

**STUDY OF CONGENITAL ANOMALIES OF FETUS AND ITS OUTCOME IN A
TERTIARY HOSPITAL IN BANGLADESH**Dr. Ayinur Nahar Hamid*¹ and Dr. Tasrina Akhter²¹Assistant Professor, Department of Obstetrics & Gynaecology, Chittagong Medical College, Chittagong, Bangladesh.
²MS Student.***Corresponding Author: Dr. Ayinur Nahar Hamid**

Assistant Professor, Department of Obstetrics & Gynaecology, Chittagong Medical College, Chittagong, Bangladesh.

Article Received on 12/01/2021

Article Revised on 02/02/2021

Article Accepted on 22/02/2021

ABSTRACT

Background: Congenital anomalies of fetus are responsible for a remarkable portion of mortality and morbidity in newborns. There is no regional data regarding the incidence & pattern of CA in Chittagong or Bangladesh. So pregnant women with CA admitted in obstetrics department of this Chittagong Medical College Hospital was studied to determine their socio demographic status, pattern of congenital anomalies, maternal complication, mode of termination and risk factors associated with CA of fetus. **Methodology:** It is a prospective hospital based study of 50 patients who delivered or aborted congenital anomalous baby in labour ward of Chittagong Medical College from a period of January 2019 to December 2019. Data was collected in a preset questionnaire and was analysed and presented in tables. **Results:** Most of women (86%) were of age group 16 to 30 year. 25(50%) women were from rural area, 25(50%) from urban area. 30 women (60%) were of low socio economic status, 20(40%) were of middle socio economic status. 38(76%) women had education below SSC. Majority (62%) of patients were unbooked and 74% were multipara. Most (76%) of CA were diagnosed at 26 to 30 wk of gestation or later on by USG(92%). Number of CA is single in 38(76%) cases and multiple in 12 (24%) cases. Most common involvement is CNS(64%) among which anencephaly is the highest followed by hydrocephalus. Most of the patients delivered vaginally (74%), only 26% women underwent Caesarean Section. Most of the deliveries occur within 24 hr of starting induction. Maternal complications are polyhydromnios, oligohydromnios, malpresentation, antepartum haemorrhage, prolong labour, postpartum haemorrhage. Babies born with congenital anomalies are mostly low birth weight (64%) and female (52%). Among risk factors of congenital anomalies, most common is fever in 1st trimester, drug ingestion in first trimester, Diabetes Mellitus. **Conclusion:** Early antenatal diagnosis of CA of fetus is necessary for effective intervention or safe termination of pregnancy.

KEYWORDS: Congenital anomaly, polyhydromnios, haemorrhage, oligohydromnios.**INTRODUCTION**

Congenital anomalies of fetus, as defined by WHO, are the structural, functional or metabolic abnormalities present at the time of birth.^[1] It is responsible for a remarkable portion of mortality and morbidity in newborns. According to statement of WHO, congenital anomaly estimated to affect 1 in 33 infants, resulting in about 3.2 million birth defect related disabilities and 0.27 million neonatal death within 28 days of life every year.^[2] Although worldwide incidence of birth defect is estimated to be 3 to 7%, the rate varies widely between countries.^[3] It is 1.07% in Japan, 1.49% in South Africa, 2% in England, 2 to 3% in USA.^[3] WHO reported the prevalence of birth defect in South East Asian region ranges between 54.1 to 64.3 per 1000 live birth & in Bangladesh it is about 58.6 per 1000 live birth.^[2] Exact number of congenital anomaly in Bangladesh is yet unknown.

There is no regional data of Chittagong regarding the incidence & pattern of CA. Some of the known risk factors of CA (Consanguinity, ignorance & inadequate antenatal care, infection during pregnancy) are highly prevalent in this region.

