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Research Article

**CONSEQUENCE OF PREGNANCIES COMPLICATED BY
FETAL GROWTH RESTRICTION**¹Haseeb Aslam, ²Usman Ali, ³Zeenat Hameed¹Akhtar Saeed Medical and Dental, College²Akhtar Saeed Medical and Dental, College³Islam Medical and Dental, College**Article Received:** August 2020**Accepted:** September 2020**Published:** October 2020**Abstract:**

OBJECTIVES: The aim of the study is to determine the perinatal outcome, mode of delivery and frequency of emergency cesarean sections in pregnancies complicated with fetal growth retardation (FGR).

RESEARCH DESIGN: Cross-sectional study.

PLACE AND DURATION: In the Department of Obstetrics and Gynecology Unit-II of Services Hospital Lahore for one-year duration from March 2019 to March 2020.

METHODOLOGY: During the study period, all pregnant women with clinical suspicion of FGR were included in the study. The diagnosis was made on the basis of an interview, clinical examination, and sonographic evidence. Pre-delivery fetal welfare checks were performed using a fetal movement diagram, a stress-free test and a biophysical profile.

RESULTS: There were 4,212 deliveries during the study period, and 150 pregnancies were complicated by fetal growth retardation (FGR). The demographic characteristics of 150 pregnancies with FGR complication have been recorded. The mean age of the mothers was 26.48 ± 4.06 . 91 (61%) of the women were nulliparous and 59 (39%) were multiparous. The gestational age at delivery was less than 36 weeks in 23 (15.3%) women, while 127 (84.7%) were older than 36 weeks. 72 (48%) patients had a caesarean section, and 78 (52%) - vaginally. The weight of newborns exceeded 1.5 kg in 147 cases, and less than 1.5 kg in 3 cases. A total of 6/150 (4%) perinatal deaths were observed in FGR. Common neonatal illnesses included hyperbilirubinemia, respiratory distress syndrome, infections, and ileitis.

CONCLUSION: Our study showed that the majority of the newborns in the growth period had a body weight greater than 1.5 kg, with an apgar score > 5. The most common neonatal diseases were RDS and hyper bilirubinemia.

KEYWORDS: FGR, gestational age, birth weight, delivery method.

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INTRODUCTION:

Fetal growth restriction (FGR) or intrauterine growth restriction (IUGR) is the second leading cause of perinatal morbidity and mortality. The incidence of intrauterine growth restriction (IUGR) is about 5% in the general obstetrician population, in Pakistan about 25%. FGR is the term used for a fetus whose estimated weight is below the 10th percentile gestational age. The mortality rate of toddlers at gestational age (SGA) is 5 to 20 times greater than that of normal infants. FGR also increases short-term illnesses that include meconium aspiration, hypoglycemia, metabolic acidosis, respiratory failure, neonatal sepsis, birth defects, and labor asphyxia.

In many cases, the etiology remains uncertain, but relationships between fetal, placental, and / or maternal factors are known. Chromosomal abnormalities and birth defects have a strong association with IUGR. Fetal infections in the 1st or 2nd trimester of pregnancy by cytomegalovirus, malaria, parvovirus, and rubella can also contribute to IUGR. Among chronic maternal vascular diseases caused by hypertension and diabetes, one of the most common causes of IUGR was kidney disease. Placental insufficiency, single umbilical artery, velvety umbilical cord insertion is also associated with FGR. Accurate diagnosis of FGR is crucial for the obstetrician. Fetal ultrasound biometry is the gold standard in the assessment of fetal growth.

Once FGR is diagnosed, it is planned to conduct the pregnancy in such a way as to prolong the pregnancy as much as possible without risk.

Despite the many approaches to managing FGR, there are still no identified effective therapies for improving the growth pattern of the fetus. Methods that have been tested with little success include bed rest, maternal nutritional supplementation, plasma volume expansion, maternal medications (low-dose aspirin), and oxygen supplementation. The frequency of fetal FGR reassessment depends on a number of factors. The timing of delivery must be individualized according to the gestational age of the fetus, the health of the mother, the severity of the FGR and the well-being of the fetus. Early delivery is indicated when fetal growth has stopped and pulmonary maturity is satisfactory.

