of 1 year , out of which 114 patients had their babies affected with some congenital anomalies and the prevalence being 0.84% from our study.

The prevalence of congenital anomalies is more in multigravida than in primigravida .

The most common system involved was central nervous system followed by genitourinary system.

TABLE 1



The nervous system is the most common affected system in this study followed by genitourinary system. Within the nervous system choroid plexus cyst is the most common finding in our study followed by hydrocephalus.

Among renal causes bilateral hydronephrosis / pyelectasis is the most common finding while in circulatory system was hypoplastic left heart syndrome was the most common finding.

TABLE 2.

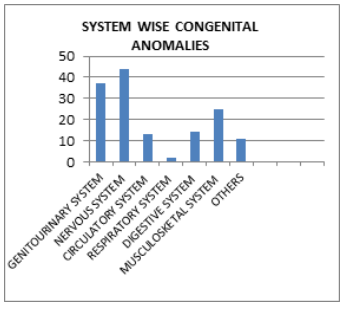


TABLE 3
CENTRAL NERVOUS SYTEM ANOMALIES DETECTED:

HYDROCEPHALUS	9
CHOROID PLEXUS CYST	10
PROMINENT CISTERNA MAGNA	3
HOLOPROSENCEPHALY	2
DANDY WALKER MALFORMATION	3
SPINA BIFIDA WITH MENINGOMYELOCOELE (ARNOLD CHIARI)	5

TABLE 4
PERCENTAGE AGE WISE DISTRIBUTION:

AGE IN YEARS	Total number of patients	Anomalies detected	Percentage
<18	12	0	-
18-30	11481	105	0.91%
31-35	662	07	1.05%
>35	155	02	1.29%

The above data suggest percentage age of mothers having fetus with congenital anomalies is proportional to the prevalence of congenital anomalies , that is as age increases chance of having a congenital anomaly is more.

The prevalence of congenital anomalies is more in multigravida than in primigravida .

Age group of mother most commonly affected is 18-30 years .

CONCLUSION :

USG is now a very reliable tool for early detection of fetal congenital anomalies.

Early detection of congenital anomalies can be done with high sensitivity and specificity and appropriate steps can be taken for further management.

The pattern and prevalence of congenital anomalies 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(9).

The prevalence of structural anomalies in present study is 0.84%. Studies from different parts of India reported incidence of 1.9%, and 1.25%.(10,11)There are other reports from different parts of the world representing different frequency of congenital malformations.(12 ,13)

Previous studies have reported significantly higher incidence of malformations among the multi paras.(6) Our result is consistent with this finding, which indicates a positive correlation between the birth order and the incidence of congenital anomalies.

A previous study in a tertiary centre in india revealed central nervous system as the most common system affected which is consistent with our study.(16).

Most common anomaly in CNS in our study was choroid plexus cyst.

CASE OF LUMBO-SACRAL MENINGOMYELOCOELE

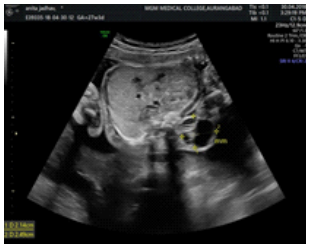


FIGURE -1

CASE OF SKELETAL DYSPLASIA

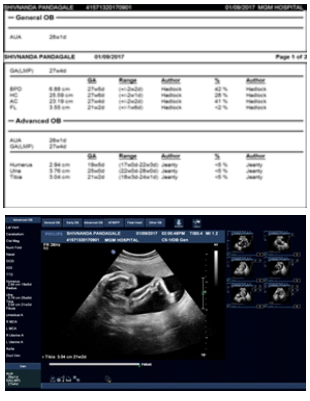


FIGURE-2

CASE OF ANENCEPHALY

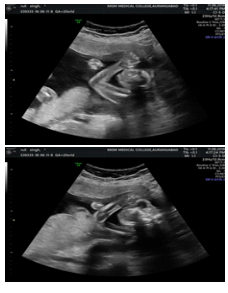


FIGURE-3

CASE OF HOLOPROSENCEPHALY

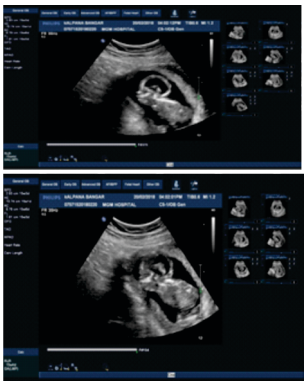


FIGURE-4

REFERENCES:

1. Dastgiri S, Sheikhzadeh Y, Dastgiri A. Monitoring of congenital anomalies in developing countries: a pilot model in Iran. InITCH. 2011;164:157-61.
2. Penchaszadeh VB. Preventing congenital anomalies in developing countries. Community Genet 2002;5:61–9.
3. Government of India. Rashtriya Bal Swasthya Karyakram (RBSK). Available: http://www.rbsk.gov.in/RBSK/. Accessed 20 April 2016.
4. Taksande A, Vilhekar K, Chaturvedi P, et al. Congenital malformations at birth in Central India: a rural medical college hospital based data. Indian J Hum Genet 2010;16:159.
5. Shannon GD, Alberg C, Nacul L, Pashayan N. Preconception healthcare and congenital disorders: systematic review of the effectiveness of preconception care programs in the prevention of congenital disorders. Matern Child Health J. 2014;18(6):1354–1379. doi: 10.1007/s10995-013-1370-2. [PubMed][Cross Ref]
6. Grandjean H, Larroque D, Levi S Eurofetus Study Group. The performance of routine ultrasonographic screening of pregnancies in the Eurofetus Study. Am J Obstet Gynecol. 1999;181:446–454. [PubMed]
7. Johnson P, Sebire NJ, Snijders RJM, Tunkel S, Nicolaides KH. Ultrasound screening for anencephaly at 10-14 weeks of gestation. Ultrasound Obstet Gynecol. 1997;9:14–16. [PubMed]
8. Chitty LS, Pandya PP. Ultrasound screening for fetal abnormalities in the first trimester. Prenat Diagn. 1997;17:1269–1281. [PubMed]
9. 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.
10. Taksande A, Vilhekar K, Chaturvedi P, Jain M. Congenital malformations at birth in Central India: A rural medical college hospital based data. Indian J Hum Genet. 2010;16:159-63.
11. Chaturvedi P, Banerjee KS. Spectrum of congenital malformations in the newborns from rural Maharashtra. Indian J Pediatr. 1989;56:501-7.
12. Khatemi F, Mamoori GA. Survey of congenital major malformations in 10/000 newborns. Iran J Pediatr. 2005;15:315-20.
13. Tomatir AG, Demirhan H, Sorkun HC, Köksal A, Ozerdem F, Cilengir N. Major congenital anomalies: A five-year retrospective regional study in Turkey. Genet Mol Res. 2009; 8:19-27.
14. Mohanty C, Mishra OP, Das BK, Bhatia BD, Singh G. Congenital malformations in newborns: A study of 10,874 consecutive births. J Anat Soc India. 1989;38:101
15. World Health Organization. Section on congenital anomalies. [Cited on 2016 September]. Available at http://www.who.int/mediacentre/factsheets/fs370/en/
16. https://www.babymhospital.org/BMH_MJ/index.php/BMHMJ/article/view/106/256