

Intrauterine Growth Restriction: Specific Cases Involving a Threat to Life

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Abstract

Introduction and Objective: Intrauterine growth restriction (IUGR) refers to a fetus with an estimated weight below the 10th percentile at the time of ultrasound. It is a public health issue, with an incidence of 10 to 20% in Africa. Several risk factors have been identified, as well as established direct causes. The objective of this study is to provide a descriptive analysis of our experience in the emergency management of IUGR.

Patients and Methods: This was a descriptive, retrospective study over 3 years analyzing 48 cases of intrauterine growth restriction. Singleton pregnancies and evolving were retentions in the study. We have analysis the woman's data, obstetric data and finally those of the newborn.

Results: The average maternal age was 30 years and 33.33% were at least at their fourth pregnancy. Preeclampsia was the most common pregnancy complication. The mean gestational age was 32 weeks of amenorrhea. Ultrasound abnormalities included decreased amniotic fluid volume and abnormal umbilical cord and uterine doppler ultrasound. The estimated mean fetal weight was 1352 grams. Vaginal delivery occurred in 47 patients, resulting in the extraction of 28 girls, with an Apgar score of less than 7/10 (44.68%).

Conclusion: Intrauterine growth restriction is common; risk factors are established and most are modifiable. When diagnosed, it necessitates strict and regular monitoring of the pregnancy in order to improve the maternal prognosis and fetal.

Keywords: Delay of Growth Intra Uterine; Screening; Placenta; Preeclampsia

Introduction

Intrauterine growth restriction (IUGR) refers to a fetus with an estimated fetal weight of less than 10% of the gestational age. The percentile at the time of the ultrasound that, due to a pathological process, has not reached its biologically determined growth potential [1]. The concept of low birth weight refers to a low birth weight. For a full-term pregnancy, low birth weight corresponds to a birth weight of less than 2500 grams (g) according to the WHO [2].

This is a public health problem that obstetricians face in their daily practice. The incidence of IUGR is 10 to 20% in Africa, while in Europe it ranges between 2 and 5% [3]. Several risk factors have been identified, as well as established direct causes, including placental causes [1,4,5].

Objective of the Study

The objective of this work was to bring an analysis descriptive of OUR experience in emergency management of intrauterine growth restriction.

Patients and Methods

This was a descriptive and retrospective study over 3 years analyzing women hospitalized and treated in our facility for intrauterine growth restriction between January 2020 and January 2023. We have retained in the study:

- The singleton and ongoing pregnancies.
- The women admitted in emergency of which the data clinics and/or obstetrical indications indicated an emergency fetal extraction via the upper route.
- The analysis concerned in first the data of their women, then the data obstetrics and finally the newborn from the moment of delivery.

The data is entered and analyzed using Epi-info software version 7.2.2. Qualitative variables are represented in proportion of percentage and the data quantitative on average. We adhere to ethical principles and have no conflicts of interest.

Results

During our period study, forty-eight women replied has No criteria. In this regarding the woman in labor, the average age was 30 years [20-41]. Regarding the medical history obstetrical, 16/48 or 33.33% were at least in their fourth pregnancy [4-6]. The preeclampsia was there pathology pregnancy there more met. Three women had a fertilization *in vitro* (Table 1). The mean hemoglobin level was 13 g/dl [9-17].

Variables	Effective	Percentage (%)
Number of pregnancy previous	14	29.17
1	11	22.91
2	7	14.59
3	16	33.33
≥ 4		
Antecedent of MFIU	7	14.59
Antecedent of delay of growth intrauterine	1	2.04
Pathologies discoveries at course of there pregnancy		
Diabetes	6	12.5
Preeclampsia	11	22.91
Thrombocytopenia	1	2.04
Rate of hemoglobin	8	16.67
≤ 10 g/dl	19	39.58
11 - 12 g/dl	21	43.75
≥ 13 g/dl		

Table 1: Women's obstetric history.

Regarding obstetric data, the mean gestational age at delivery was 32 weeks of amenorrhea (WA) [27-38]. Ultrasound abnormalities observed included a decrease in amniotic fluid volume of varying severity (37.5%), abnormal umbilical cord doppler (35.42%), and abnormal uterine doppler (22.88%) (Table 2). The estimated mean fetal weight was 1352 grams (g) [700 - 2000]. No morphological abnormalities were detected.