MATERIALS AND METHODS:

This cross-sectional study was conducted at the Department of Obstetrics and Gynecology Unit-II of Services Hospital Lahore for one-year duration from March 2019 to March 2020. The total number of

patients enrolled in this study was 150 based on non-probable sampling. Data was collected using a specially designed questionnaire. The diagnosis of FGR was based on the history of menstruation, clinical examination, and ultrasound evidence. The first trimester examination was used to confirm the exact gestational age at the prenatal follow-up visit, and patients were examined for measurements of symphysis height and fundus, alcohol, and maternal weight gain. The pre-delivery fetal welfare check was performed using the Fetal Movement Chart, the non-stress test and the biophysical profile, Doppler uterine and fetal blood flow tests to detect a compromised fetus. The variables taken into account were gestational age, mode of delivery, birth weight and Apgar score, perinatal deaths, and one-week incidence.

Admission Criteria

Singleton pregnancies in which the gestational age was determined by the last menstruation and ultrasound before the 20th week of gestation, suggesting intrauterine FGR.

Exclusion criteria

Suitable for gestational age (AGA) and pregnancies with fetal malformations or birth defects.

Statistical analysis

Data was analyzed using SPSS version 20. Descriptive statistics were used to present the data. Frequencies and percentages will be calculated for nominal and categorical variables, gestational age and mode of delivery, birth weight, Apgar score, perinatal deaths, and neonatal complications.

RESULTS:

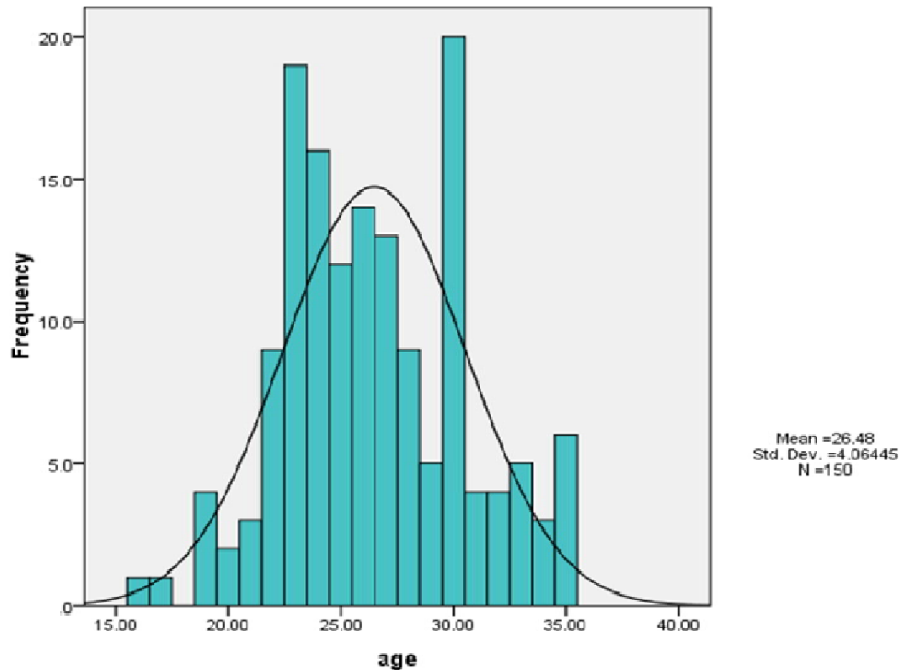
Of 4,212 deliveries performed during the study period, 150 (3.5%) pregnancies were complicated by Fetal Growth Restriction (FGR).

Patient demographic characteristics

The mean age of the mothers was 26.48 ± 4.06 (range from 17 to 45) years. The predominant age group in the study is 23-35 years old. The age distribution histogram is shown in Figure I. The parity condition was recorded; 91 (61%) were nulliparous and 59 (39%) were multiparous (Table I), the highest births were found only in two women. In 23 (15.3%) women, the gestational age at delivery was shorter than 36 weeks, while in 127 (84.7%) patients, the gestational age at delivery exceeded 36 weeks (Table I). Of the 150 women, 72 (48%) were born by caesarean section and 78 (52%) were born via vaginal delivery.

