

International Journal of Clinical Obstetrics and Gynaecology



ISSN (P): 2522-6614
ISSN (E): 2522-6622
© Gynaecology Journal
www.gynaecologyjournal.com
2022; 6(6): 04-06
Received: 04-08-2022
Accepted: 09-09-2022

Dr. V Sai Navya
Post Graduate, Department of
Obstetrics and Gynaecology,
Sri Venkateshwara Medical
College, NTRUHS, Tirupati,
Andhra Pradesh, India

Dr. KV Padmaja
Assistant Professor, Department of
Obstetrics and Gynaecology, Sri
Venkateshwara Medical College,
NTRUHS, Tirupati, Andhra
Pradesh, India

Dr. Sree Latha
Assistant Professor, Department of
Obstetrics and Gynaecology, Sri
Venkateshwara Medical College,
NTRUHS, Tirupati, Andhra
Pradesh, India

Corresponding Author:
Dr. V Sai Navya
Post Graduate, Department of
Obstetrics and Gynaecology,
Sri Venkateshwara Medical
College, NTRUHS, Tirupati,
Andhra Pradesh, India

To study the maternal risk factors for fetal growth restriction in pre-term births

Dr. V Sai Navya, Dr. KV Padmaja and Dr. Sree Latha

DOI: <https://doi.org/10.33545/gynae.2022.v6.i6a.1220>

Abstract

Introduction: Fetal growth restriction and preterm birth are the two adverse pregnancy outcomes, which remains a prime challenge in maternity care

Materials and Methods: One year retrospective study was conducted in government maternity hospital, Tirupati, to know the maternal risk factors for fetal growth restriction in preterm births

Results: Underweight and manual labor during pregnancy are the significant risk factors for fetal growth restriction in preterm births.

Conclusion: Preterm fetal infants have 2 times higher risks of need for NICU admission and 5 times risk for Neonatal mortality when compared to preterm non-fetal growth restriction infants.

Keywords: Neonatal mortality, prematurity, fetal growth restriction

Introduction

- Fetal growth restriction and preterm birth are the two adverse pregnancy outcomes, which remains a prime challenge in maternity care.
- There are many risk factors that predispose to preterm and FGR separately.
- Paucity in Indian data on maternal risk factors for both preterm FGR.

Aims and objectives

Primary: To determine the risk factors for fetal growth restriction in preterm births.

Secondary: To compare neonatal mortality rate in preterm babies with and without FGR.

Methodology

- **Study design:** Retrospective case control study
- **Population:** Women with preterm delivery (Gestational age: 28 to 36+6 weeks period)
- **Sample size:** 102 cases and 102 controls

Inclusion Criteria

- Singleton preterm births with fetal growth restriction
- Live as well as stillbirths.

Controls

- Consecutive singleton preterm births without fetal growth restriction
- Live as well as stillbirths

Exclusion Criteria

- Congenital malformations

Fetal growth restriction is defined as birth weights less than 10th percentile by inter growth-21 charts.

Analysis outcomes: SPSS 21.0

Outcomes

- Primary outcome was the association between low body mass index (BMI) and fetal growth restriction in preterm births

- Secondary outcome: neonatal mortality rates of cases and controls.

Results**Table 1:** Comparison of socio demographic risk factors between two groups

Exposure variable	Preterm FGR [study group] (n=102)	Preterm non FGR [control group] (n=102)	Odds ratio (95% confidence interval)	p-value
Maternal Age				
<18 years	0	0	-	0.17
18-35years	100 (98.0%)	(93.1%)	Ref	
>35 years	(2.0%)	(6.9%)	0.27 (0.05-1.34)	
Socio Economic Status (SES)				
Upper	(2.0%)	(1.0%)	3.02 (0.26-34.68)	0.37
Middle	(34.3%)	(51.8%)	Ref	
Lower	(63.7%)	(47.2%)	2.05 (1.16-3.61)	

Table 2: Comparison of anthropometric risk factors between two groups

Exposure variable	Preterm FGR [study group] (n=102)	Preterm non FGR [control group] (n=102)	Odds ratio (95% confidence interval)	P-value
Height (cm)				
<145	13 (12.7%)	10 (9.8%)	1.30(0.47-3.55)	0.79
145TO 155	66 (64.7%)	69 (67.6%)	0.95(0.48-1.86)	
>155	23 (22.5%)	23 (22.5%)	Ref	
BMI (kg/m²)				
<18.5(underweight)	51 (50.0%)	10 (9.8%)	8.86(4.07-19.27)	<0.001
18.5to 24.9 (Normal BMI)	42 (41.2%)	73 (71.6%)	Ref	
>25(over weight)	9 (8.8%)	19 (18.6%)	1.21(0.50-2.92)	

Table 3: Comparison of maternal lifestyle related risk factors between two groups

Exposure variable	Preterm FGR [study group] (n=102)	Preterm non FGR [control group] (n=102)	Odds ratio (95% confidence interval)	p-value
Work				
House wife	60 (58.8%)	73 (71.6%)	Ref	<0.001
Sedentary work	21 (20.6%)	27 (26.5%)	0.94(0.48-1.83)	
Manual work	21 (20.6%)	2 (2.0%)	12.77(2.88-56.68)	
Stress				
No	74 (72.5%)	77 (74.5%)	Ref	0.75
Yes	28 (27.5%)	25 (24.5%)	1.16(0.63-2.18)	
Smoking				
Never	65 (63.7%)	83 (81.4%)	Ref	<0.001
Passive smoking	37 (36.3%)	19 (18.6%)	2.48(1.31-4.72)	
1 to 10	-	-		
>10	-	-		

