

Tracking Birth Defects in a Tertiary Hospital of Bangladesh

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Congenital malformation includes anatomical defects as well as molecular and cellular abnormalities present at birth. The most common congenital malformations are of central nervous system. Anencephaly and spina bifida comprise 95 percent of neural tube defect, A descriptive cross-sectional study was conducted at obstetrics and Gynaecology department of Mymensingh Medical college Hospital, Mymensingh among purposively selected 13 newborns with birth defects to find out the risk factors for the condition. Data were collected by using form through interview of mothers having baby with gross birth defect. Collected data were administered in a master sheet for analysis by using scientific calculator. Maximum 6 (46.15%) mothers were within age group of 25 to 29 years, while highest 8 (61.53%) fathers were within age group of 30 to 34 years. As many as 11 (84.62%) mothers had the habit of using chewable tobacco, while only 2 (15.38%) fathers were smokers. Only one mother had history of consanguineous marriage and infection during pregnancy. As many as 6 (46.15%) newborns had gestational age less than 28 weeks. At least 7 (53.85%) babies were with low birth weight. It was revealed that 5 (38.46%) newborns apiece had cleft palate with cleft lip and anencephaly, while 1 (7.69%) each had cleft lip, osteogenesis imperfecta with left club foot with bifid tongue and arthrogyriposis with multiplex congenita with club foot with meningomyelocele. Of thirteen, 10 (76.92%) newborns had single birth defects, while 3 (23.08%) were with multiple birth defects. The male-female ratio was 2.1:1. Of 13, only 1 (7.69%) newborn died due to birth defect. Birth defects are common among women with poor socioeconomic status, preterm babies, babies with low birth weight, higher birth order and in male babies. Moreover, consanguineous marriage, infection during pregnancy contributes to the occurrence of birth defect.

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Introduction

Congenital disorder defined as diseases those are substantially determined before or during birth, and in principle are recognizable in early life.¹ Congenital

anomaly includes all biochemical, structural and functional disorders present at birth,² whereas congenital malformation includes only the structural defects at birth.¹ Cleft lip is

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the malformation that is obvious at birth, whereas congenital dislocation of hip is obvious in early life.¹ The most common congenital malformations are of central nervous system like spina bifida and cardiovascular system like patent ductus arteriosus.¹ Cardiovascular malformations are most common in live-births, followed by musculoskeletal and genitourinary. Besides, it may affect musculo-skeletal system like club foot.¹ Defects in the central nervous system account for about fifty percent of malformations. Anencephaly and spina bifida comprise 95 percent of neural tube defect, and the remaining five percent is encephalocele.⁴ The incidence of significant congenital malformation is nearly 2 to 5 percent at birth, while the incidence of anencephaly is nearly 1 in 1000 births. However, report from hospital statistics in India the incidence is lower, one in 500.⁴ Major foetal abnormalities account for twenty percent perinatal deaths,^{4,5} and many survivors are physically and/or mentally handicapped.⁴ Congenital malformations are multifactorial in origin that includes chromosomal disorders like Down's syndrome, Klinefelter's syndrome and Turner's syndrome; sex-linked disorders like Haemophilia; environmental factors and some other indeterminate factors. Environmental factors include nutrition like folic acid deficiency, occupational hazards like chemicals and radiation, exposure to teratogens and infections with rubella and cytomegalovirus.^{1,4,5} Moreover, factors like prematurity, low birth weight, birth order four or more, positive family history, multiple pregnancies, pregnancy following infertility treatment, consanguineous marriage, liquor abnormalities and maternal age more than 35 years were found to carry higher risk for congenital malformations.^{1,3-6} Congenital malformation were significantly high in still born babies as compared to live born babies.⁶ Bangladesh is among the countries with high

rate of birth defects. Several risk factors related to birth defects are widely prevalent in our country. Tertiary level hospitals have the highest number of deliveries. Consequently, the incidence of birth defect will therefore be high. The study was conducted to explore the current status and to identify the risk factors related to the condition.

