ORIGINAL ARTICLE

OPEN ACCESS

A Single Centre Retrospective Study to Access the Frequency of Congenital Anomalies in a Tertiary Care Hospital

About the Author(s)

Shazia Amir Khan[1*], Iram Iqbal[2], Fouzia Rasheed[3], Khizra Anwar[4], Ammara Nadeem[5], Menahyl Mahmood[6]

[1]Professor, Department of Obs/Gynae, HBS Medical and Dental College, Islamabad
[2]Associate Professor, Department of Radiology, HBS Medical and Dental College, Islamabad
[3]Assistant Professor, Department of Radiology, HBS Medical and Dental College, Islamabad
[4]Associate Professor, Department of Obs/Gynae, HBS Medical and Dental College, Islamabad
[5]Assistant Professor, HBS Medical and Dental College, Islamabad
[6]student of MPH HSA

*Correspondence: mahmoodayubkhan@gmail.com
HBS Medical College, Islamabad

Received: September 18. 2023 Revised: November 11. 2023
Accepted: December 27, 2023 Published: January 05. 2024
DOI: https://doi.org/10.70394/jhbsmdc.v3i2.50

Abstract

Objectives: The objective of our study was to determine the frequency and types of congenital fetal anomalies among pregnant patient in tertiary care hospital.

Methodology: This is descriptive, cross sectional retrospective study conducted in obstetrics and gynecology and radiology department of HBS General hospital Islamabad from January 2021 to January 2023.It includes all booked and unbooked antenatal patients

Results: Over a period of two years total 3723 antenatal patients included in our study out of which 2.01% were diagnosed with congenitally structurally malformed fetuses. Commonly observed congenital abnormality in our study was CNS anomaly which was observed in 26 patients followed by congenital cardiac defects (16 patients), renal abnormality in 8 patients, and skeletal anomalies in 6 patients and respiratory tract anomalies in 2 patients.

Conclusion: Congenital anomalies are a major cause of stillbirth and infant mortality. Patients history of medical disorders, previous anomalous baby, consanguinity, advanced maternal age and drug history have strong association with congenital fetal anomalies.

Key words: (Pregnant women, second trimester, antenatal, anomaly scan.

Conflict of Interest: None **Funding Source**: None

Introduction

Congenital anomalies are normally considered as structural and functional anomalies[1], which were further classified as major and minor congenital anomalies. Due to recent advances antenatal care and medical technology lot of improvement is seen in detection of congenital anomalies in 3rd world countries.

Anomaly scan during second trimester of pregnancy has been commonly practiced in our health care settings. Every pregnant woman is advised second trimester USG between 18- 22 weeks from sonologist.[3] Anomalous babies are of great concern for health care professional [2] and is a source of psychological trauma for parents.

WHO fact sheet 2016 showed 303,000 neonatal deaths occurs every year due to congenital anomalies.[4]

In European countries different studies conducted showed increasing incidence of congenital heart disease and decreasing trends in limb defects[2]. In Pakistan mostly studies showed increasing incidence and NTD[5-12] with prevalence ranging for 1.4% to 7%.

Cousin marriages, increase in maternal age, folic acid deficiency, diabetes, thyroid disorders are also considered as risk factor associated with congenital anomalies.[13,14,15,16,17,18.19]

The purpose of our study is to determine frequency of congenital anomalies among general population during 2nd trimester USG. Although number of studies done on it but lot more work is required in this aspect.

Methodology

This study was conducted on pregnant patients of OPD and IPD of gynae department of HBS general hospital

Islamabad in collaboration with radiology department over period of 2 years. This was retrospective study, data was retrieved from the computer. All patients with gestational age of more than 20 weeks were included in the study. Detailed history of all the patients including maternal age, parity, gestational age, consangious marriage and family history of anomalous baby was also taken. USG machine Aloka IPFI701B of 3.5Mtlz multifrequency curvilinear transducer was used, allocated time was 30 minutes. Associated co-morbidities were not considered in our study as it was retrospective.