TABLE I: SHOWING PARITY, GESTATIONAL AGE AND MODE OF DELIVERY (n=150)

Parity		
Nulliparous	91	61%
Multiparous	59	39%
Gestational age		
Less than 36 weeks	23	15.3%
More than 36 weeks	127	84.7%
Mode of delivery		
Cesarean section	72	48%
Vaginal delivery	78	52%

FIGURE I: SHOWING AGE DISTRIBUTION (n = 150)

The weight of newborns exceeded 1.5 kg in 147 cases, and less than 1.5 kg in 3 cases. In FGR a total of 6/150 (4%) perinatal mortality was observed; of these, 1 are IUD and 5 neonatal deaths (Table II). Fetal Apgar scores and neonatal disease scores at 1 week are presented in Table II. The most common neonatal diseases were hyperbilirubinemia, respiratory distress syndrome, infections and necrotizing enterocolitis. FGR newborns required more admissions to neonatal care units (NCUs).

TABLE II: NEONATAL WEIGHT, PERINATAL MORTALITY AND APGAR SCORE AT BIRTH AND MORBIDITIES AT ONE WEEK (n = 150)

Variables	Number of Neonates	Percentage%
Neonatal Birth weight		
More than 1.5 kg	147	98
Less than 1.5 kg	03	2
Perinatal mortality	06	4
Intrauterine death	01	0.66
Neonatal death	05	3.33
Apgar score at birth		
< 5	9	6
> 5	141	94
Neonatal morbidity		
Respiratory Distress Syndrome	65	43.3
Infection	6	4
Hyperbilirubinemia	55	36.6
Necrotizing enterocolitis	3	2
Circulatory failure	1	0.6

DISCUSSION:

About 130 million babies are born each year. Of these 8 million babies before their first, and 10 million babies die before their fifth birthday. Asia has the highest number of infant deaths. Low birth weight is the leading cause of death in newborns. About 15% of newborns weigh less than 2,500 grams. The data show that 50% of the world's malnourished children are located in 3 countries, namely Bangladesh, India and Pakistan, and the prevalence in Pakistan is around 25%.

The FGR rate in the present study is 3.5% in single reserved pregnancies; Gestational age was determined by last menstrual period and ultrasound before 20 weeks of pregnancy. Of 150 FGR cases, 72 (48%) were delivered by caesarean section and 78 (52%) patients had vaginal delivery; whereas the overall Caesarean section rate was only 27%, these results are in line with the results obtained by Munawar Jannat Ran from Rawalpindi Military Hospital in 2000. The increased rate of caesarean section in the FGR is also consistent with other studies. In this study, a lower vaginal delivery rate was observed in cases of FGR with abnormal umbilical artery Doppler velocity compared to AGA cases, as seen in a study by HuiLi et al. Doppler examinations of the fetal circulation and

CTG. Caesarean section is the preferred mode of delivery if there is no or reversed end-diastolic flow on uterine Doppler studies. We achieved a success rate of 96% in terms of perinatal outcomes with early detection, close surveillance and timely delivery, fetal mortality fell to just 4%. Recent data suggest that there is no change or significant increase in the risk of RDS associated with FGR. The analysis of piper et al. Showed an increase in FGR-related perinatal mortality and no difference in the incidence of RDS. In our study, frequent perinatal diseases were viewed as respiratory distress syndrome in 63 (42%), hyperbilirubinemia in 57 (38%), infections in 10 (6.6%), necrotizing enterocolitis in 3 (2%) and failure in 1 case (0.6%). These children had a poorer Apgar score, a higher rate of natal asphyxia resulting in a sudden caesarean section, as found in previous studies. The Apgar score was less than 5 in 9 (6%) cases and more than 5 in 141 (94%) cases. Like the study by Soregaroli et al. And Munawar Jannat15 Rana, these children required more CIP admissions, as in this study.