Methods

A descriptive, cross-sectional study was conducted at department of Gynecology and Obstetrics, Mymensingh Medical College Hospital, Mymensingh for a duration of six month from December 2015 to May 2016 among purposively selected thirteen women who delivered babies with birth defects. Case record form finalized after pretesting was the research instrument, whereas interview was the method for data collection. Data were collected by the 4th year MBBS students batch M-50, Mymensingh Medical College, Mymensingh. Before embarking on, the students were adequately oriented regarding the study procedure including seeking permission from the respondents, use of form and method of data collection. Collected data were checked by the teachers of Department of Community Medicine, Mymensingh Medical College, Mymensingh for completeness, consistency and relevancy. Edited data were entered into master sheet. Frequency distribution tables were prepared from master sheet with the use of scientific calculator.

Results

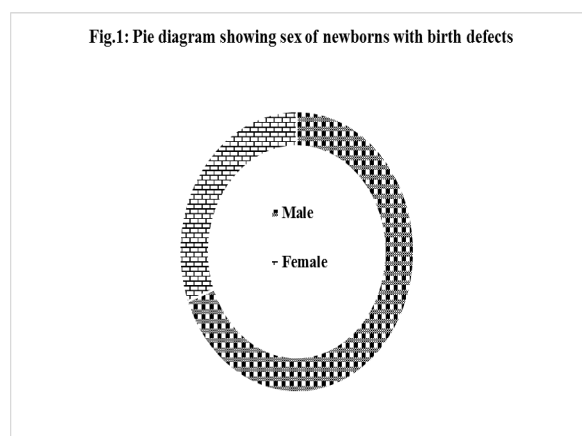
A descriptive, cross sectional study was conducted among 13 mothers with gross birth defect babies in Gynecology and Obstetrics Department, Mymensingh Medical College Hospital; Mymensingh for tracking gross birth defect with a view to reveal the risk factors related to the condition. Out of 13 mothers having gross birth defect babies, maximum 6 (46.15%) were in age group of 25

to 29 years, while 4 (30.77%) in age group of 20 to 24 years, 2 (15.39%) in age group of 30 to 34 years, and 1 (7.69%) was in age group of 15 to 19 years. Out of 13 fathers, 8 (61.55%) were in age group 30 to 34 years, 3 (23.07%) in age group 35 to 39 years, 1 (7.69%) apiece was in age group of 25 to 29 years and 40 to 44 years. As many as 6 (46.16%) parents of newborns with gross birth defects had their residence in rural areas, whereas 5 (38.46%) in suburban area and 2 (15.38%) in urban area. At least 5 (38.46%) mothers of newborns with birth defects had primary education, while 4 (30.77%) passed SSC, 3 (23.08%) were illiterate and 1 (7.69%) obtained masters degree. Out of 13 Mothers, 11 (84.62%) were housewives, while 1 (7.69%) each was student and shopkeeper. Out of 13 parents, 9 (69.23%) had monthly family 10000 to 20000 taka, while 3 (23.08%) had less than 10,000 taka and 1 (7.69%) had monthly family income over 20000 taka. Out of 13 mothers, 9 (69.23%) conceived for 1 to 3 times, while 4 (30.77%) for 4 to 6 times. Among 13 mothers with gross birth defect newborns, 11 (84.62%) mothers had parity less than 2, while 2 (15.38) mothers had parity 3 to 5. It was observed that of 13 babies, 9 (69.23%) were male, while 4 (30.77%) babies were female (**Fig. 1**). Of 13 mothers, 9 (69.23%) had history of abortion, while 4 (30.77%) did not have such history. Out of 13 mothers, 11 (84.62%) mother had the habit of using chewable tobacco, while 2 (15.38%) mothers had no history taking it. Out of 13 fathers, majority 11 (84.62%) were nonsmokers, while 2 (15.38%) were smokers. All mothers were nonsmokers, and were free from Thyroid diseases and Diabetes mellitus. Moreover, they had no history of radiation exposure during pregnancy, taking relevant drug in first trimester and birth defect in her family. Among 13 mothers with gross birth defect babies, only 1 (7.69%) mother had history of consanguineous massiage and infection during pregnancy. All the mothers

