



Study Of High Risk Scoring In Pregnancy - Maternal And Foetal Outcome

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Abstract

High risk pregnancy refers to pregnancy with an increased risk of adverse outcome in mother or the baby. Scoring the risk, will identify mothers at risk earlier, so that proper resource allocation, planned management or timely referral to higher centers is facilitated and thereby perinatal mortality or morbidity can be reduced. 400 pregnant women with term gestation, admitted to labor room were evaluated. The risk factors in each case were assessed and their individual risk scores were determined using a simple scoring system. Subsequently their perinatal outcomes were compared to their respective risk scores. It was found that there was a significant association between poor perinatal outcome and high risk pregnancies predicted by this scoring schedule. 20% of the cases belonged to high risk group, out of which 32.5% cases had maternal complications. Significant association between high risk score and perinatal mortality and birth asphyxia was found. There was a significant correlation between high risk maternal and poor perinatal outcome. So a simple scoring system, such as the one used in our study, can be adopted at primary and rural health centers as a screening tool to predict pregnancies at high risk for poor perinatal outcome. Thereby facilitating early referral of these women to tertiary care centers.

Keywords: High risk pregnancy, Risk score, Perinatal mortality, Birth asphyxia, Low birth weight.

Introduction

A high-risk pregnancy (HRP) is a pregnancy complicated by a disease or disorder that may endanger the life or affect the health of the mother, the fetus or the newborn. This disease or disorder may be existing before pregnancy, or it may be coincidental or unique to pregnancy.

The World health organization has reported that almost 830 women die daily as a result of complications during antenatal period and childbirth. There are five main reasons for death of pregnant women such as severe hemorrhage, maternal infections, unsafe abortion, hypertension related disorders of pregnancy such as preeclampsia and eclampsia, and medical complications such as cardiac conditions, HIV/AIDS, or diabetes related complication in pregnancy.¹

Hence, all the pregnancies need to be evaluated for high risk pregnancy through routine antenatal care provided by the health care professionals. Identification of high risk pregnancy, causes, and its complications through quality antenatal care helps in achieving favorable maternal, obstetric, and neonatal outcome.²

Method:

Study Design - Prospective analytical study

Period: March 2020 –Feb. 2021

Study Setting: Department of Obstetrics and Gynecology, Govt. Medical college, Associate group of hospital, KOTA (Rajasthan). 400 Pregnant women with term gestation reporting to the labor room at our institute during the study period between March 2020 to feb. 2021 were recruited regardless of their booked

/ unbooked status, age, parity, socioeconomic status, associated diseases or complications etc. Careful history was elicited, followed by thorough general, systemic, obstetric examination and relevant investigations to determine the risk factors in each case. The observations were recorded in prenatal scoring form based on scoring system suggested by Dutta and Das³ and individual risk scores were calculated. Based on their total scores, the cases were divided into low (0-2), moderate (3-5) and high risk(≥ 6) groups.

Inclusion Criteria:

1. Patients admitted in the hospital after 37 weeks of pregnancy for confinement and who were willing to participate in the study.

2. Babies followed up to discharge after birth either in wards or NICU.

Exclusion Criteria:

1. Patient < 37 weeks pregnancy
2. Patient who refuse to be part of this study.

Methodology:

The data was collected using a prepared proforma meeting the objective of the study by means of personal interview with the patient after taking informed consent the data was collected from the pregnant females in reproductive age group as per the inclusion and exclusion criteria.

Dutta and Das Scoring system

Table No.1- Distribution of cases in risk group (According of risk scoring system)

Reproductive History factors	Score	Associated Disease Factors	Score
Age <16	1	Diabetes Mellitus	3
16-35	0	Cardiac diseases	3
>35	2	Chronic renal disease	2
Parity 0	2	Previous Gyn. Surgery	1
1-4	0	Infective hepatitis	1
5/ >5	2	Pulmonary tuberculosis	2
Past Obstetric History		Under nutrition(anemia)	2
Abortion / Infertility	1	Other diseases (according to severity)	1-3
PPH/Manual Removal	1	Present Pregnancy Factors	
Baby >4 kg (4000gms)	1	Bleeding <20 weeks	1 and 3

		>20weeks	
PIH / Hypertension	1	Anaemia< 10 gm	1
Previous Caesarean section	2	Hypertension	2
Still birth / neonatal death	3	Hypertension with albuminuria	3
Prolonged labor	1	Multiple Pregnancy/breech	3
		Rh- isommunization	3
		Prolonged pregnancy	1
		Oligohydramnios/ Polyhydramnios	2
		PROM	2
		Small for dates	1

In the present study 266 (66.5%) cases belonged to low risk, 76(19%) cases to the moderate risk and 58(14.5%)cases to the high risk category.

