

ORIGINAL RESEARCH

A study on high risk and low risk pregnancies at a tertiary care hospital

¹Dr. Patil Purnima Jaiprakash, ²Dr. Suchit Reddy, ³Dr. Sujani BK, ⁴Dr. Mamatha, ⁵Dr. Urvashi, ⁶Dr. Gayatri

¹Assistant Professor, Department of OBG, ESIC Medical College, Gulberga, Karnataka, India

²Consultant, Department of Pediatrics, Sujani Mother and Child care, Gulberga, Karnataka, India

³Professor and Head, Department of OBG, MS Ramaiah Medical College and Hospital, Bangalore, Karnataka, India

⁴Associate Professor, Department of OBG, MS Ramaiah Medical College and Hospital, Bangalore, Karnataka, India

^{5,6}Assistant Professor, Department of OBG, MS Ramaiah Medical College and Hospital, Bangalore, Karnataka, India

Corresponding Author

Dr. Patil Purnima Jaiprakash

Assistant Professor, Department of OBG, ESIC Medical College, Gulberga, Karnataka, India

Received: 02Sept, 2023

Accepted: 25Sept, 2023

ABSTRACT

Since no treatment has been demonstrated to be of benefit in growth restriction, assessment of fetal wellbeing and timely delivery remain as the main management strategy. The study group will comprise all pregnant women at 30-34 weeks, who fulfill the inclusion criteria, coming for antenatal screening, to the Obstetrics out-patient department after taking written and informed consent. These women will be evaluated with ultrasound Doppler study with other routine investigations and CPR will be calculated. Women will be categorized into high risk and low risk pregnancies and will be followed up till delivery and fetal outcome will be noted. Fetal arterial blood PH will be noted and correlated with the fetal outcome. Period of prolongation was significantly lower with high risk patients as compared to low risk patients (31 vs. 38). NIUC admissions were significantly more with high risk patients compared to low risk patients (22% vs. 9%). Significantly more vaginal deliveries were with low risk patients as compared to high risk patients (72% vs. 39%).

Key words: High risk pregnancies, low risk pregnancies, FGR

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

INTRODUCTION

Since no treatment has been demonstrated to be of benefit in growth restriction, assessment of fetal wellbeing and timely delivery remain as the main management strategy. The main aim behind this clinical protocol to help in managing FGR is to combine the existing evidence on variety of methods used for monitoring the fetal well-being in order to establish the risks of fetal injury or death, and to balance them against the risks of prematurity if the fetus had to be delivered.¹ Added into the equation is the awareness that leaving pregnancies with FGR to deliver at term may also lead to perinatal morbidity and delayed effects such as cerebral palsy. The Growth Restriction Intervention Trial (GRIT) study was a multicenter randomized controlled trial aimed to compare the effect of delivering early with delaying birth for as long as possible. A total of 588 fetuses were included in the study that belonged to the gestational age between 24 and 36 weeks were

randomized to immediate delivery or delayed delivery until the obstetrician was no longer certain.² This study observed that when obstetricians were uncertain about timing of delivery or to terminate the pregnancy just based on UA Doppler, they were prepared to vary the timing by about 4 days, and although such delay caused few stillbirths, earlier delivery resulted in an almost equal number of additional deaths. Moreover, at the age of 2 years, there was usually a trend towards more disability in the immediate delivery group, compared to other group. Concerns regarding the external validity of this study exist, since only 5% of the eligible population was recruited, which raises doubts about the representativeness of the sample. One more randomized equivalence trial exists which compares the effect of induction of labor or expectant monitoring in women after 37 weeks of gestation with suspected SGA.³

At 2 years of age, about half of the cohorts were evaluated for neurodevelopmental and

neurobehavioral assessment, with no differences between both strategies. Based on these above mentioned results, it was concluded that it seems reasonable to offer delivery after 37 completed weeks in SGA infants. As the authors pointed out clearly in the discussion of this study, that further studies differentiating true FGR from other causes of SGA was not associated with poor perinatal outcome are required to clarify this question.⁴

METHODOLOGY

The study group will comprise all pregnant women at 30-34 weeks, who fulfill the inclusion criteria, coming for antenatal screening, to the Obstetrics out-patient department after taking written and informed consent. These women will be evaluated with ultrasound Doppler study with other routine investigations and CPR will be calculated. Women will be categorized into high risk and low risk pregnancies and will be followed up till delivery and fetal outcome will be noted. Fetal arterial blood PH will be noted and correlated with the fetal outcome.

RESULTS AND DISCUSSION

Table1:Outcome in High Risk and Low Risk Pregnancies

	POG at Birth (mean)	Vaginal	LSCS	CPR Normal/ Abnormal	ABG Normal/ Abnormal	Birth Weight <2.5kg/>2.5kg	NICU admissions/ Stay (Duration in days) mean	Ventilation (Yes/No)
Low risk 322(80.5%)	266 days	239 (74.22%)	83 (25.77%)	310(96.5%)/ 12(3.41%)	302(93.7%)/ 20(6.2%)	52(16.14%)/ 270(83.8%)	16/5.89 days	1/321
High risk 78 (19.5%)	262 days	35 (44.87%)	43 (55.12%)	72(92.30%)/ 6(7.6%)	64(82%)/ 14(18%)	68(87.17%)/ 10(12.8%)	31/ 8.42 days	6/72

In the present study, 80.5% (322) women belonged to the low risk group, among them 74.22% (239) of them had vaginal delivery, and 25.77% (83) of them underwent LSCS. Among them 3.41% (12) of them had abnormal CPR and 6.2% (20) of them had abnormal ABG. 16.14% (52) of them had birth weight <2.5kg and 83.8% (270) of the babies had birth weight > 2.5kg. 16 babies were admitted in NICU, with mean duration of stay of 5.89 days. One patient was ventilated (CPAP).

