Risk Factors CausingIntrauterine Growth Retardation in Basrah.

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Summary

A case control study involving five hundred women who were admitted to Basrah Maternity and Children Hospital for the purpose of delivery and they were divided into two groups, two hundred fifty term size babies with birth weight below tenth percentile of gestational age and two hundred fifty control term size babies of normal birth weight were born during the same period from the first of January till the eighteenth of September 1998. The objective of this study is to determine the factors causing intrauterine growth retardation in Basrah.A higher incidence of previous abortion and intrauterine growth retardation (IUGR) were found among the cases (mothers carrying IUGR babies and that anaemia, hypertension, preeclampsia (PE) and antepartum haemorrhage (APH) were the common complications occurs in mother with IUGR babies.It was found that younger mother and shorter one gives birth to lighter babies than older one and IUGR was common among primigravidia mother.The majority of cases of IUGR in Basrah were found among the low socioeconomic class and being illiterate.

Introduction

The intrauterine growth retardation (IUGR) is defined as birth weight less than the 10th percentile for gestational age for infants born in the community concerned[1].

IUGR is associated with significant perinatal morbidity and mortality and long term morbidity, so its effects are relevant not only to obstetricians and neonatologist but also to paediatricians.

These children are at risk of impaired growth, impaired neurodevelopment[2] and increased rate of cerebral palsy[3].

The implication of being IUGR can be life-long, in that it appears to predispose to adult diseases, including maturity onset diabetes and cardio vascular disease[4].

An important objective of antenatal care is the identification of babies who may be small for gestational age (SGA) early enough to be able to influence the outcome of the pregnancy, because (SGA) is associated with (8-10) fold increase in the risk of perinatal mortality than the normally weighted babies[5]. Ultrasound fetometery can define (SGA) fetuses as either symmetrical (where the abdominal circumference and the head circumference are both equally affected and the actiology of this type being an insult during the organogenesis early in pregnancy such as chromosomal abnormalities or infections, or asymmetrical where the head circumference is relatively spared and is caused by placental dysfunction later in pregnancy [6].

IUGR is associated with several general factors which include:

A. Maternal factors such as:

1. Chronic illness
2. Malnutrition
3. Smoking
4. Alcohol
5. Illegal drugs (drug abuse)
6. Infection
7. Endocrine
8. Maternal constraints

B. Placental factors:

1. Uteroplacental insufficiency

2. Fetoplacental insufficiency

C. Fetal factors:

1. Normal small babies.
2. Infection.
3. Fetal abnormality.
   a. Structural
   b. Chromosomal
4. Endocrinology [7].

The aim of this study is to determine the factors causing intruleringe growth retardation in Basrah.

Patients and Methods

This study was carried out at Basrah Maternity and Children Hospital. From the first of January till the 18th of September1998, and it was conducted on the first two hundreds and fifty mother who delivered live term babies below the tenth percentile for gestational age in Basrah,Data were compared with control group consisting of two hundreds and fifty live term deliveries with normal birth weight during the same period. Cases of multiple pregnancy, intrauterine death and fetal gross malformation were excluded from the study.All women in the study and control group were certain about date of their last menstruation and had an ultrasound examination during this pregnancy to confirm the gestational age. Those who were not certain or had no ultrasound were excluded from the study, all women in the study attended antenatal care clinic regularly and investigations done for them in from of haemoglobin level and general urine examination, ultrasound was done.All mothers in the study were interviewed in the hospital during the postnatal period. Thorough post obstetrical and medical history was taken and the babies were examined by paediatricians, who confirm that they are below the tenth percentile for gestational age and they were term size. Questionnaire from were designed (Figure 1 and 2) and statistical analysis was made using student t-test Statistical significance was defined as $p<0.05$, the two groups studied were divided into three social classes according to their level of education:

Class I → highly educated

Class II → Primary and secondary school

Class III → illiterate

Results

Table No. I illustrates the previous obstetric history obtained from the study group as well as the control, and it demonstrate that the history of previous abortion. Previous low birth weight was the most frequent observation, it occurred in (13.6%), (9.2%) respectively and it was statistically significant p<0.001

Table No. 1: Previous obstetric history

	Case		Control	
	No.	%	No.	%
Abortion	34	13.6	16	6.4
Low Birth weight	23	9.2	12	4.8
Abnormal babies	7	2.8	3	1.2
Still births	17	6.8	10	4
Neonatal deaths	6	3.6	2	0.8
Normal	160	64	207	82.8
Total	250	100	250	100

Table No. 2 shows that anaemia, hypertension and PET and A.P.H. was the common complications occurred in pregnancy in the studied group and the difference was statistically significant P<0.001, when compared with control group.

Table No. 2.Complications during pregnancy

	Case		Control	
	No.	%	No.	%
Hypertension and (PE)*	45	18	8	32
A.P.H.**	28	11.2	10	4
Anaemia	90	36	40	16
Heart or lung disease	10	4	2	0.5
Renal disease	5	2	2	0.8
Diabetes	20	0.8	2	0.8
Normal	62	24.8	186	744
Total	250	100	250	100

*PE ⇒ preeclampsia

**A.P.H ⇒ Antepartum haemorrhage

Table No. 3Maternal age and IUGR

	Case		Control	
	No.	%	No.	%
<20 years	112	44.8	44	17.6
20-24 yr.	25	10	46	18.4
25-29 yr	38	15.2	40	16
30-34 yr	28	11.2	51	20.4
35-39 yr	39	15.6	43	17.2
40 and above	8	3.2	6	2.4
Total	250	100	250	100

The maternal age in the study and control group was classified into six age categories with an interval of five years, table No. 3 shows that younger mothers <20 years give birth to lighter babies compared to control group (44.8%), (17.6%) respectively. P<0.00001 significant.