In this series childbirth was by way high at the house of 47 patients either for a prognosis fetal or maternal engaged. She has permit extraction of 28 babies of sex female (58.33%), only one woman underwent induction due to intrauterine fetal death uterine (MFIU). APGAR was lower had 7/10th has their first minute at the house of 21 babies either 44.68%. The analysis histological of placenta has permit of revealed three case chorioamnionitis either 6.25%. A placenta calcified either 2.04% and an anomaly vascular in 2.04%.

Variables	Effective	Percentage (%)
Quantity liquid amniotic		
Normal	30	62.50
Oligoamnios	10	20.84
Anamnios	8	16.66
Placenta		
Previa	1	2.04
Fundic	8	16.67
Postero-fundic grade II	13	27.08
Postero-fundic grade II - III	14	29.17
Postero-fundic grade III	12	25
Doppler uterine		
Normal	37	77.08
Notch	10	20.84
Ductus venosis	1	2.04
Doppler cord umbilical		
Normal	31	64.58
Pathological	17	35.42
- Redistribution cerebro placental	13	
- Increase of their resistance	2	
- Waves negative	2	
Indications of their cesarean section		
Suffering fetal acute	21	44.68
Preeclampsia severe	9	19.15
Others	17	36.17

Table 2: Obstetric characteristics.

Discussion

Currently, the rate of intrauterine growth restriction (IUGR) is at a twenty-year high and is likely to rise due to assisted reproductive technologies (three cases in our series), multiple pregnancies (47.92% of our series), advanced maternal age, and exposure to external factors that induce IUGR [6]. The clinical characteristics of our patients align with those reported in the literature [3,4,7]. A strong

correlation has been established between birth weight and maternal health-specifically non-insulin-dependent diabetes, arterial hypertension, obesity, and hyperlipidemia [1,8]. These conditions are reported with varying frequencies: up to 35.5% in our series, and lower rates in others [7]. The most common condition in our series was pre-eclampsia; it is associated with a fivefold increase in the risk of IUGR [4,5]. It is also important to highlight the significant proportion of IUGR cases attributable to placental insufficiency or abnormalities [1]. Regarding the fetus, sex is independently linked to the risk of IUGR, with no absolute predominance of one sex over the other [7,9].

Clinical estimation of fetal weight or fundal height has low sensitivity and specificity [1]. When fetal growth restriction (FGR) is suspected, further assessments can aid in establishing a diagnosis. Where possible, a detailed ultrasound examination of the placenta (looking for signs of a small, thickened placenta or abnormal morphology) and uterine artery Doppler studies should be considered at 19 - 23 weeks [1].

At delivery, the reported mean gestational age is 39 weeks [7]. It was 32 weeks in our series. This could be explained by the fact that we received emergency cases of intrauterine growth restriction (IUGR) that threatened the life of the fetus and/or mother, requiring emergency delivery. This is why an Apgar score below 7 is reported in 1.6% of cases [7], whereas in our series it was below 7 in 44.68%. A fetus with IUGR is more likely to have an Apgar score below 7 [5]. Indeed, the risk of neonatal and infant death for a small for gestational age (SGA) infant with IUGR is 2 to 3 times higher than for a normal-sized newborn [4]. Intrauterine fetal death was noted in 20 cases (1.12%), and perinatal death in 4 cases (0.2%) in the series by Jedidi Jihen., *et al.* [7]. Only one case of intrauterine fetal death was recorded, and no maternal or perinatal deaths were noted in our series.

Regarding the long-term outcomes for these infants, those with a birth weight of 2.5 kg or less face an 18 times higher risk of non-insulin-dependent diabetes in adulthood compared to those weighing 4.3 kg or more [8]. Recent publications indicate that intrauterine growth restriction contributes more significantly to neonatal and infant mortality-as well as to childhood growth retardation-than previously thought [10,11]. Preterm infants with intrauterine growth restriction exhibit increased neurological morbidity, including spastic diplegia, intellectual disability, and a wide spectrum of learning deficits and cognitive developmental disorders, alongside an association with neuropsychiatric conditions in adulthood [12,13].

Conclusion

Intrauterine growth restriction is common; its risk factors are well-established and, for the most part, modifiable. Once diagnosed, it necessitates strict and regular monitoring of the pregnancy to improve maternal and fetal outcomes. However, there are specific cases where the life of the fetus and/or mother is at risk, requiring emergency delivery-as was the case in this study.

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