Ethical approval was taken from internal review board of HBS medical and dental college Islamabad. Informed consent was taken from all the patients included in our study as per our hospital policy. According to the results of USG we fully inform our patient regarding type of anomaly and its prognosis.

Results

Over a period of 2 years, number of pregnant patients included were 3732, out of which 2.01% were diagnoses with congenital anomalies, commonest abnormality which was observed in our study was central nervous system (CNS) anomalies and is observed in 26 patients. Among CNS anomalies anencephaly was most common and hydrocephalus was second most common. (Table I)

Second commonly identified birth defect were cardiac anomalies in which we had VSD in 6 patients and cardiomegaly and septal wall defects in rest of the patients. Cardiac anomalies were identified in 16 patients. We entered rest of the anomalies in miscellaneous group which includes skeletal anomalies in 6 patients, renal anomalies in 8 patients and tracheal atresia in 2 patients. Most of the pregnant patients with congenital anomalies were of 25 – 30 weeks. Out of all 94 patients has first cousin marriage.

Table I: Frequency of fetal congenital abnormalities.

Type of anomaly	Numbers	%
CNS	27	
Anencephaly	11	15
Hydrocephaly	09	12
Others	07	09
CVS	16	
VSD	06	08
Cardiomegaly and septal wall defects	10	13
Miscellaneous	32	
Skeletal	06	08
Renal	08	11
Tracheal atresia	02	03
Others	16	21
Total number (%)	75	

Discussion

In our study, frequency of congenital abnormalities was about 2.01% which is quite comparable with other studies done in our part of the world[13.20.] Same results were found in two other international studies conducted in Brazil by Al media et al, which showed prevalence of about 2.4%. Second study conducted in Europe by Mohammed A et al, which showed prevalence of 2.5%[16,21] Another study conducted in India by Sarkar S et al, which showed incidence of 2.2%.[17]

Most congenital anomalies identified in our study were between 20-30 weeks of pregnancy although ideal time is between 18-22 weeks when most of the structural anomalies were identified. Association between cousin marriages and congenital anomalies is evident in many studies[11,12] which is also seen in our study.

Most of the studies correlate congenital anomalies with established diabetes and GDM and with gender of fetus which is not considered in our study[12,17]. These studies showed 7.5% patients have anomalous fetus along with gestational diabetes mellitus (GDM) and among gender of fetuses, congenital anomalies were more frequent in male fetuses.

CNS anomalies were commonest in our study which was followed by cardiac anomalies. The results of our study are almost similar to studies conducted in Pakistan[2] and other neighboring countries[8,11,12,22] The most common CNS anomaly found in our study was anencephaly followed by hydrocephalies and meningocele. Our local studies done previously support our results of CNS anomalies being commonest[8,9,12]

Results of our study is comparable with previously done national and international studies, but in our study, consanguinity was the only comparable factor.

As it's a retrospective study so other associated rick factors were not compared which should be considered in future.

Conclusion

Congenital anomalies are a major cause of stillbirth and infant mortality. Patients history of medical disorders, previous anomalous baby, consanguinity, advanced maternal age and drug history have strong association with congenital fetal anomalies.

References

1. Connolly CO, Donoghue KO, Mahony M. A review of congenital anomalies in the Cork and Kery region from 1996-20100. Arch Dis child Fetal Neonatal ed.2014: 99.
2. Tayyeba Anbreen, Lubna Ali, Sofia Butt, Tahira Shah. Congenital Anomaly Frequency, Risk Factor