Table 4: Pregnancy outcomes associated with preterm fgr births

Outcome variables	Preterm-FGR [study group] (n=102)	Preterm-Non-FGR [control group] (n=102)	Relative risk (95% CI)	p-value
Birth weight				
≥2000 gms	35 (34.4%)	90 (88.3%)	3.02(1.45-2.12)	<0.001
<2000 gms	67 (65.6%)	12 (11.7%)		
Mean± standard deviation	1740±345.76	2363±349.13		
NICU admission				
No	36(38.2%)	80(81.6%)	2.91(1.91-4.44)	<0.001
Yes	58 (61.7%)	18 (18.4%)		
Neonatal mortality				
No	77(82%)	97(98%)	5.29(1.42-19.77)	<0.001
Yes	17(18%)	2(2%)		

Table 5: Multivariate logistic regression analysis of independent risk factors for fgr among preterm births

Exposure variables	Ref	Adjusted Odds ratio [95% CI]	p-value
BMI			
<18.5		8.37(3.83-18.30)	<0.001
18.5or above	Ref		
Work			
House wife/ Sedentary work	Ref		<0.01
Manual work		9.99(2.12-46.99)	
Passive smoking			
No	Ref	1.57(0.74-3.34)	0.23
Yes			

Conclusion

- Underweight and manual labour during pregnancy are the significant risk factors for FGR in preterm births
- Preterm FGR infants have 2 times higher risk of need for NICU admission and 5 times risk for neonatal mortality when compared to preterm non-FGR infants.
- Interventions to promote early attendance to ANC services, education on awareness of adequate nutrition, avoiding manual labour during pregnancy may significantly decrease the burden of preterm FGR births.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Jaafari RM, Ahwaz UMS. Intrauterine growth restriction. Available from url <http://220.128.112.10/ftp/medical>. Accessed on 16-08-2011. [PubMed]
2. Von Beckerath AK, Kollmann M, Rotky-Fast C, Karpf E, Lang U, Klaritsch P. Perinatal complications and long-term neurodevelopmental outcome of infants with intrauterine growth restriction. *Am J Obstet Gynecol*. 2013 Feb;208(2):130.e1-6. DOI: 10.1016/j.ajog.2012.11.014. Epub 2012 Nov 15.
3. Singh G, Chouhan R, Sidhu K. Maternal factors for low birth weight babies. *Medical J Armed Forces India*. 2009 Jan;65(1):10-2. DOI: 10.1016/S0377-1237(09)80045-2. Epub 2011 Jul 21.
4. American College of Obstetricians and Gynecologists. Intrauterine growth restriction. Practice Bulletin no. 12, 2000.
5. Washington DC. Available at: <http://www.acog.org>. Accessed 7 August 2014.
6. Royal College of Obstetricians and Gynecologists. The investigation and management of the small for gestational age fetus. Green-top Guideline No. 31, Minor revisions; c2014 Jan. p. 6.
7. Barker ED, McAuliffe FM, Alderdice F, Unterscheider J, Daly S, Geary MP, *et al*. The role of growth trajectories to identify fetal growth restriction. *Obstet Gynecol*. 2013;122:248-254.
8. Manning E, Corcoran P, Meaney S, Greene RA. Perinatal Mortality in Ireland, Annual Report 2011. NPEC, Cork; c2013.
9. Varvarigou AA. Intrauterine growth restriction as a potential risk factor for disease onset in adulthood. *J Pediatr Endocrinol Metab*. 2010;23:215-224.
10. Ornoy A. Prenatal origin of obesity and their complications: gestational diabetes, maternal overweight and the paradoxical effects of fetal growth restriction and macrosomia. *Reprod Toxicol*. 2011;32(2):205-212.
11. Muhammad T, Khattak AA, Shafiq-ur-Rehman, Khan MA, Khan A, Khan MA. Maternal factors Associated with intrauterine growth restriction. *J Ayub Med Coll Abbottabad*. 2010;22(4):64-69.
12. Royal College of Obstetricians and Gynaecologist. The investigation and management of the small for gestational age fetus. Green-top guideline No 31: 2nd ed. London: RCOG Press; c2013. p. 1-34.
13. Unterscheider J, Daly S, Geary MP, McAuliffe FM, Kennelly MM, Morrison JJ, *et al*. Optimizing the definition

of intrauterine growth restriction - results of the multicenter prospective Porto study *AJOG*. 2013;208(4):290-291.

14. Radulescu L, Ferechide D, Popa F. The importance of fetal gender in intrauterine growth restriction. *J Med Life*. 2013;6(1):38-39.

How to Cite This Article

Navya VS, Padmaja KV, Latha S. To study the maternal risk factors for fetal growth restriction in pre-term births. *International Journal of Clinical Obstetrics and Gynaecology*. 2022;6(6):04-06.

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 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.