Comparison of outcome in IUGR and Normal Pregnancies- A retrospective study

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Abstract

Introduction: High perinatal and infant mortality is one of the major public health problems in developing countries like ours. The birth of an intra uterine growth restricted baby evokes considerable psychological stress on the mothers which is directly related to lack of knowledge in these mothers regarding IUGR. **Material and Methods:** It was a retrospective record based study carried out in tertiary care hospital in Delhi where the authors work between May 2013 and December 2014. The study population consisted of 400 patients of whom 200 were IUGR cases (babies weighing less than 2 kgs) included in study group and 200 other normal weighted babies were taken as control group. **Results:** In our study, 9% of infants had severely depressed, 33% had moderately depressed apgar score compared to 1% and 8% in the control group. Thus most IUGR babies had low Apgar scores. In our study, 36% of infants in the study group were asphyxiated, 10% had hypoglycaemia, 12% had hypoglycaemia, 6% had pulmonary complications, 10% were hypothermic, 5% had congenital malformations, 20.5% had infections and 5% patients were normal. In the control group 10%, 4%, 3.5%, 1%, 6%, 0.5%, and 18% of the patients had hypoglycaemia, hypocalcemia, pulmonary complications, hypothermia, congenital malformations and infection respectively. This increased incidence of complications was statistically significant (P<0.001). **Conclusion:** The clinical significance of IUGR is based on the fact that birth weight is the most important indicator of perinatal morbidity and mortality. A scientific approach for prevention of IUGR requires an understanding of many variables, which govern and affect intrauterine growth and development.

Keywords: IUGR, Morbidity, Mortality, Perinatal.
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Introduction

Intra uterine growth restriction [IUGR] is a term used to describe the condition in which the fetus is smaller than expected for the corresponding gestational age. Intra uterine growth restriction is defined by the American college Of Obstetrics and Gynaecology [ACOG] as weight for gestational age less than tenth percentile in a fetus [1].

High perinatal and infant mortality is one of the major public health problems in developing countries like ours. The birth of an intra uterine growth restricted baby evokes considerable psychological stress on the mothers which is directly related to lack of knowledge in these mothers regarding IUGR [2]. WHO estimated that over 20 million babies are born with IUGR annually and most of them in South Asia and Africa [3]. Based on the Indian registry data from Institute of Obstetrics and gynecology, the mothers who are most at risk for Intra uterine growth restriction are mothers in low socio-economic strata [4]. Specialized care should be provided to severe IUGR infants and the knowledge of the mothers regarding IUGR should be improved [5].

Major risk factor for IUGR was lack of knowledge among the mothers regarding prevention of IUGR. Hence researcher felt the need to assess the knowledge of rural primigravida mothers and conduct a structured teaching programme on prevention of IUGR.

Material and Methods

Study design: Retrospective record based study.
Study period: May 2013 and December 2014.

Study place: The study was carried out in tertiary care hospital in Delhi.

Study population: The study population consisted of 400 patients of whom 200 were IUGR cases (babies weighing less than 2 kgs) included in study group and 200 other normal weighted babies were taken as control group.

Procedure: The records of the study group and control group were studied retrospectively and the high risk factors in the antenatal period and the fetal outcome were compared between the study and the control group.

Statistical analysis: The data was entered in the Microsoft office excel 2007 and analyzed using Epi-info software (available free online).

To show the association and difference between two groups appropriate statistical test would be applied. We would consider the test to be significant when the p-value is less than 0.05.

Results

Table No. 1: Apgar score in IUGR and Normal group.

Apgar score	Study group	Percentage	Control group	Percentage	Total	P value
1-2	18	09	2	01	20	P<0.001
3-5	66	33	16	08	82	P<0.001
6-7	28	14	58	29	86	P>0.05
>7	88	44	124	62	212	P>0.05
Total	200	100	200	100	400	

Chi-square= 154.02, P<0.001

In our study, 9% of infants had severely depressed, 33% had moderately depressed Apgar score compared to 1% and 8% in the control group. Thus most IUGR babies had low Apgar scores.

Table No. 2: Neonatal complications in IUGR and Normal group.

Complications	Study group	Percentage	Control group	Percentage	Total	P value
Birth asphyxia	72	36	20	10	92	P<0.001
Hypoglycemia	20	10	08	04	28	P<0.001
Hypocalcemia	24	12	07	3.5	31	P<0.001
Pulmonary complications	12	06	02	01	06	P>0.05
Hypothermia	20	10	12	06	32	P>0.05
Congenital malformations	10	05	01	0.5	11	P>0.05
Infections	41	20.5	36	18	77	P>0.05
Normal	10	05	114	57	124	P>0.05

In our study, 36% of infants in the study group were asphyxiated, 10% had hypoglycaemia, 12% had hypoglycaemia, 6% had pulmonary complications, 10% were hypothermic, 5% had congenital malformations, 20.5% had infections and 5% patients were normal. In the control group 10%, 4%, 3.5%, 1%, 6%, 0.5%, and 18% of the patients had hypoglycaemia, hypocalcemia, pulmonary complications, hypothermia, congenital malformations and infection respectively. This increased incidence of complications was statistically significant (P<0.001).

Table No. 3: Length of hospital stay in IUGR and Normal group

Hospital stay	Study group	Percentage	Control group	Percentage	Total	P value
3 days	12	6	114	57	126	P>0.5
>10 days	52	26	58	29	110	P>0.5
>21 days	136	68	28	14	164	P<0.001
Total	**200**	**100**	**200**	**100**	**400**	

Discussion

In our study, 36% of patients in the study group were unregistered and 13% of the patients of the control group were unregistered. In our study, IUGR was found more commonly in the age group of < than 20 years. This observation is comparable with the study conducted by Moore[6] who found IUGR to be more common in less than 20 years age group.

In our study, low Apgar scores were found in the study group as compared to the control group (p<0.0001). Low et. Al [7] and Cetrulo et al [8] found increased incidence of low 5 minute Apgar scores in IUGR fetuses when compared with babies of normal growth.

In our study, asphyxia, hypoglycaemia, hypocalcemia, pulmonary complications, hypothermia, congenital malformations and infections were more common in the study group than in the control group (P<0.01), these findings are comparable to that by Nelson, Barbara, Robert et al [9] who found these neonatal complications to be more in IUGR infants as compared to normal infants.

According to Cloherty et al, [10] congenital anomalies, perinatal depression meconium aspiration pulmonary haemorrhage, persistant hypertension, hypothermia, hypoglycemia, hypocalcemia and hyponatremia were more common in IUGR infants as compared to normal infants.

In our study it was found that babies with IUGR had a longer duration of hospital stay compared to their normal counterparts (P<0.001) which was found statistically highly significant. Similar findings were observed in studies conducted by Bisquera JA [11] and Susan W Aucott [12] in which they found a longer duration of hospital stay in IUGR infants as compared to normal infants.

Our study showed an association of IUGR infants with increased perinatal mortality and morbidity (P<0.01). These results of our study correlate with the study of Warsof et al [13] and Bassan et al [14] who found that IUGR is associated with increased perinatal mortality and morbidity.

Conclusion

The clinical significance of IUGR is based on the fact that birth weight is the most important indicator of perinatal morbidity and mortality. A scientific approach for prevention of IUGR requires an understanding of many variables, which govern and affect intrauterine growth and development. This retrospective study was undertaken to identify various etiological correlates of growth retardation. This information would help in reducing the incidence of low birth weight and therefore perinatal mortality.

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