Chittagong Medical College is a tertiary medical college hospital receiving patients from metropolitan areas, nearby Upazillas and districts including Chittagong Hill tracts, Feni, Noakhali & Cox'sbazar with a population of about 16 million.^[4] So pregnant women with CA admitted in obstetrics department of this hospital is the target population of my study. Their demographic & socio-economic status, pattern of congenital anomalies, gestational age of diagnosis of CA are attempted to bring out.

Some CA are lethal and some are compatible with life, some involve single or multiple organs. Sometimes CA

are diagnosed at birth or a few days after birth, though most of CA can be diagnosed antenatally by high resolution USG and prenatal genetic testing. When a woman comes to know that the fetus she is carrying has CA, she and her family become worried about the prognosis, mode of delivery and viability of the fetus. To console and counsel her and to determine the optimum timing & mode of her delivery is the responsibility of an obstetrician. So CA is a matter of concern for parents, obstetrician and neonatologist. Mother may also develop complications due to CA of fetus, on the other hand fetus may have CA due to maternal or paternal factor, even environmental factor. To determine such maternal complication, mode of termination and risk factors associated with CA is also the aim of the study.

METHODOLOGY

It is a prospective hospital-based study of patients who delivered or aborted congenital anomalous baby in labour ward of Chittagong Medical College from a period of January 2019 to December 2019. A total of 50 patients were included in the study. Relevant information regarding maternal age, parity, gestational age, birth weight & sex of the fetus was documented.

Significant antenatal history like maternal illness, infection, ingestion of drugs, exposure to radiation and H/O recurrent congenital anomaly was recorded. Mode of delivery, H/O recurrent congenital anomaly and maternal complication during pregnancy, labour and postpartum period was noted. All data were recorded in a preformed data sheet. Whether congenital anomaly was diagnosed at birth or before birth by ultrasonography was also noted. Data was collected by researcher herself or by trainee. All data were analysed and presented in tables. Any association between risk factor and congenital anomaly of fetus is analysed by appropriate tests.

RESULTS AND OBSERVATION

Total 17512 deliveries occurred in labour ward of Chittagong Medical College Hospital in this period of January 2019 to December 2019. Of them, 157 women had fetus with congenital anomalies which is 0.896% of total deliveries. Of them, 50 consecutive women were studied with a pretested questionnaire.

Age distribution of this population shows 86% women below 30 year, only 14% is 31 to 40 year.

Table 1: Age distribution of this population.

Age group(yrs)	No of pt	Percentage
16=20	11	22%
21=25	17	34%
26=30	15	30%
31=35	4	8%
36=40	3	6%

Table 2: Demographic status of the women.

Locality	No. of pt.	percentage
Rural	25	50
Urban	25	50
Socio economic status		
Low	30	60
Middle	20	40
Education level		
Illeterate	3	6
Primary	9	18
Secondary	26	52
Higher secondary	8	16
Graduate	4	8

Table 3: Obstetric parameter.

Booking	No of cases	percentage
Booked	19	38
Unbooked	31	62
Parity		
Primi	18	36
Multi	32	64
Order of pregnancy		
3 or below	38	76
4 or above	12	24

Table 4: Assessment of gestational age.

Gestational age	At Diagnosis	At admission
<16 wk	2	3
16 to 20 wk	3	1
21 to 25 wk	5	10
26 to 30 wk	14	5
31 to 35 wk	12	14
36 to 40 wk	12	2
After birth	2	2

Table 5: Fetal facts.

No of congenital anomaly	Cases	%
Single	38	76
Multiple	12	24
Involvement of fetal system		
CNS	32	64
SKELETAL SYSTEM	13	26
GIT	6	12
GENITO URINARY SYSTEM	9	18
MUSCULAR SYSTEM	1	2
CVS	1	2
OTHERS	3	6

Table 6: Fetal Facts.

SEX	Cases	%
MALE	21	42
FEMALE	26	52
Not determined	3	6
Birth weight		
<1 kg	12	24
< 2.5 kg	24	48
>2.5 g	14	28

Table 7: Nature of congenital anomalies.