In this study, we analyzed data to detect gestational age at delivery, mode of delivery, and association of FGR with increased neonatal morbidity and mortality within one week of delivery. Caesarean section was

performed due to fetal insufficiency depending on the results of cardiocotography as the facility. Fetal blood collection is not available in our configuration. According to M de Onis, FGR is a major public health problem in the world that contributes to closing the intergenerational cycle of poverty; diseases and malnutrition. A large proportion of newborns in most developing countries suffer from some degree of LZG. The article presents a quantitative describes the size and geographic distribution LZG in developing countries. At least 13.7 million infants a year are born at term with low birth weight (LBW), which is 11% of all newborns in developing countries. This indicator is about 6 times higher than in developed countries. In our study, the birth weight was less than 1.5 kg in only 3 cases, while in 147 cases the birth weight exceeded 1.5 kg. LZG above 20% was recommended as a cut-off point for inducing public health actions. The prevalence in Pakistan is around 25%, so an urgent need for immediate intervention is imperative.

CONCLUSION:

This study shows that careful detection and close monitoring of complicated FGR pregnancies lead to an increased frequency of caesarean sections, but favorable outcomes in terms of perinatal morbidity and mortality.

REFERENCES:

1. Keepanasseril, Anish, Avantika Gupta, Devika Ramesh, Keerthana Kothandaraman, Yavana Suriya Jeganathan, and Dilip Kumar Maurya. "Maternal-fetal outcome in pregnancies complicated with non-cirrhotic portal hypertension: experience from a Tertiary Centre in South India." *Hepatology International* (2020): 1-8.
2. Familiari, Alessandra, Asma Khalil, Giuseppe Rizzo, Anthony Odibo, Patrizia Vergani, Danilo Buca, Nobuhiro Hidaka et al. "Adverse intrapartum outcome in pregnancies complicated by small for gestational age and late fetal growth restriction undergoing induction of labor with Dinoprostone, Misoprostol or mechanical methods: A systematic review and meta-analysis." *European Journal of Obstetrics & Gynecology and Reproductive Biology* (2020).
3. Levy, Michal, David Alberti, Michal Kovo, Letizia Schreiber, Eldar Volpert, Liron Koren, Jacob Bar, and Eran Weiner. "Placental pathology in pregnancies complicated by fetal growth restriction: recurrence vs. new onset." *Archives of Gynecology and Obstetrics* (2020): 1-8.
4. Joshi, R., A. Thakur, M. Chhetry, and D. K. Uprety. "Maternal and Fetal Outcome of Pregnancies Complicated with Hypertension in a Tertiary Care Hospital in Eastern Nepal." *Asian Research Journal of Gynaecology and Obstetrics* (2020): 32-38.
5. Toutain, Jérôme, Jacques Horovitz, and Robert Saura. "Type 3 confined placental mosaicism excluding trisomies 16 are also associated with adverse pregnancy outcomes." *Genetics in Medicine* 22, no. 2 (2020): 446-447.
6. Rizzo, Giuseppe, Ilenia Mappa, Victoria Bitsadze, Maciej Słodki, Jamilya Khizroeva, A. Makatsariya, and Francesco D'Antonio. "Role of Doppler ultrasound at time of diagnosis of late-onset fetal growth restriction in predicting adverse perinatal outcome: prospective cohort study." *Ultrasound in Obstetrics & Gynecology* 55, no. 6 (2020): 793-798.
7. Buca, Danilo, Carlotta Iacovella, Asma Khalil, Giuseppe Rizzo, Meeli Sirotkina, Alexander Makatsariya, Marco Liberati, Claudia Silvi, Ganesh Acharya, and Francesco D'Antonio. "Perinatal outcome of pregnancies complicated by placental chorioangioma: systematic review and meta-analysis." *Ultrasound in Obstetrics & Gynecology* 55, no. 4 (2020): 441-449.
8. Li, Hui, Yingshi Ouyang, Elena Sadovsky, W. Tony Parks, Tianjiao Chu, and Yoel Sadovsky. "Unique microRNA signals in plasma exosomes from pregnancies complicated by preeclampsia." *Hypertension* 75, no. 3 (2020): 762-771.
9. Pineles, Beth L., Sarah Crimmins, and Ozhan Turan. "Timing of delivery in pregnancies complicated by suspected fetal growth restriction without Doppler abnormalities." *American journal of perinatology* 37, no. 06 (2020): 647-651.
10. Khalil, Asma, Andrew Sharp, Christine Cornforth, Richard Jackson, Hatem Mousa, Sarah Stock, Jane Harrold et al. "Effect of sildenafil on maternal hemodynamics in pregnancies complicated by severe early-onset fetal growth restriction: planned subgroup analysis from a multicenter randomized placebo-controlled double-blind trial." *Ultrasound in Obstetrics & Gynecology* 55, no. 2 (2020): 198-209.
11. Aghwane, Rosalind, Nada Mufti, Dimitra Flouri, Kasia Maksym, Rebecca Spencer, Magdalena Sokolska, Giles Kendall et al. "Magnetic resonance imaging measurement of placental perfusion and oxygen saturation in early-onset fetal growth restriction." *BJOG: An International Journal of Obstetrics & Gynaecology* (2020).
12. van Wyk, Linda, Kim E. Boers, Sanne J. Gordijn, Wessel Ganzevoort, Henk A. Bremer, Anneke

