

CLINICAL STUDY OF INTRAUTERINE GROWTH RETARDATION

By

VIMLA JAIN, NAVRATAN BAFNA AND R. C. GUPTA

Introduction

The concept of intrauterine growth retardation (IUGR) was introduced in 1947. Till then all babies born with low birth weight were termed as premature.

It goes by variety of names e.g. small for dates, placental insufficiency, dysmaturity etc. But the criteria for diagnosis of IUGR—

1. Infants whose weight fall below the 10th percentile for their gestational age.
2. Infants with weight 2 standard deviation (SD) from the mean values of birth weight.

In developing countries IUGR stands out as a major cause for perinatal mortality and morbidity. Perinatal mortality is three times higher in IUGR infants as compared to general population (Khouzani, 1981).

One of the important causes of higher perinatal mortality is late foetal death (Usher, 1970), Ghosh and Bhargava (1971) through a long follow-up of severely growth retarded infants have shown that the incidence of neonatal mortality, failure to pick-up normal growth pattern, skeletal and mental growth retardation and subsequent learning difficulties is significantly higher than in general population. Antenatal

diagnosis of IUGR improves fetal salvage.

Material and Methods

In the present study, conducted in Zanana Hospital, Jaipur, a careful assessment of IUGR by means of clinical foetal monitoring and ultrasonography was done for detecting pregnancies with endangered foetal growth. These cases were then managed actively.

A total of 100 risk cases, out of 310 cases admitted with one or more risk factors according to the risk card adopted by us were taken for study. Reliable menstrual history was taken.

Assessment of foetal maturity and placental insufficiency was done by:

(1) Clinical examination

Recording of fundal height, uterine girth, weight of the patient, abdominal palpation and FHS was done. Patients were instructed for daily foetal movement counting.

(2) Ultrasonography

Measurements of B.P.D., femur length, ratio of head circumference to the abdominal circumference to evaluate relationship between head and somatic growth, foetal breathing activity, fetal movements and amount of liquor were noted. Placental texture was studied and placenta graded O-III sonographically.

From: S.M.S. Medical College and State Zenana Hospital, Jaipur (Rajasthan).

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In few cases electronic foetal monitoring was done.

All the cases were monitored carefully during pregnancy and managed by taking active measures in form of induction of labour, elective L.S.C.S., forceps application or spontaneous delivery according to need.

Results and Discussion

In the present study incidence of IUGR was 57% in risk cases while it was 18.38% in total deliveries. Nearly same observations were reported by Hemant Kumar *et al* (1978-84) i.e. 54.4% in risk cases and 12.5% in without risk cases.

Incidence was much less in developed countries. It was 8% in U.S.A. and 9.8% in Canada as reported by Gailbraith in 1979.

Maximum percentage of IUGR (22.58%) was detected in the age group

below 20 and declines as the age advances.

It correlated with the study of Butler and Bonham (1963). IUGR is more common in primigravidas (23.07%), as the parity increases its incidence decreases but again slightly increases with parity four or more. This was also supported by Tazani (1976) and Gailbrith (1979).

The incidence of IUGR is less in cases attending regular antenatal clinic. This shows that better health education and antenatal care reduces the risk of IUGR.

Social class IV (63.65%) and V (60%) are at greater risk for IUGR, as compared to class I, II & III. This may be due to poor nutrition, unemployment, low education and poor medical care.

The above table shows that as the gestation period advances the incidence of IUGR also increases. Highest incidence of IUGR was found after 37 weeks of gestation.