CNS	Cases	%
Anencephaly	17	34
Hydrocephalus	8	16
Meningocele	4	8
Occipital encephalocele	1	2
Meningomyelocele	1	2
Foetal ICSOL in right parietal lobe	1	2
Skeletal system		
Achondroplasia	3	6
Club foot	2	4
Foetal head deformity	1	2
Phocomelia	1	2
Multiple congenital arthrosis	1	2
Diaphragmatic hernia	1	2
Gastrointestinal system		
Cleft lip/cleft palate	3	6
Omphalocele	1	2
Esophageal atresia	1	2
Hirschsprung's disease	1	2
Fetal ascites	1	2
Genito Urinary system		
Gross hydronephrosis	4	8
Bladder Outlet obstruction	1	2

Hydrops Fetalis with agenesis of left kidney	1	2
CVS		
VSD	1	2

Table 8: Mode of delivery & Induction delivery interval.

Mode of delivery	Cases	%
Abortion	13	26
Preterm delivery	6	12
Vaginal delivery at term	22	44
Caesarean section	13	26
Medical induction	7	14
Induction delivery interval		
<24 hr	15	
24 to 48 hr	5	
2 to 3 days	4	
3 to 7 days	8	
7 to 14 days	2	
>14days	2	

Table 9: Maternal complication.

Cases	%
Polyhydromnios	12
Oligohydromnios	3
Prolong labour	3
Malpresentstion	2
Antepartum haemorrhage due to low lying placenta	1
PPH	1

Table 10: Risk factors identified.

Risk Factors	Number of Patients
Fever in 1st trimester	5
Drug intake in 1st trimester	3
Consanguineous marriage	2
Diabetes Mellitus	3
Hypertension	1
Hypothyroidism	1
F/H/O congenital anomaly	1
H/O recurrent congenital anomaly	1
No risk factor identified	33

DISCUSSION

The study aims to determine the pattern of congenital anomalies in a tertiary medical college of Bangladesh with a catchment area of about 16 million.^[4] Total 50 women admitted with congenital anomalies of fetus in obstetric department were included in this study.

Most of women (86%) were of age group 16 to 30 year indicating most of our women conceive in this age group. Incidence of CA is 14% in 30 to 40 yr age group. A study in Iraq showed mean age of women with CA is 28.5 yr.^[5] Kanhere AV et al in Bhopal, India showed maximum incidence CA in age group 20 to 29 yr, while the incidence is 26% in age > 30 yr.^[6]

Regarding demographic location, 25(50%) women were from rural area, 25(50%) from urban area. 30 women (60%) were of low socio-economic status, 20(40%) were

of middle socio economic status. 38(76%) women had education below SSC, 12(24%) were above SSC level. Ameen SK et al in Iraq and Kanhere et al India showed almost similar education level in their study.^[5] Though study by Kanhere showed 78% women from rural areas and 22% from urban area. It reflects the similar socio demographic picture of these three regions.^[5]

Regarding obstetric parameter, majority (62%) of patients were unbooked and 74% were multipara which is almost similar to Bhupal study by Kanhere. Unbooked cases indicate inadequate antenatal check up in this subcontinent which is due to substandard medical facilities, ignorance and neglected position of our women.

Most (76%) of CA were diagnosed at 26 to 30 wk of gestation or later on by USG (92%). Only 10% diagnosis

was < 20 wk gestation and 4% diagnosis was after birth. Anomaly scan by USG is still costly in our country and most our poor women can't afford it at 18 to 20 wk of pregnancy. The scenario is more grievous in Bhopal, India where prenatal diagnosis by USG is only 68%. If diagnosed earlier by quality USG, intrauterine surgery can be offered in developed country or safe termination of pregnancy can be planned.

