A STUDY ON SPECTRUM OF CONGENITAL ANOMALIES DELIVERED IN A TERTIARY CARE CENTER

Paediatrics

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ABSTRACT

INTRODUCTION: Congenital anomalies account for 9% of neonatal deaths in India. Prevalence of birth anomalies in India is 6-7%. **AIMS AND OBJECTIVES:** The objective was to determine proportion and clinical spectrum of congenital anomalies and maternal and perinatal risk factors associated with congenital anomalies in live newborns in our area. **MATERIALS AND METHODS:** Neonates born in ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES hospital during study period with documented congenital anomalies are included. All still-borns and gestational age <22wks & birth weight <400gm were excluded. Retrospective hospital-based study, conducted between January 2019 to December 2019 in ASRAM Hospital. **RESULTS:** The total number of births is 1132 during this one year of which, 106 newborns had congenital anomalies. In this study we found that major anomalies (80.2%) , Minor anomalies (19.8%). In this study we found that most of the anomalies were major and mostly involved cardiovascular system. In minor anomalies the most common defect was sacral dimple. **CONCLUSION:** Congenital anomalies can be reduced with in-utero surgeries, and necessary preventive measures which are becoming feasible.

KEYWORDS

Congenital Anomalies, Major and Minor anomalies.

INTRODUCTION & NEED FOR STUDY:

According to WHO Congenital anomalies are defined as structural or functional anomalies, including metabolic disorders which are present at the time of birth^(1,2). Congenital anomalies account for 11% of neonatal deaths globally and 9% in India. (3). The prevalence of birth anomalies in India is 6-7 %⁽³⁾. It accounts for 8-15% of^(4,5) perinatal deaths and 13-16% of neonatal deaths in India.

Congenital anomalies may be multifactorial with genetic, antenatal infections, nutritional status of the mother, chronic disease of the mother along with drug usage, environmental factors playing a major role and in few cases the cause may be idiopathic as well thus making it difficult to point out the exact cause. According to CDC congenital anomalies are further grouped into major and minor anomalies major anomalies are defined as structural changes that have significant medical, social or cosmetic consequences for the affected individual, and typically require medical intervention and minor anomalies are defined as structural changes that pose no significant health problems in the neonatal period and tend to have limited social or cosmetic consequences for the affected individuals.⁽⁶⁾

Even though minor anomalies are more common in the general population than the major anomalies these major anomalies contribute to both morbidity and mortality of the newborns further contributing to long-term disability, which may have significant impacts on individuals, families, health-care systems, and societies. The most common, severe congenital anomalies are heart defects, neural tube defects and Down syndrome.⁽⁷⁾

The incidence of Congenital heart disease in India is increasing, probably due to increase of birth rate, earlier and more accurate diagnostic modalities, more awareness amongst parents due to social media. Despite advanced diagnostic facilities and improved medical care, CHD is considered one of the leading causes of neonatal mortality.

The purpose of this study is to know the clinical spectrum of congenital anomalies in our hospital, which will help us to emphasize on antenatal care and proper supplementation thereby helping us to prevent few congenital anomalies like neural tube defects with supplementation on folic acid to the mother, vaccination with rubella against congenital rubella syndrome etc.

AIMS AND OBJECTIVES:

The objective of this study was to determine the proportion and clinical spectrum of congenital anomalies in live newborns in our area & to study the maternal and perinatal risk factors associated with congenital anomalies.

INCLUSION CRITERIA:

- Neonates born in our hospital during the study period with documented congenital anomalies were included in the study.

EXCLUSION CRITERIA:

- All stillborns were excluded.
- Gestational age <22wks & birth weight <400gm.

