

INTRAUTERINE GROWTH RETARDATION EFFECT ON OUTCOME

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SUMMARY

Infant birthweight is a significant determinant of neonatal mortality & morbidity. In view of its importance, we conducted a retrospective study at Nair Hospital, to assess the outcome in fetuses with poor growth. Over a period of 6 months from May to October 1995, we studied 1428 deliveries. We found the incidence of low birth weight babies (< 2.5 kgs.) was 33% (467 babies out of 1428) of which 73% had IUGR while 27% were preterm. The incidence of operative intervention (vacuum/forceps/caesarean section) was higher -17% in IUGR vs 14% in controls. There was higher perinatal mortality rate - 65 in IUGR vs 10 in controls. Mortality increased as birthweight decreased. Morbidity was almost double 35% in IUGR vs 20% in controls.

INTRODUCTION

Small for gestational age infants are defined as those whose weights are below 10th percentile for their gestational age. However there is a wide variation in birthweights in different populations. So in order to standardize comparisons WHO defined small for gestation babies as those

below 2.5 kgs. The term small for date & 'IUGR' are often used interchangeably. However not all small for date babies are pathologically growth restricted. Many are small because of constitutional factors and are otherwise healthy. Thus the term 'IUGR' should be restricted to those infants with clinical evidence of abnormal or dysfunctional growth.

IUGR baby with its depleted energy stores in liver & often associated

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oligohydramnios & uteroplacental insufficiency is more prone to perinatal asphyxia & acidosis & metabolic alterations.

MATERIAL AND METHODS

We conducted a study at B.Y.L Nair Hospital, Mumbai over a period of 6 months from May to October 1995, to assess the outcome in IUGR babies. We studied 1428 deliveries & evaluated IUGR babies with respect to mode of delivery, mortality & morbidity. All babies with birthweight less than 2.5 kgs were considered as low birthweight. Of these the preterm babies

were excluded & the rest i.e. the IUGR babies formed the study group. All babies who were full term & more than 2.5 kgs. constituted the control group.

RESULTS

Out of a total of 1428 deliveries those with birthweight less than 2.5 kgs were 467. Thus the incidence of low birth weight babies was 33% as shown in Table I. Majority of the low birth weight babies i.e. 73% were IUGR, while preterm were only 27% of the low birth weight babies as shown in Table II. Mode of delivery in IUGR & controls was comparable. In IUGR, 83%

Table I
INCIDENCE OF LBW'S

	No	%
LBW	467	33
Controls	961	67
Total	1428	100

Table II
IUGR OR PRETERM ?

	No	%
IUGR	341	73%
Preterm	126	27%
Total	467	100%

Table III
MORTALITY

	IUGR		Controls	
	No	%	No	%
M.S.B.	6	2.0	4	0.4
F.S.B.	11	3.2	5	0.5
Early Neonatal Death	5	1.5	1	0.1
Total Deaths	22	6.7	10	1
Survivors	319	93.3	951	99
Total	341	100	961	100

Table IV
PERINATAL MORTALITY

Overall	40
IUGR	65
Controls	10

Table V
BIRTHWEIGHT DISTRIBUTION

	Total	Deaths		Survivors	
		No	%	No	%
1-1.49 kgs	2	1	50	1	50
1.5-1.99 kgs	49	6	12	43	88
2.0-2.49 kgs	290	15	5.0	275	95
>=2.5 kgs	961	10	1	951	99

had normal deliveries, 4% had vacuum or forceps delivery & 13% underwent caesarean section. In controls, 86% had normal deliveries, 5% had vacuum or forceps delivery, & 9% underwent a caesarean section. As shown in Table III, the mortality was

almost 7 times higher in IUGR as compared to that in controls. In IUGR there were 22 deaths in 341 babies i.e., mortality was 6.7%. In controls, there were 10 deaths as compared to controls -35% vs 20% as

Table VI
MORBIDITY

	IUGR		Controls	
	No	%	No	%
Fever	29	8.5	47	4.8
Icterus	31	9.0	48	4.9
Umbelical Discharge	5	1.5	16	1.7
Jitteriness	10	3.0	12	1.2
Concussions	3	1.0	5	0.5
Conjunctivitis	8	2.4	14	1.5
Pustules	7	2.0	12	1.2
Others	26	7.6	38	4.0
Total	119	35	192	20

in 961 babies i.e., mortality was 1%. On further break up, 2% of IUGR babies were macerated still births as against only 0.4% of controls. 3.2% of IUGR babies were fresh still births as against only 0.5% of controls. 1.5% of IUGR babies had early neonatal deaths as against only 0.1% of controls. In our study, perinatal mortality was 40 per 1000 live births. In IUGR babies it was significantly higher at 65 while in controls it was just 10 (Table IV). Assessing birthweight distribution, we found that mortality increased as birthweight decreased (Table V). Morbidity was assessed with respect to simple clinical problems like fever, icterus, umbilical

discharge, jitteriness, convulsions, conjunctivitis, pustules etc & it was found that morbidity was almost double in IUGR as compared to controls -35% vs 20% as

shown in Table VI. (On. W. 1977., Tudohope D.I. 1991).

DISCUSSION

Low birth weight as defined by WHO is birthweight less than 2.5 kgs. (WHO 1977). This criterion though convenient is not very practical. For example, the mean birth weight of a mature Indian baby is about 500g less than that of American infant. ICMR in it's 1983 bulletin had suggested that 2000g or less should be taken as criterion of LBW for Indian infants (ICMR-1983). With this, the incidence of LBW would be 5.5% which is comparable to developed nations. In our study, we found that majority

(73%) of LBW's were IUGR. This is typical of a developing nation as against a developed nation, where majority of the LBW's are preterm. (WHO-1980). In our study, the incidence of caesarean section was slightly higher in IUGR (13%) vs controls (9%). However, it is important to note that 56% of IUGR babies underwent caesarean section for fetal distress as against 27% in controls. This is so because in the IUGR baby once its depleted energy stores are exhausted it has to switch to anaerobic metabolism leading to production of hydrogen ions & subsequent metabolic acidosis. Low et al found moderate to severe acidosis in 48% of IUGR babies during labour (1977). As per the Govt. of India Health information report (1992), the overall perinatal mortality in India is 49.6 per 1000 live births. In our study the overall perinatal mortality (MSB, FSB, Neonatal death) was 40. It was significantly higher in IUGR (65) as compared to controls (10). This is again related to perinatal asphyxia & acidosis. Morrison & Olsen (1985) has reported similar findings.

In fact, in our national health policy i.e. Health for all by 2000 AD. two of its goals are:

- To reduce perinatal mortality from 49.6 to 30 per 1000 live births.
- To decrease the incidence of low birth weight babies from 30 to 10.

CONCLUSION

Our study adds strength to what McCormick had stated in 1985 that 'in both developed & developing countries, infant birthweight is probably the single most important factor affecting neonatal mortality & a significant determinant of neonatal & later childhood morbidity'.

Thus efforts should be directed towards improving growth in utero to prevent future problems.

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