IDENTIFICATION OF HIGH RISK MOTHERS BY A SCORING SYSTEM AND ITS CORRELATION WITH PERINATAL OUTCOME

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SUMMARY

A relatively small percentage of "High risk" obstetric population gives rise to a disproportionately high percentage of perinatal mortality and morbidity. A comprehensive approach to perinatal medicine should include an attempt to predict these pregnancies that might have an unfavourable outcome. The present study was aimed at the fulfillment of this goal of predicting high risk mothers by developing a prenatal scoring schedule.

INTRODUCTION

A high risk pregnancy is the one in which the foetus is vulnerable to a significant risk of death, before and after birth and may develop disability later. The mothers may have a serious health problem of biological, obstetrical or of socio-economic nature which are all potentially inimical to perinatal health. Certain risk factors are existing in this group of patients which are responsible for putting them in this high risk category.

About 20-30% belong to this category and this small group is responsible for 70-80% of perinatal mortality and morbidity.

Peter Dunn (1974) wrote "The perinatal period occupies less than 0.5% of the average span yet accounts in many countries for more deaths than the next 30 years. With reduction in infant and childhood mortality, attention is increasingly being focussed on the prevention of perinatal mortality. The latter truly reflects the real value of antenatal and intranatal care.

The present study was aimed at developing a simple risk scoring schedule which could help in identifying the risk mothers for effective management.

MATERIAL AND METHODS

A total of 250 pregnant women attending the Antenatal Clinic and Outpatient Department of Obstetrics and Gynaecology, S. G. T. B. Hospital / Medical College, Amritsar presenting after 28. weeks period of gestation were screened out.

To identify mothers 'at risk', a numerical scoring system based on the combination of the scoring systems suggested by Morrison and Olsen (1979) and Datta and Das (1990) was used. The observations in each case were recorded in pre-natal scoring form together with other relevant information. Filling up of this pre-natal scoring form was based upon detailed medical and obstetrical history, general physical examination and obstetric examination. Ad hoc numerical score was given to each characteristic and at the end these were added to give a total score to the mother to observe the cumulative effect of the various factors.

During subsequent visits, any change in risk scoring was noted. At the time of delivery, note was made of the following points :

> Apgar scoring at 5 minutes
> Birth weight of the baby

Any maternal or neonatal complication developing in subsequent 7 days was noted.

RESULTS

Mothers were classified into 3 risk groups - low (0-2 score), moderate (3-5 score) and high (6 and above) of total 250 mothers studied, distribution according to 3 risk groups was as follows :

Low risk group   - 119 (43.6%)
Moderate risk group - 118 (47.2%)
High risk group   - 23 (9.2%)

Criteria taken for studying perinatal outcome were perinatal mortality, birth weight less than 2.5 Kg and APGAR scoring at 5 minutes less than 7.

Perinatal outcome was studied in relation to various risk groups, in relation to individual risk factors as taken in prenatal scoring form and in relation to socio-economic status of the patients.

Table II shows the perinatal outcome in relation to various risk groups.

As is evident from this table mothers in high risk group had maximum insurance of perinatal mortality, low birth weight, asphyxiated born babies.

DISCUSSION

Developing a simple, practical and reliable risk scoring schedule which could help in identification of at risk mothers was one of the main objectives of the present study. Evaluation of scoring schedule used in this study was done by studying the perinatal outcome in various risk groups and also in relation to different risk factors.

Out of 9 perinatal deaths, 77.7% occurred in high / moderate risk group. Results are comparable with that of Sokol et al (1977) > 80%, Morrison et al (1979) 70%, Edwards et al (1979) 88.6%, Das et al (1987) 83.3%.

Out of 40 LBW babies, 33 (82.5%)

Table I

Pre-Natal Scoring Schedule

Reproductive history Factors		Score	Associated disease Factors	Score	Present pregnancy Factors		Score
Age	< 16	1	Diabetes mellitus	3	Bleeding	< 20 weeks	1
	16 - 35	0				> 20 weeks	3
	> 35	2	Cardiac diseases	3	Anaemia	< 10 gm	1
Parity	0	2					
					Hypertension		2
	1-4	0	Chronic renal disease	2			
					Oedema		3
	5 +	2	Previous Gyn. surgery	1			
Past obstetric history					Albuminuria		3
1. Abortion / infertility		1	Infective hepatitis	1	Multiple pregnancy		3
2. PPH / Manual removal		1	Pulmonary tuberculosis	2	Breech		3
3. Baby > 4 Kg (4000 gms)		1			Rh-isoimmunization		3
4. Baby < 5½ 1bs (2500 gms)		1	Undernutrition	2	Prolonged pregnancy		1
5. PET / Hypertension		1	Other diseases	1-3	Premature rupture of membranes		2
6. Previous caesarean section		2	(according to severity)				
7. Still birth / neonatal death		3			Polyhydramnios		2
8. Prolonged labour / difficult labour		1			Small for dates		1

Total score : High / Moderate / Low risk

Table II

Perinatal outcome in relation to various risk groups

Risk group	Score	Total Birth	Perinatal outcome		
			Perinatal mortality	Low birth weight < 2.5 kg	Apgar score < 7 at five minutes
Low	0-2	109	2 (1.83%)	7 (6.42%)	6 (5.50%)
Moderate	3-5	119*	3 (2.52%)	27 (22.68%)	22 (18.48%)
High	6 and above	24*	4 (16.66%)	6 (25.0%)	12 (50.0%)

* includes one twin delivery

were born in high and moderate risk groups. Figures are closer to that of Hobel et al (1973) 74.6% and Das et al (1987) 71.2% while Datta and Das (1990) 67.2% reported a lower incidence.

Savita Rani et al (1980) also observed that incidence of low birth weight babies increased with increase of risk.

85% of total asphyxiated born babies were in high moderate risk group. This correlation between high risk group and Apgar score was also observed by Goodwin et al (1969), Yeh et al (1977) and Savita Rani et al (1980).

It is clear from above discussion that although majority of perinatal deaths and most of the low birth weight babies and asphyxiated babies were in high risk group, low risk group also contributed to poor perinatal outcome.

The difficulty of predicting pregnancy outcome derives not only from the complexity of interactions between risk factors and between maternal and fetal organisms, but also from a big "unknown"

i.e. genetic factors of mother, father and fetus. This big unknown is rarely predictable, yet it is frequently responsible for such surprises as perinatal death in obstetric circumstances that appeared to offer no or little risk or in contrast, perfectly healthy babies from high risk pregnancies.

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