Table No. 2 - Distribution of need for operation delivery between risk groups

S.No.	Risk Group	Score	No. of cases	% age
1	Low risk	0-2	266	66.5
2	Moderate risk	3-5	76	19
3	High risk	> 6	58	14.5
			400	100

In our study out of 400 delivery 167 were caesarean section and 41 were repeat section. Cesarean section rate is higher side than vaginal birth. Normal vaginal deliveries were 41%. Total no. of vaginal birth after caesarean section was 3.75%. Instrumental delivery were 0.25% and assisted breech deliveries were 3%. There was higher percentage need for operation delivery in high risk group total 79.3 % cases need for operation delivery.

Table No. 3 - Distribution of maternal mortality cases between risk group

S.No.	Risk group	Score	No. of cases	Maternal mortality	% age	Chi Square Value	Significance P value
1	Low risk	0-2	266	01	0.375%	7.2887	0.020001
2	Moderate risk	3-5	76	02	1.31%		
3	High risk	>6	58	03	3.44%		
			400	06			

In our study total 6 cases of mortality was observed. In our study out of 6 cases of mortality 2 cases were ante partum eclampsia, 2 were post LSCS complicated to pulmonary embolism, 1 patient have pre existing cardiac patient and 1 mortality occurred due to PPH followed to shock. Data was statistically significant (p value - 0.020001).

Table No. 4 - Distribution of cases in low birth weight baby

S.no.	Risk group	Score	No. of cases	LBW (< 2.5 kg)	% age	Chi Square Value	Significance P value
1	Low risk	0-2	266	12	4.1%	35.601	<0.00001
2	Moderate risk	3-5	76	15	18.4%		
3	High risk	>6	58	20	31.03%		
			400	47			

Table No.5 - Distribution of APGAR SCORE <7 at 5 min.(Birth asphyxia) between risk group

S.No	Risk Group	Score	No. of Cases	APGAR score < 7 5 minute	% age	Chi Square Value	Significance P value
1	Low risk	0-2	266	13	4.88%	6.708	0.03494
2	Moderate risk	3-5	76	09	6.57%		
3	High risk	>6	58	08	13.79%		
			400	26			

In the present study, we observed a significant risk of birth asphyxia (APGAR<7 at 5 min.) 13.79% in the high risk group

Table No. 6 - Distribution of perinatal mortality cases between risk group

S.No	Risk Group	Score	No. of Cases	Perinatal mortality	IUD/ alive	% age	Chi Square Value	Significance P value
1	Low risk	0-2	266	02	0/2	0.75%	8.7086	0.012851
2	Moderate risk	3-5	76	02	1/1	2.63%		
3	High risk	>6	58	04	3/1	6.89%		
			400	8	4/4			

In our study, perinatal mortality was exclusively found in high risk pregnancies 6.89%, showing a significant association (p value-0.0128)

Discussion:

Kolluru V. et al⁵ had reported that 45 % belonged to low risk, 33 % to the moderate risk and 20 % to the high risk category. Kolluru V. et al⁵ studied that 82.5 % and Pallai SS. et al¹² 65.90 % of the high risk pregnant women had operative intervention either cesarean section or instrumental vaginal delivery. 4 cases of (out of 200) mortality was observed by kumar A. et al¹⁰. Three patients had uncontrolled hypertension as the underlying cause while one patient had severe anaemia. The risk of low birth weight is 2.3% in low risk group to 17.64% in moderate risk and 48.8% in high risk group in study done by Samiya M et al⁴. The risk of birth asphyxia of 13.6% in high risk group in study by Samiya M et al⁴ which is comparable to our study. Samiya M et al⁴ studied perinatal mortality 18.2% in high, 8.8% in moderate and 2.74% in low risk groups.

