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FETAL CONGENITAL ANOMALIES DIAGNOSED BY ULTRASONOGRAPHY AT ILORIN, NIGERIA: A FIVE-YEAR REVIEW.

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ABSTRACT

Background

Fetal congenital anomaly is an important obstetric problem in our environment because of social stigma for severe forms of congenital malformations like anencephaly and hydrocephaly. It is therefore important to have a prenatal diagnosis of these conditions to allow for proper counseling of the affected couple as well as peripartum anagement of the affected pregnancy.

Objective

Assessment of the various fetal congenital anomalies in pregnant women who presented with clinical features which point to possibility of fetal congenital anomaly, as well as cases detected accidentally. The clinical indications include: large for gestational age, absent fetal movement, abdominal discomfort, failure to palpate fetal head and previous fetal demise amongst others.

Materials and Methods

A retrospective review of obstetric scans done in four thousand four hundred and fifteen (4,415) women attending the Fetal Assessment Unit of the University of Ilorin Teaching Hospital, Ilorin,Nigeria over a period of five years from October 1997 to October 2002 was carried out.All cases of women with congenital fetal abnormality detected on ultrasound were included in this study. Simple percentages and averages were used for statistical purposes.

Results

The age range of patients was 22-37 (20 ± 4.0) years. Twenty- one (21) patients out of a total of 4,415 women scanned had fetuses with congenital anomalies, giving an incidence of 0.5%. These anomalies included: ten cases of hydrocephalus (47.6%), six cases of fetal hydrops (28.6%), two cases of anencephaly (9.5%), one case each of omphalocele, encephalocele and posterior urethral valve (4.8% each).

Conclusion

Fetal congenital anomalies are a known cause of obstetric fetal morbidity and mortality. Ultrasonography is a useful tool in the management of these cases and should be routinely done in all pregnancies in order to facilitate early diagnosis to ensure prompt and proper management.

Keywords: Fetal congenital anomalies, ultrasonography.

INTRODUCTION

Fetal congenital anomaly is an important obstetric problem in our environment because of social stigma for severe forms of congenital malformations like anencephaly and hydrocephaly. It is therefore important to have a prenatal diagnosis of these conditions to allow for proper counseling of the affected couple as well as peripartum anagement of the affected pregnancy.

MATERIALS AND METHODS

This is a retrospective study carried out to review ultrasound scan reports of 4,415 women attending fetal assessment Unit (FAU) of the University of Ilorin Teaching Hospital (UITH) over a five - year period between October 1997- October 2002. The incidence and type of the various types of fetal congenital anomalies seen during this period was analysed.

The scans were done using Siemens Sonoline SX (equipped with 3.5MHz sector transducer), Philips SonoDiagnost 2200 (equipped with 3.5MHz/5.0MHz linear transducer) and Dynamic Imaging Concept/ D (equipped with 3.5MHz/5.0MHz sector transducer) ultrasound machines.

RESULTS

The age range of patients was 22-37 years with a mean age of 20 ± 4.0years. Table I shows the age range distribution of patients with fetal congenital anomalies.

A total of twenty- one cases of fetal congenital anomalies and the distribution is as shown in Table II.

Figue I shows the bar chart distribution of the fetal congenital cases

DISCUSSION

Fetal congenital anomalies remain a common cause of perinatal morbidity and mortality. In a study done in Japan [1], percentage of children born with fetal congenital anomaly was approximately 0.45%, this compares favourably with the incidence in this enviroment which was found to be 0.5%. A similar study done in the Republic of Congo showed that out of the eight thousand eight hundred and twenty-four (8824) babies delivered, thirty six (0.41%) had clinically diagnosed congenital malformations [2].

Various congenital anomalies were encountered during the study period. These include: hydrocephalus, fetal hydrops, anencephaly, omphalocele, encephalocele and posterior urethral valve. Ultrasound has been found to be a very useful tool in the prenatal diagnosis of fetal congenital anomalies and has influenced the management of such cases tremendously.

The commonest fetal congenital anomaly seen was hydrocephalus (47.6%). Hydrocephalus is a common, complex and multifactorial neurological disorder that is characterized by abnormalities in the flow or resorption of cerebrospinal fluid (CSF), resulting in ventricular dilatation. Neonatal survival is less than 30% [3] . Hydrocephalus, spina bifida, and anencephaly were the most common lesions observed in the craniospinal axis in a postmortem series at Ibadan [4]. The gestational age range at diagnosis of the cases of hydrocephalus was 19 weeks to term. A case of co-existing spinal bifida and hydrops fetalis was found while another, associated only with fetal hydrops (non-alive) was also seen.

Fetal hydrops, the second commonest fetal congenital anomaly encountered in the study is a condition with a high mortality rate. The aetiologies of fetal hydrops has been categorized into immune and non- immune. The commonest immunne cause is Rhesus incompatibility. Amongst the causes of non-immune fetal hydrops are, cardiovascular anomalies, hematological disorder, congenital infection, twin-to twin transfusion, chromosomal anomalies, multiple anomalies, neoplasm and idiopathic.

Hydrops fetalis was diagnosed according to the criteria suggested by Mahoney et al [5] by observing the presence of generalised skin thickening of greater than 5mm and at least two of the following conditions: ascites, pleural effusion, pericardial effusion, or

placental enlargement. The gestational age range at diagnosis for fetal hydrops was 19 weeks to 34 weeks. A case of twin gestation, in which one of the fetus was hydropic and non-alive, suggested a possible twin-twin transfusion as the likely aetiology. Hydrops fetalis in association with spina bifida and hydrocephalus was also seen in a case. The overall mortality rate of liveborn babies with hydrops fetalis was 95% in a study by carried out by Chieh- An et al [6].