METHODS:

- Retrospective hospital based observational study.
- Duration: January 2019 to December 2019.
- Institutional ethical committee clearance was taken

- All the newborns were looked for congenital anomalies soon after birth and everyday during routine ward rounds. Relevant information along with antenatal, natal and postnatal history including maternal age, gestational age, sex, birth weight, birth order and consanguinity was documented.
- Diagnosis of congenital anomalies was based on clinical evaluation of newborn babies by the pediatrician. Significant antenatal, natal, postnatal history will be recorded.
- Privacy & strict confidentiality was maintained, while collecting the data. The data collected was not be disclosed to anyone during the study.

STATISTICAL ANALYSIS:

The data collected entered in Microsoft Excel and analyzed using SPSS 23 version.

The data analyzed was expressed using chi-square test, T-test, bar diagrams, pie diagrams & graphs.

RESULTS:

The present study was conducted in ALLURI SITARAMARAJU ACADEMY OF MEDICAL SCIENCES during the time period of

JANUARY 2019 to DECEMBER 2019. The total number of births is 1132 during this one year of which 106 newborns had congenital anomalies. Most of the woman belonged to the age group between 21yrs to 29yrs(66%), 22.% had association with consanguineous marriage. 53.8% of the woman were multiparous of which 28.3% had bad obstetric history. When we considered multiple risk factors like chronic drug usage, maternal history of chronic diseases, family history of similar complaints we found that most of them had the history of chronic disease (39.6 %).

Only 15.2% of these congenital anomalies were radiologically diagnosed antenatally.

Most of the newborns were term (66.1%), male child (56.6%) born by LSCS (81.1%) and with weight between 2 to 3 kg (49%).

In this study, the 106 newborns were further classified to two groups i.e. with major congenital anomalies or minor anomalies as per CDC definition.

Fig:1: major and minor congenital anomalies

In this study we found that most of the anomalies were major and mostly involved cardiovascular system followed by syndromes (Downs syndrome), Renal anomalies, musculoskeletal anomalies, central nervous system. In minor anomalies the most common defect was sacral dimple.

Fig:2: System wise distribution of major anomalies.

DISCUSSION:

The present study was conducted to determine the proportion and clinical spectrum of congenital anomalies in live newborns in our area & to study the maternal and perinatal risk factors associated with congenital anomalies. In this study we considered risk factors like consanguinity, maternal age, bad obstetric history, chronic maternal diseases, gestational age, gender of the baby, weight of the baby and then classified the anomalies into major and minor.

The major anomalies are further classified based on the system involvement.

In this study we found that the most of the women belonged to age group of 20 to 30yrs which was similar to Sarkar et al^[8], Prema et al^[10] and Thaddanee et al^[11] but Ara et al^[9] found in her study that the most common age group is less than 20yrs. Multiparous women were more commonly associated with congenital anomalies in Sarkar et al and Ara et al studies which was similar to our study

Most of the marriages were non-consanguineous which differed our study from Sarkar et al and Prema et al. Thaddanee et al considered previous child malformation as a risk factor which was similar to our study but we included abortions and still birth as well which summed up to 28.3%.

Most common mode of delivery was LSCS in this study which was similar to Sarkar et al study. There was no much difference in congenital anomalies based on gender in our study but Sarkar et al, Ara et al and Shah et al^[11] found that male gender is more commonly

affected than female.

In this study term deliveries and birth weight between 2-3 kgs are more common which differed from Sarkar et al and Shah et al study

Major and minor anomalies were not differentiated in most of the studies. In our study we found that major anomalies are more common than minor anomalies. Cardiovascular system is the most common system affected. Bhinde et al^[13] study showed similar results. Were as in studies done by Sarkar et al and Ara et al GIT is the most common system involved. Central nervous system is the most common system involved in case of Sethu et al and Shah et al^[12] studies. The limitation of this study is small sample size.

CONCLUSION:

Congenital anomalies which play a role in perinatal as well as neonatal mortalities in India can be reduced with in-utero surgeries which are becoming feasible. This can only be achieved with proper preconceptional counselling, early detection in antenatal period, vaccination, folic acid intake.

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