with gross birth defect babies were muslim. As many as 7 (53.85%) babies with gross birth defect had gestational age 38 weeks or more, whereas 6 (46.15%) had less than 37 weeks. Out of 13, at least 7 (53.85%) babies had birth weight less than 2.5 kg, while 6 (46.15%) babies had birth weight equal to and more than 2.5 kg. It was revealed that 5 (38.46%) newborns apiece had cleft palate with cleft lip and anencephaly, while 1 (7.69%) each had cleft lip, osteogenesis imperfecta with left club foot with bifid tongue and arthrogyriposis with multiplex congenita with club foot with meningomyelocele (Table I). Of thirteen, 10 (76.92%) newborns had single birth defects, while 3 (23.08%) newborns were with multiple birth defects. The male-female ratio was 2.1:1. Of 13, only 1 (7.69%) newborns died due to birth defects.

Table I: Newborns with types of birth defects

Birth Defect Categories	Frequency	Percentage
Cleft palate with cleft lip	5	38.46
Anencephaly	5	38.47
Cleft lips	1	7.69
Osteogenesis imperfecta with left club foot with birfid tongue	1	7.69
Arthrogyriposis with multiplex congenita with club foot with meningomyelocele	1	7.69
Total	13	100.00



Discussion

This descriptive cross-sectional study was carried out in the department of Obstetrics and Gynaecology department in Mymensingh Medical College Hospital, Mymensingh from December 2015 to May 2016. Out of 13 mothers of newborns with birth defects, 3 (23.08%) mothers were illiterate and 5 (38.46%) had primary education. As many as 11 (84.62%) were housewives and 1 (7.69%) each was student and shopkeeper. An overwhelming majority 11 (84.62%) parents of newborns with gross birth defects had their residence in rural areas, whereas 5 (38.46%) in suburban area. At least 12 (92.31%) women had monthly family less than taka 20000 taka. These findings have been vindicated by the findings that congenital malformation is common in lower socio-economic group.⁴ Out of 13 mothers, 4 (30.77%) mothers conceived for 4 to 6 times, and 2 (15.38) women had parity 3 to 5. Of 13 babies, 9 (69.23%) were male, while 4 (30.77%) babies were female. This has more or less similarity with the findings that observed 59 (52.21%) male and 54 (47.79%) female among 113 malformed babies. However, no sex predilection in congenital malformation was observed.⁵ As many as 6 (46.15%) babies had gestational age less than 37 weeks, and 7 (53.85%) babies had birth weight less than 2.5 kg. This is much higher than findings observed by Projapoti VJ et al.,⁶ 2009 that frequency of congenital malformation in preterm babies was 9.04 percent and it is highest in low birth weight babies. These might be due to small sample size and nonrandom sampling technique adopted for the study. This findings is in line with the findings of study conducted by Projapoti VJ et al., 2009.⁶ Only 1 (7.79%) parents had history of consanguineous marriage and one mother had history of infection during pregnancy. This has concurrence with the fact that maternal Infection and consanguineous marriage are identified risk factors for congenital malformation.¹ At least 5 (38.46%) newborns apiece had cleft palate with cleft lip and anencephaly, while 1 (7.69%) each had cleft lip, osteogenesis imperfecta with left club foot with bifid tongue and arthrogryposis with multiplex congenita with club foot with meningomyelocele. This is supported by observation made by Dutta that anencephaly and spina bifida comprise 95 percent of neonatal

deaths,⁴ while Projapoti VJ et al., 2009 revealed that Musculoskeletal system was most commonly affected.⁶

Conclusion

It can be concluded that birth defects are common among mothers with poor socioeconomic status, preterm babies, babies with low birth weight and in male babies. Moreover, consanguineous marriage, infection during pregnancy contributes to the occurrence of birth defect.

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