Anencephaly, arises from failure of closure of the neural tube at its cephalic end between the second and third weeks of development which results in an absence of the cerebral hemispheres but relative preservation of the brainstem and portions of the midbrain; is the commonest anomaly affecting the central nervous system [7] . It was however seen in only two of the cases in the present study. Anencephaly, together with spinal bifida occur in 1 in 1000 pregnancies in the United States [8] and an estimated 300,000 or more newborns worldwide [9] . The gestational age range at diagnosis was 29weeks to 30.5weeks.

Omphalocoele is a ventral wall defect characterised by herniation of the intraabdominal contents into the base of the umbilical cord, with a covering amnioperitoneal membrane. One (4.8%) case was seen at 34weeks gestational age in this study. Omphalocele occurs in 1/5000 pregnancies. In a retrospective study done over a ten year period in Jos [10], fourty-two (42) neonates with omphalocele were documented.

Encephalocele is the herniation of brain tissue through a defect in the cranium. One case (4.8%) was diagnosed at a gestational age of 39 weeks in the current study. The commonest type of encephalocele is the posterior one, which is the type seen in this study. Other types are anterior, temporal and parietal rarely. In a series of one hundred and three(103) cases of anterior encephalocele reviewed over a thirty -two year period in India [11], the frontoethmoidal site was found to be the commonest with a percentage of 80%.

The commonest cause of lower urinary tract obstruction in the male child is a posterior urethral valve (PUV) [12] with an incidence of 1:5000-8000 [13]. One case (4.8%) was seen during the period of study at a gestational age of 27weeks. Some of the pointers to PUV during an antenatal scan are reduced amniotic volume, bilateral fetal hydronephrosis and incomplete emptying of a thick walled bladder in a male fetus.

CONCLUSION

Sonography has proved of great benefit in the diagnosis and management of fetal structural anomalies. Active intervention for some of these anomalies may be guided by real-time sonography. It is important that all pregnant women should have routine antenatal scan to detect early, any fetal congenital anomalies so that prompt and planned prenatal and neonatal management can be carried out.

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Table I: Age distribution of patients with fetal congenital anomalies.

Age Range (Yrs)	No of cases	Percentage (%)
21 - 25	3	14.3
26 - 30	10	47.6
31 - 35	7	33.3
36 - 40	1	4.8
Total	21	100

Table II: Types of fetal congenital anomalies

Anomaly	No of cases	Percentage (%)
Hydrocephalus	10	47.6
Fetal Hydrops	6	28.6
Anencephaly	2	9.5
Omphalocele	1	4.8
Encephalocele	1	4.8
Posterior Urethral valve	1	4.8
Total	21	100

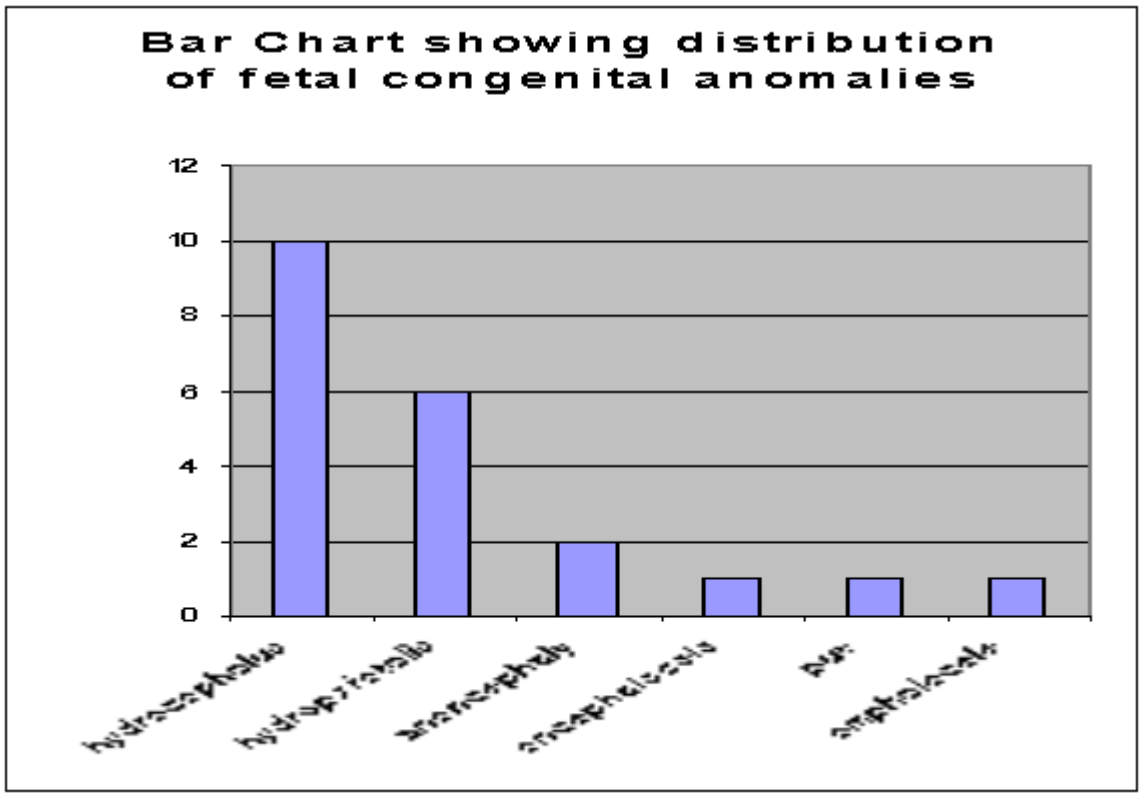

Fig. I: Bar chart showing distribution of fetal congenital anomalies.