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Original Research Paper

Nursing

THE OCCURRENCE OF INTRA UTERINE GROWTH RETARDATION AND ITS CONTRIBUTING FACTORS AMONG ANTENATAL MOTHERS ATTENDING MATERNITY UNITS OF HOSPITAL, WEST BENGAL,INDIA.

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ABSTRACT

A descriptive study to assess the occurrence of Intra Uterine Growth Retardation (IUGR) and its contributing factors among antenatal mothers attending maternity units of BSMC&H, Bankura was undertaken with the objectives to identify the occurrence of IUGR, to find out the contributing factors related to IUGR ,to find out the association between the occurrence of IUGR and selected factors. The conceptual framework of the study was based on fishbone model of Dr. Kaoru Ishikawa, a Japanese quality control expert. Survey research design was used to conduct the proposed study on 106 antenatal mothers in third trimester (≥35weeks) of gestation admitted the antenatal ward selected by non-probability convenience sampling. A valid and reliable semi structured interview schedule was used for collection of demographic data and record analysis proforma of USG report and birth weight were used to detect IUGR. Interview schedule and record analysis proforma were used to find out the contributing factors related to IUGR. Analysis of final data revealed that 16% of mothers had IUGR fetus. Significant association was found between IUGR fetus and mothers' age, socio economic status, family type and consumption of tobacco identified by chi square tests of association.

KEYWORDS : Intra Uterine Growth Retardation(iugr), Gestation, Contributing Factor.

BACKGROUND OF THE STUDY

The birth of a baby is a significant life event influenced by cultural norms and expectations.[1] Intra uterine growth retardation is defined by the American College Of Obstetrics and Gynecology [ACOG] as weight for gestational age less than tenth percentile in a fetus and whose abdominal circumference are below the 2.5th percentile. Intra uterine growth restriction is a global issue and an important public health problem which is associated with increased neonatal mortality &morbidity. In accurately dated pregnancies, approximately 80-85% of foetuses identified as being IUGR are constitutionally small but healthy, 10-15% is 'true' IUGR cases, and the remaining 5-10% of foetuses are affected by chromosomal/structural anomalies or chronic intrauterine infections. The causes of fetal growth restriction .can be divided into four groups- maternal, fetal, placental, and unknown. Maternal causes are small women, maternal genetic and racial background, maternal nutrition, diseases associated with pregnancy and any chronic diseases, diabetes, hypertension, exposure to any toxins and drugs. Fetal causes include anomalies, viral and parasite infections and multiple gestation and placental causes are placental insufficiency and placental anomalies. However cause remains unknown in about 40% case[2] Timely diagnosis and management is very important in preventing perinatal mortality and morbidity related to intrauterine growth retardation. The clinical methods to diagnose intrauterine growth retardation include the palpation of the uterus for fundal height, liquor volume, fetal mass, and estimation of predictors such as falling or static weight of the mother in the second half of pregnancy and fall or static abdominal girth. Ultra sonography is very useful to diagnose growth retardation. Doppler velocimetry and biochemical markers have also been used to assist the diagnosis.[3]The incidence of IUGR is six times higher in underdeveloped/developing countries when compared to that of developed countries, and this incidence can be further high in lower and middle income countries, as many infants are born in home with no birth records. [4] Intrauterine growth retardation is observed in about 24% of newborns; approximately 30 million infants suffer from growth retardation every year. In India, the proportion of intrauterine growth retardation has been found to be 54%, whereas in China it is 9.4%. National Neonatal Perinatal Database of India reported the incidence of IUGR to be 9.65% among hospital born live birth infants[6]. The high incidence of IUGR in developing countries is mostly because of social reasons such as gender discrimination (it leads to poor nutritional supplement to the female gender when compared to the male gender, leading to poor health and malnutrition of female that in-turn leads to IUGR fetus) and does not appear to reduce with interventions that are targeted toward the pregnant women. Adolescent and pre-pregnancy nutrition, pre- pregnancy weights, poverty, and inter-pregnancy interval are the crucial determinants of fetal growth in low and middle income societies. Social intervention such as taking care of female nutrition enrichment, marriage after 18 years of a girl, delaying of age at first pregnancy, preventing female gender violence, and treating chronic disease and pregnancy-induced disorders will help to have a positive effect on reducing the incidence of IUGR in developing countries. However, some evidence-based interventions have shown to reduce the incidence of IUGR. The evidence-based interventions include balanced energy protein supplem enta tion, intermittent preventive treatment of malaria in pregna ncy, multiplemicronutrient supplementation, and smoking cessation. Unfortunately, in spite of these initiatives, the overall outcome of these IUGR has not changed much over time.In this regard researcher felt to give focus on the particular problem of the society. The present study will give effort to assess the occurrence of IUGR

OBJECTIVES

- To identify the occurrence of Intra Uterine Growth Retardation (IUGR).
- To find out the contributing factors related to Intra Uterine Growth Retardation (IUGR).
- To find out the association between the occurrence of Intra Uterine Growth Retardation (IUGR) and selected factors.