- Kwee, Friso MC Delemarre et al. "Perinatal death in a term fetal growth restriction RCT: the paradox of prior risk and consent." *American Journal of Obstetrics & Gynecology MFM* (2020): 100239.
13. Tamayev, Liliya, Letizia Schreiber, Adi Marciano, Jacob Bar, and Michal Kovo. "Are there gender-specific differences in pregnancy outcome and placental abnormalities of pregnancies complicated with small for gestational age?." *Archives of gynecology and obstetrics* 301, no. 5 (2020): 1147-1151.
 14. Stanirowski, Paweł Jan, Michał Lipa, Dorota Bomba-Opoń, and Mirosław Wielgoś. "Expression of Placental Glucose Transporter Proteins in Pregnancies Complicated by Fetal Growth Disorders." (2020).
 15. Baker, Anna, Joanne Lagatta, Steven Leuthner, and Krishna Acharya. "Does prenatal counseling for pregnancies complicated by multiple fetal abnormalities concord with postnatal outcomes?." *Prenatal Diagnosis* 40, no. 5 (2020): 538-548.
 16. Badr, Dominique A., Andrew Carlin, Xin Kang, Teresa Cos Sanchez, Camille Olivier, Jacques C. Jani, and Elisa Bevilacqua. "Evaluation of the new expert consensus-based definition of selective fetal growth restriction in monochorionic pregnancies." *The Journal of Maternal-Fetal & Neonatal Medicine* (2020): 1-7.
 17. Youssef, Lina, Jezid Miranda, Cristina Paules, Laura Garcia-Otero, Kilian Vellvé, Grigorios Kalapotharakos, Alvaro Sepulveda-Martinez et al. "Fetal cardiac remodeling and dysfunction is associated with both preeclampsia and fetal growth restriction." *American Journal of Obstetrics and Gynecology* 222, no. 1 (2020): 79-e1.
 18. Orefice, Roberto, Alison Kent, Farah Sethna, and Jane E. Dahlstrom. "Of pregnancies complicated by small for gestational age babies at term, what proportions have placental findings with implications for future pregnancies or neonatal outcomes?." *The Journal of Maternal-Fetal & Neonatal Medicine* 33, no. 17 (2020): 2990-2995.
 19. Gijtenbeek, Manon, Monique C. Haak, Arend DJ Ten Harkel, Regina Bökenkamp, Benedicte Eyskens, Els Ortibus, Bart Meyns, Marc Gewillig, and Liesbeth Lewi. "Critical Coarctation of the Aorta in Selective Fetal Growth Restriction and the Role of Coronary Stent Implantation." *Fetal Diagnosis and Therapy* 47, no. 10 (2020): 740-748.
 20. Awamleh, Zain, and Victor KM Han. "Identification of miR-210-5p in human placenta from pregnancies complicated by preeclampsia and intrauterine growth restriction, and its potential role in the pregnancy complications." *Pregnancy Hypertension* 19 (2020): 159-168.