Results:

High risk pregnancy requires exemplary individualized care and special attention as this group is responsible for maximum perinatal mortality and morbidity even though they form a small proportion of the entire population.

The present study was done in department of obstetrics & gynecology at Government Medical College & Associate Group of hospital, kota, over a period of one year.

In our study there were one or more than one risk factor present in all 400 cases. Primigravidae was major contributing risk factor and 55.5 % cases presented this.

The antenatal women who have been included in the study were classified as low risk (0-2), moderate risk (3-5) and high risk (≥ 6) based on the cumulative total of their respective scores. Out of the total 400 cases studied, 66.5%(266) were graded as low risk, 19 % (76) as moderate risk and 14.5 % (58) belonged to high risk. 34 % (136) women were booked and 66 % (264) women were unbooked. The need for operative intervention increased with increasing risk score of the mother it was 79.31 % (46/58) in case of high risk group, where as it was 68.42 % (52/76) and 41.3 % (110/266) in moderate and low risk groups respectively. Maternal complications seen in 32.5 % of high risk cases.

Perinatal mortality was exclusively found in high risk group. The high risk group had 13.79 % (8/58) incidence of birth asphyxia diagnosed by APGAR scores < 7 at 5 min and data was statistically significant (P value - 0.03494)

Conclusion:

There is a significant correlation between high risk maternal and poor perinatal outcome. The factors included in the scoring system were relevant for determining the risk groups through scoring. The present study showed that through scoring the risk factors, it is possible to identify the mothers who are expected to contribute to poor pregnancy outcome.

A high-risk scoring system is simple, easy to use cost effective modality to identify pregnancies at high risk for the poor maternal and perinatal outcome. The antenatal cards of the pregnant women can mention this risk score and all women with a high-risk score can be referred to tertiary care centres for timely intervention and appropriate management.

This kind of approach is very much essential in tertiary care centers like our hospital where not only patients belonging to high risk group but low risk category also seek medical attention. Despite recent advances in obstetrics and neonatal care in India, our country is still facing high maternal and perinatal mortality rate.

Ethical approval: The study was approved by the Institutional Ethics Committee

References

1. Ministry of Health and Family Welfare. Pradhan Mantri Surakshit Matritva Abhiyan, Ministry of Health and Family Welfare, 2016.
2. World Health Organization 10 Facts on Maternal Health. World Health Organization.2nd ed. 2018;p-231.
3. Dutta S and Das KS. Identification of high risk pregnancy by simple scoring system. J Obstet Gynecol India .1990;37:639-642.
4. Samiya M, Samina M et al. Identification of high risk pregnancy by a scoring system and its correlation with perinatal outcome. Indian J Pract dr.2008 ;8:5-19.
5. Kolluru V, A. Reddy et al. Study of high risk scoring in pregnancy and perinatal outcome, ijogr. 2016;12(7)121-29.
6. Rani anupam, Karya Urmila, Kumari Sweta. Evaluation of perinatal outcome in high- risk pregnancy at tertiary care centre. International Journal of Reproduction, Contraception, Obstetrics and Gynecology.2019;8(5):2083-2086.
7. Kumar Naina, Yadav Ashu. High-risk pregnancy and perinatal outcome ijogr.2020;4(16):318-326.
8. American College of Obstetricians and Gynecologists. Gestational hypertension and preeclampsia. ACOG practice bulletin, No. 222. Obstetric Gynecology 2020;135 (6):e237- e260.
9. Shrestha, J., Gurung, S. D., Subedi, A. & Pandey, C. Identifying high risk pregnancy and Its effectiveness in determining maternal and perinatal outcome. Birat Journal of Health Sciences,2021;6(2):1565–1572.
10. Kumar A, Srivastav S et al. High risk pregnancy scoring system to evaluate maternal and fetal outcome.ijhcr.2021;21(8): 91-95.
11. R Krishnaveni, K Saraswathi et al. Study of maternal and neonatal outcome in high risk pregnancy. J Res Med Dent Sci, 2021;9(6):392-402.
12. Shobha S. Pillai, Swapna Mohan Original research article high risk scoring in pregnancy using modified coopland's scoring system and its association with perinatal outcome. International Journal of Reproduction, Contraception, Obstetrics and Gynecology.2021 Apr;10 (4):1608-1613.