Number of CA is single in 38(76%) cases and multiple in 12 (24%) cases. Ameen SK showed multiple CA in 34% cases in Iraq while Gupta S shows 12.5% multiple CA in Baroda, India.^[7] Most common involvement is CNS (64%) in our study which is 42% in study by Gupta S, 49% by Kanhere et al. Among CNS abnormality, anencephaly is the highest followed by hydrocephalus. Next common system involvement is skeletal system, then genitourinary and GIT system. CVS involvement is only in one case. As our study was done only upto birth of the baby and most congenital heart diseases were evident after 2- 4 month of age of the baby. Ahmed W. showed more congenital heart diseases (59%) in newborn followed by club foot, Down syndrome and hydrocephalus.^[3] Chromosomal defects were not identified in our study as most babies were born dead and genetic analysis was not done.

Most of the pregnancies with congenital anomalies were terminated with drugs. Usually Mifepristone (200 mg) 1 tab thrice daily were given 48 hr followed by tab misoprostol (200 microgram) according to gestational age. Most of the patients delivered vaginally (74%), only 26% women underwent Caesarean Section. Indication of C/S were undiagnosed fetal anomaly with unsatisfactory progress of labour, fetal distress, chorioamnionitis, prolong labour. Most of the deliveries (30%) occur within 24 hr of starting induction. Of them, minimum time is 2 hr, maximum is 21 days. No maternal complication occurs except PPH in one case and prolong labour in three cases. Antenatal complications are polyhydromnios (24%), oligohydromnios, malpresentation and antepartum haemorrhage. Polyhydromnios, oligohydromnios are also seen in study by Kanhere AV and Gupta S. Polyhydromnios is usually associated neural tube defect and oligohydromnios is associated with genito urinary tract abnormality.

The number of congenital anomalies is more in low birth weight (<2.5kg) babies (64%) and occurrence was more in female babies (52%) It is consistent with findings of Kanhere et al.

Among risk factors of congenital anomalies, most common is fever in 1st trimester, drug ingestion in first trimester, Diabetes Mellitus. Drugs ingested in 1st trimester were anti Parkinsonism drugs, hydrochloriquine, MMK it, antihypertensive drugs (Atenolol plus Amlodipine). Two cases has H/O consanguineous marriage, one has H/O congenital anomalies in family and one has recurrent congenital

anomaly in previous pregnancy (cleft lip/ cleft palate). Hypertension and hypothyroidism was identified in one case. No risk factor was identified in 33 cases.

Ameen SK et al in a study in Iraq showed a significant association between F/H/O congenital anomaly & H/O congenital anomaly in previous pregnancy with occurrence of new congenital anomaly. These may be due to genetic or chromosomal disorder which was not explored in our study. Consanguineous marriages also contribute to congenital anomaly of fetus by transmitting recessively inherited gene from parents to offspring.^[8] Gupta S observed some association of CA with maternal drug intake in 1st trimester and Diabetes.

In uncontrolled DM, raised blood sugar in 1st trimester causes oxidative stress to fetus and induces teratogenic changes.^[9] Some drugs are also teratogenic during organogenesis in 1st trimester. Fever in 1st trimester is often overlooked, given symptomatic treatment and not adequately investigated.^[10] Whether it is due to teratogenic virus or bacteria. So it should be evaluated well in 1st trimester. H/O smoking, alcohol, radiation are not identified in our perspective.

CONCLUSION

The study concluded that most of pregnant women with congenital anomalies admitted in this hospital are in age group below 30 (86%). Only 6% women fell in elderly primi group. (36 -40). Educational level is also below secondary level in majority of patient and 62% of them had no antenatal check up at all. So more emphasis should be given to improve education and awareness level of the women so that they can get adequate antenatal check up, folic acid supplements in pregnancy and early pregnancy period. So if lethal congenital anomalies are diagnosed early in antenatal period, pregnancy can be terminated safely with drugs. Prenatal genetic testing may be offered to parents with H/O congenital anomalies in family or in previous pregnancy. Consanguineous marriage should be discouraged which is quite common in this region. Further studies in large scale may be done to eliminate risk factors and reduce the incidence of congenital anomalies.

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