and Trends among Antenatal Patients Presenting at Tertiary Care Hospital in Pakistan. Pak J Med Res 2021;60(2):52-6.
3. Rydberg C, Tunon K. Detection of fetal abnormalities by second-trimester ultrasound screening in a non-selected population. Acta Obstet Gynecol Scand. 2017; 96: 176–182.
4. World Health O. Congenital Anomalies. World Health Organization Fact Sheet, 2014.
5. Parveen F, Tayyab S. Frequency and pattern of distribution of congenital anomalies in the newborn and associated maternal risk factors. J Coll Physician Surg Pak2007; 17(6): 340-3.
6. Waqas J, Farooq A, Taimoor J, Sajjad MM. Prevalence of Gross congenital malformations at birth in the neonates in a tertiary care hospital. APMC 2009; 3(1): 47-50.
7. Gulrukh Q. Relationship of selected prenatal factors to pregnancy out and congenital anomalies. J Ayub Med Coll Abbottabad 2010; 22(4): 41-5.
8. Saima G, Kazmi NH Najeeb S, Hussain S, Raza A.Frequencies of congenital anomalies among new borns admitted in nursery of Ayub teaching hospital Abbottabad Pakistan. J Ayub Med Coll Abbottabad 2011; 23(1): 117-21.
9. Khan AA, Khattak TA, Shah SH, Roshan E, Haq AU. Pattern of congenital anomalies in newborn.JRMC2012; 16(2): 171-3.
10. Butt F, Shahzad R, Pasha I. Pattern and outcomes of ongenital anomalies and maternal risk factor association. Biomedica 2013; 29: 234-40.
11. Hussain S, Imran A, Sabir MU, Chatta MN, Tarar SH,Mushtaq R. Prevalence and pattern of congenital malformations among neonates in the neonatal unit of teaching hospital. J Pak Med Assoc.2014; 64(6):629-34.
12. Karim R, Wahab S, Akhtar R, Jamaal F, Jabeen Frequency and pattern of distribution of antenatally diagnosed congenital anomalies and the associated risk factor. J Postgrad Med Inst 2014; 28(2): 184-8.
13. Gillani S. Kazmi NH, Najeeb S, Hussain S, Raza S. Frequencies of congenital anomalies among newborns admitted in nursery of Ayub teaching hospital Abbottabad. Pakistan J Ayub Med Coll Abbottabad 2011; 23: 117-21.
14. Salloum Al A, El Mouzan MI, Herbish Al A, Omer Al A, Qurashi M. Prevalence of selected congenital anomalies in Saudi children: a community –based study. Ann Saudi Med 2015; 35(2):107-10.
15. Sallout B, Obedat N, Shakeel F. Prevalence of major congenital anomalies at King Fahad Medical City in Saudia Arabia: a tertiary care center-based study. Ann Saudi Med 2015; 35(5): 343-51.
16. El Koumi MA, Al Banna EA, Lebda I. Pattern of congenital anomalies in newborn: a hospital-based study. Pediatr Rep 20135: e5.
17. Sarkar S, Patra C, Dasgupta MK, Nayek K, Karmakar PR. Prevalence of congenital anomalies and associated risk factors in a tertiary care hospital in Eastern India. J Clin Neonatal 2013; 2: 131-4.
18. Borhany M, Shamsi T, Naz A, Khan A, Parveen K,Ansari S, et al. Congenital bleeding disorders in Karachi, Pakistan. Clin Appl Thrombosis/Hemostasis 2011; 1796): 131-7.
19. Moammar H, Cheriyan G, Mathew R, Al-Sannaa N. Incidence and patterns of inborn errors of metabolism in the eastern Province of Saudi Arabia, 1983-2008.Ann Saudi Med 2010; 30: 271-7.
20. Jehangir W, Ali F, Jahangir T, Massod MS.Prevalence of gross congenital malformations at birth in the neonates in a tertiary care hospital.APMC 2009; 1: 47-50.
21. Almeida LFG, Junior EA, Crott GC, Okido MM, Berezowski AT, Duarte G, et al. Epidemiological risk factors and perinatal outcomes of congenital anomalies. Rev Ginecol Obstet 2016; 38: 348-355.
22. Singh A, Gupta RK. Pattern of congenital anomalies in new born: a hospital based prospective study. JK Science 2009; 2: 34-36.

Authors Contribution:

[1,2] Substantial contributions to the conception or design of the work;
[2,3,4] The acquisition, analysis, or interpretation of data for the work;
[1] Final approval of the version to be published;
[1,5,6] Drafting the work or revising it critically for important intellectual content.