Table No. 4Parity and IUGR

	Case		Control	
	No.	%	No.	%
Primy	94	37.6	35	14
P1	35	14	62	24.8
P2	28	11.2	45	18
P3	37	14.8	26	10.4
P4	26	10.4	37	14.8
P5 and abouve	30	12	45	18
Total	250	100	250	100

Table No. 4 shows an increase in the number of cases of IUGR in the primigravidia compared to multigravidia, there were (12%) of cases have infants with low birth weight, all of them with parity more than 5 and the result was significant as P<0.00001

Table No. 5: Height and IUGR

	Case		Control	
	No.	%	No.	%
<150	82	32.8	26	10.4
150-159	78	31.2	69	27.6
160-169	67	26.8	112	44.8
170 and above	23	9.2	41	16.4
Total	250	100	250	100

Table No. 5 shows that (32.8%) of the studied group have height less than 150 cm, P<0.00001

Table NO. 6: Social class and IUGR

	Case		Control	
	No.	%	No.	%
Class I	32	12.8.2006	82	32.8
Class II	51	20.4	141	56.4
Class III	167	66.8	27	10.8
Total	250	100	250	100

Table No. 6 shows that the majority of cases of IUGR in Basrah are among the class III, which is of low-socioeconomic state and being illiterate P<0.00001

Discussion

This study included five hundreds pregnancies admitted to Basrah Maternity and Children Hospital for the purpose of delivery from the period of 1st of January to the 18the of September 1998, and it includes two hundred and fifty mothers who delivered live term babies below the 10th percentile for gestational age (IUGR) and they were compared to two hundred and fifty mother who delivered term normal birth weight babies during the same period.The result obtained in this study shows that, the history of previous miscarriage, previous low birth weight baby was the most frequent observation in the previous obstetric history in studied group as shown in table No. 1, being (13.6%) , and (9.2%) respectively, and this was confirmed by another study performed by Patterson and Scott who showed that stronger predictor of IUGR is the history of previous low birth weight baby and previous miscarriage Even if a pre-disposing factor of preeclampsia was present in their first pregnancy but not in the second. In their study the frequency of recurrence was (25-30%) [8.9].The complications which occurred during pregnancy in this study are illustrated in table No. 2 and it shows that the most frequent complications was anaemia, hypertension, (PE) and A.P.H., and this was in agreement with a study done by Morrison, Zuspam and Heyle[10.11.12].The effects of maternal age and parity have been studied in various aspects in man.In our study we

found that the younger mothers <20 years give birth to lighter babies compared to control group (44.8%), (17.6%) respectively as shown in table No.3, while tale No. 4 shows an increase in the number of cases of IUGR in the primigravidia being (37.6%) compared to (14%) in control and this was in agreement with a study done by Korn and Jayunt [13.14].There were thirty cases observed to have infants growthly retarded all of them with parity more than five. In cross sectional studies an increase in mean birth weight is seen with increasing birth order, the highest increase from the first to the second born child [(15)].Table No. 5 shows that (32.8%) of cases studied the mother's height was less than 150 cm compared to around (10%) in control group and this findings might reflect genetic factors [(14, 15)].Several factors are known to be associated with IUGR, the can be classified into two groups: variables with an incidence which is relatively stable across different populations and those factors which is relatively stable across different populations and those factors which are clearly more prevalent in population of developing societies. The first group is associated with genetic influence, twin gestation, height of mother, uterine and placental anomalies and major congenital malformations. These non-nutritional factors can account for about (50%) of the variance in birth weight in developed countries [(16.17)]. In the second group the variable which are associated with the level of socioeconomic development including maternal nutritional status (as measured by height and pre-pregnancy weight, weight gain during gestation, PET is associated with low socio-economic status, and thus more prevalent in developing societies [(18)].The second group of factors are influenced by environmental conditions, and they are responsible for increasing the incidence of IUGR, when those factors are not present or when their prevalence is reduced as in developed societies, the non-environmental, bio-medically related factors listed in the first group will play greater role in causation of IUGR.Table No. 6 shows that the majority of cases of IUGR in Basrah are among the low socio-economic class and being illiterate, which in agreement with other studies performed previously [(10)].

Conclusions and Recommendations

The causes affecting birth weight in Basrah are the same as in the other countries, and it was found that there is direct correlation between poor past obstetric history, complications during current pregnancy, maternal height and low socio-economic status.It was noticed that most of the IUGR belongs to a low social class, with low level of health education, so improving the nutritional status of these women is a big task that need many years to achieve.Accordingly these women should be advised about their nutrition and prophylactic supplement of iron and folic acid should be given, improving the health of the general population is a big task especially during these days that we are passing through under the influence of economic sanctions that Iraqi peoples are suffering from for the last nine years.Improving health education in pregnant women could be carried out through television programs, magazines, health visitors, and educational classes. It is the task of the Ministry of Health and the different people organization in Iraq, specifically the Iraq general union women to carry out these educational classes. The role of the preconception medical advice in very important in prevention of IUGR by treating medical problem of hypertension, anaemia, etc... And providing medical advices for those with poor obstetric history. For early diagnosis and detection of cased of IUGR, stress should be made upon early booking clinic to confirm the gestational age.Smoking increases the incidence of IUGR, although well recognized, has not been studied because it is no a wide spread habit among women in Basrah, and most of smoking mother denies that they smoke.

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