INCLUSION CRITERIA

Women aged 18-40 years, with singleton pregnancy and period of gestation between 30 to 34 weeks who are willing to take part in the study.

EXCLUSION CRITERIA

1. Pregnant women with multiple gestation.

STUDY DESIGN: Prospective Cohort Study.

RATIONALITY FOR SAMPLE SIZE

A study carried out on "Umbilical and fetal middle cerebral artery Doppler at 30-34 weeks" gestation in the prediction of adverse perinatal outcome" has revealed a significant association between log10 MoM CPR and birth weight Z score $r=0.131(p<.001)$. Based on the above findings of the study, with a power of 80% and α error of 5%, it has been estimated that 351 pregnant women, need to be included in the study.

19.5(78) of women belonged to high risk group, among them 44.87% (35) of them had vaginal delivery, 55.1% (43) of them underwent LSCS. 7.6% (six) of the babies had abnormal CPR, and 18% (14) of the babies had abnormal ABG. 87.17% (68) of the babies had birth weight <2.5kg and 12.8% (10) of the babies had birth weight >2.5kg. 31 babies were admitted to NICU, with mean duration of stay was 8.42 days, and 6 babies were on ventilator.

The results were similar to other studies.^{5,6}

Table 2:Statistical Analysis of High Risk and Low Risk Cases

Variables	High riskN, % (78,19.5%)	Low riskN, % (322,(80.5%)	Total N, % (400,100%)	p-value
Route of delivery				
Emergency	30 (38.46)	71 (22.04)	101 (25.25)	<.0001 s
Elective	13 (16.66)	12 (3.72)	25 (6.25)	Chi
Vaginal	35 (44.87)	239 (74.22)	274 (68.5)	sq=38.71
NICU admissions				.002s
Yes	31 (22.22)	16 (9.4)	47 (11.72)	Chisq=
No	47 (77.77)	306 (90.57)	353 (88.28)	9.35
CPR				.061
Normal	72 (92.30)	310 (96.5)	382 (95.5)	Chisq=
Abnormal	6 (7.6)	12 (3.41)	18 (4.5)	3.50
	Mean \pm std.	Mean \pm std	Mean \pm std	"t" value

				p-value
POG at Birth, days	262.36 ± 16.7	266.3 ± 18.1	265.58 ± 17.16	-1.78 0.075 ns
Birth weight	2.73 ± 0.39	2.79 ± 0.41	2.79 ± 0.48	-0.98 0.33 ns
Period of prolongation (in days)	31.09 ± 13.9	37.79 ± 15.1	36.5 ± 14.5	-3.62 .0003s

- Period of prolongation was significantly lower with high risk patients as compared to low risk patients (31 vs. 38).
- NIUC admissions were significantly more with high risk patients compared to low risk patients (22% vs. 9%).
- Significantly more vaginal deliveries were with low risk patients as compared to high risk patients (72% vs. 39%).

Other studied results were comparable with this study.^{7,8}

CONCLUSION

- Total number of women with Gestational hypertension and preeclampsia were 51 (12.68%)
- Out of 400 women included, 80.59% belonged to low risk and 19.4% belonged to high risk group.
- 91.5% of babies had normal ph at birth, and 8.5% of babies had abnormal ph at birth.

REFERENCES

1. Dubiel M, Breborowicz GH, Marsal K, Gudmundsson S. Fetal adrenal and middle cerebral artery in high risk pregnancy. *Ultrasound ObstetGynecol* 2000;16:414-418.
2. Kurjak A, Kupesic S, Zudenigo D. Doppler ultrasound in all three trimesters of pregnancy. *CurrOpinObstetGynecol* 1994; 6:472-8.
3. Arduini D, Rizzo G. Doppler studies of deteriorating growth retarded fetuses. *CurrOpinObstetGynecol* 1993, 5:195-2-3.
4. Hernandez-Andrade E, Scheier M, Dzerega V, Carmo A, Nicolaides KH. Fetal middle cerebral artery peak systolic velocity in the investigation of non-immunohydrps. *Ultrasound ObstetGynecol* 2004, 23:442-445.
5. Kassanos D, Siristatidis C, Vitoratos N, Salamalekis E, Creatsas G. The clinical significance of Doppler findings in fetal middle cerebral artery during labor. *J ObstetGynecolReprodBiol* 2004, 23: 442-445.
6. Sterne G, Shields LE, Dubinsky TJ. Abnormal fetal cerebral and umbilical Doppler measurements in fetuses with intrauterine growth restriction predicts the severity of perinatal morbidity. *J Clin Ultrasound*. 2001;29:146-51.
7. Arduini D, Rizzo G, Romanini C. Changes of pulsatility index from fetal vessels preceding the onset of late decelerations in growth retarded fetuses. *ObstetGynecol* 1992; 79: 605-10.
8. Arias F. Accuracy of the middle-cerebral-to-umbilical-artery resistance index ratio in the prediction of neonatal outcome in patients at high risk for fetal and neonatal complications. *Am J Obstet Gynecol*. 1994;171:1541-5.