METHODOLOGY

This cross sectional descriptive quantitative study consisted of total one hundred six antenatal mother(gestational age ≥ 35 weeks) selected from the antenatal inpatient departments of Bankura Sammiloni Medical College and hospital, Bank ura, in West Bengal, India. Main variables were occurrence of IUGR, contributing factors of IUGR including gestational age, maternal Hb%, pregnancy induced hypertension and maternal systemic illness. In addition, we studied some background variables including the age of mother, gravida, type of family, history of consumption of tobacco, education

and occupation of husband, monthly family income, socio-economic status. The samples were selected by non-probability convenience sampling technique.Inclusion criteria were the antenatal mothers in their third trimester (gestational age ≥ 35 weeks) of pregnancy, willing to participate in the study, able to communicate in Bengali. Exclusion criteria were the antenatal mothers having twin pregnancy and bad obstetrical history. The Ethical committee approved the study. Self-introduction was given and rapport building was established with the subjects and health team members of the hospital An informed consent was obtained from the participants after explaining purpose of the study. At first the interview schedule was administered to collect background data of the mothers. Data related to contributing factors of IUGR were recorded from the Mother Child Protection (MCP) card. Then the mothers were taken to radiology department with their family members. Each and every mother had undergone ultra-sonography. Bio physical measurement of foetus has been recorded at the time of ultra-sonography. measurements were Femur Length, Abdominal Circumference, and Head Circumference. Each mother took approximately 20 minutes. Confidentiality was assured. The results were analysed.

These the Diagnoses of IUGR was based on Criteria for detection of IUGR are presented in

Table .1 Criteria for detection of IUGR

Gestational weeks	< 5 th percentile of AC	Birth weight < 10th percentile	HC/AC ratio
35 weeks	27.9 cm	1815 gm	>1
36 weeks	28.7 cm	1961 gm	>1
37 weeks	29.6 cm	2103 gm	>1
38 weeks	30.6 cm	2240 gm	>1
39 weeks	31.6 cm	2368 gm	>1
40 weeks	32.7 cm	2487 gm	>1

SOURCE: National Neonatal-Perinatal Database (NNPD), The World Health Organization fetal growth charts.

RESULTS:

Section I Findings related to the demographic characteristics of the pregnant mothers. 79 antenatal women (74.5 %) belon ged to the age group of 17-22years.It revealed that 78 (73.6%) mothers were primi gravida. Socio-economic status of majority (69.8 %) mothers was Upper lower (IV) category. It also depicts that 85 (80.1 %) of the mothers had no history of tobacco consumption.

Section II Findings related to Occurrence of Intra Uterine Growth Retardation (IUGR).It revealed that17 foetus (16 %) had IUGR.

Section III Findings related to the contributing factors related to IUGR.

Table.2 Frequency and percentage distribution of mothers according to the selected contributing factors of IUGR.

n = 106

Variables	Frequency	Percentage
Gestational age		
35 -37 weeks	29	27.35
38-40 weeks	77	72.65
Haemoglobin percentage		
≤10gm%	44	41.5
>10gm%	62	58.5
Hypertension		
Yes	03	2.84
No	103	97.16
History of systemic illness		
Yes	1	0.95
No	105	99.05

Data presented in the table 2 showed that the gestational age of majority (72.65 %) of mot hers ranged between 38 - 40 weeks. Data also depicted that the hemoglobin level of nearly half of the mothers (58.5%) was >10 gm%. Almost all the mothers (97.16 %) were not sufferingfrom hypertension and had no systemic illness (heart disease) (99.05 %).

SECTION IV:

Findings related to association between the occurrence of Intra Uterine Growth Retardation (IUGR) and selected factors.

- Statistically significant association was found between occurrence of IUGR and age of mothers, family type, and socio economic status of mother's family consumption of tobacco by mother.
- No statistically significant association was found between occurrence of IUGR and gravida of mothers, Hemoglobin level of mothers.

DISCUSSION

This survey research study was conducted to investigate about the occurrence of Intra Uterine Growth Retardation (IUGR) and its contributing factors among antenatal mothers.The present study is supported by a case control study conducted by Vijoyanath et al to assess the maternal determinants of intrauterine growth retardation in rural community. In this study under reference the association between IUGR and maternal risk factors such as mother's age, hemoglobin level, socio economic status of the mothers was identified.[5]The present study is supported by the prospective study conducted by Haridas Govinda Warrier1, K M Ashokan, et al to assess the Fetal Biometry in Late 3rd trimester for Gestational Age Indian Standards.[6] In this study the researcher identified Ultrasound (USG) study in antenatal patients is a very valuable tool especially when it comes to estimation of gestational age. Fetal weight is mainly reflected by the AC (Abdominal circumference).In the present study also the researcher took the help of ultrasonography only to find out IUGR and abdominal circumference was used as the criteria for detecting IUGR. The present study is supported by a retrospective study conducted by Nihal Riyami, MD et al, Department of Obstetrics and Gynecology, Division of Maternal Fetal Medicine, Mount Sinai Hospital, University of Toronto. to assess the Utility of Head/Abdomen Circumference Ratio in the Evaluation of Severe Early-Onset of Intrauterine Growth Restriction. Ultrasound images were reviewed for fetal biometry, amniotic fluid volume, and uterine and umbilical Doppler flow studies within seven days of delivery, and the frequency of head circumference/abdominal circumference ratio ≥ 95th percentile for gestation was determined. Sixty-two of 107 pregnancies (58%) with early-onset IUGR had an elevated HC/AC ratio (≥ 95th percentile), which was more than 10-fold greater than the expected proportion ($P < 0.001$). This is in contrast to the current belief that asymmetric IUGR is confined to third trimester IUGR.[7]In the present study also the researcher used the HC/AC ratio as a valuable tool for detection of asymmetric IUGR in third trimester.

CONCLUSION & RECOMMENDATIONS:

In 3rd trimester of pregnancy ultra-sonography findings were effective in detection IUGR. It was concluded undoubtedly that the detection of IUGR can help to reduce the maternal and neonatal mortality rate. Timely diagnosis and management is very important in preventing perinatal mortality and morbidity related to intrauterine growth retardation.

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