TABLE I
Distribution of IUGR According to Gestational Age

Gestational age in weeks	Total No. of risk cases	IUGR No.	Present Percentage
28 to 32	12	5	41.67
33 to 36	28	16	57.15
37 to 40	56	33	59.00
41 and above	4	3	75

TABLE II
Incidence of IUGR in Population with Other Risk Factors

Risk factors	Total No. of cases	IUGR		Different series (Hemant Kumar <i>et al</i> 1984)
		No.	Perc.	
1. Severe Anaemia	6	4	66.67	75
2. Antepartum Haemorrhage	9	7	77.78	66.6
3. Toxemia				
(a) Severe	7	4	57.14	44
(b) Mild and Moderate	20	9	45.00	62
4. Smokers	3	2	66.67	—
5. Multiple preg.	2	1	50.00	80

It is evident from the above table that APH carried the highest risk (77.78%), it was 100% in Amita Gupta's (1984) and 66.6% in Hemant Kumar (1984) studies.

Severe anaemia and smoking are second important factors (66.67%). Hemant Kumar *et al* (1984) found IUGR in 75% cases of severe anaemia.

The incidence of IUGR was 57% in severe toxemia and 45% in mild to moderate toxemia. It was 54.5% in Hemant Kumar study. It was noted that in the cases having more than one risk factors, the incidence of IUGR was much higher.

The Table III shows that the IUGR was diagnosed by means of ultrasonography in 64.50% cases accurately. In the rest of the cases false positive and false negative results were obtained. Diagnosis of IUGR by ultrasonography was accu-

rate in 50% cases by Retta Abbot (1985).

IUGR requires active management of delivery.

LSCS was done in 20% of risk cases, out of these 50% were for foetal distress. In Amita Gupta's (1984) study the incidence of LSCS was 24%.

Forceps application was done in 7 cases, IUGR was present in 4 cases.

Spontaneous delivery with or without induction of labour was allowed in rest of cases.

The perinatal mortality amongst IUGR infants was 384.21 per thousand while 209.30 in non IUGR group of infants. It shows that perinatal mortality in IUGR group was approximately double to non IUGR group. According to Hemant Kumar *et al* (1984) the perinatal death among IUGR group was 108.8 per

TABLE III
Distribution of IUGR According to Ultrasonography and Birth Weight

Total No. of risk cases	Sonography conducted	Indicated IUGR	IUGR present at birth	Accurate diagnosis perc.
100	54	31	20	64.50

TABLE IV
Distribution of Cases According to Mode of Delivery

No. of cases	Normal delivery	Breech delivery	Forceps delivery	LSCS
Risk cases	68	5	7	20
IUGR	37	2	4	14

TABLE IV
Incidence of Perinatal Mortality in IUGR and Non IUGR Groups of Infants

Group	No. of cases	S.B.	Death within 7 days	Death from 8-28 days	Total No.	Deaths perc.	Rate per thousand
IUGR	57	6	8	8	22	38.42	384.21
Non IUGR	43	2	4	3	9	20.93	209.30

thousand as compared to 60.5 per thousand in non IUGR group of infant in first 7 days.

Khouzani (1981) found that the perinatal mortality was 3 times greater in IUGR group than non IUGR group.

Summary and Conclusion

The present study was undertaken in 100 pregnant women at risk, out of 310 antenatal admissions.

A detailed history including medical obstetrical and menstrual history was taken.

Assessment of foetal maturity and placental insufficiency was done by clinical examination and ultrasonography.

Cases were managed by taking active measures according to need.

- Incidence of IUGR in our study was 57% in risk and 18.38% in without risk cases.
- Maximum percentage was found in young primigravidae.
- IUGR appeared suddenly in the third trimester i.e. late flattening pattern.
- Antepartum haemorrhage, severe anaemia, toxemia of pregnancy and smoking carried the highest risk for IUGR.

— Ultrasonography is the safe, non-invasive and fairly accurate method for diagnosing IUGR.

— Perinatal mortality was double amongst IUGR infants as compared to non IUGR infants.

Thus intrauterine growth retardation has a severely adverse effect on outcome of pregnancy. Perinatal mortality and morbidity rate can be reduced by accurate prenatal diagnosis of impaired foetal growth, appropriately timed delivery and intensive intrapartum and neonatal care.

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