# SIMPLE CLINICAL MONITORING IN PREGNANCY

## (PART I)

by

JAYANT S. REGE

AJIT C. MEHTA

and

(MISS) DINA N. PATEL

## SUMMARY

Formulation of this risk scoring system as an aid to simple clinical monitoring in pregnancy; which represents 'Phase A' part of our project, was based on a randomised study of 300 retrospective cases. The average birth weight in score group (0-2) was 2.770 kg., whereas that in group (9 & above) was 2,180 kg. Incidence of preterm deliveries in the score group (0-2) was 3.5%, whereas the same in score group (9 & above) was 40%. Incidence of caesarean section in the score group (0-2) was 1.7%, the name in score group (9 & above) was 12.5%. The incidence of neonatal deaths in score groups (0-2) and (9 & above) was 1.7% and 10% respectively.

## Introduction

Multifactorial risk assessment has evolved into an obstetric tool of great potential value for evaluating the risk status of a pregnancy.

'Risk scoring' can be defined as a formalised method of recognizing, documenting and cumulating antepartum and intrapartum factors in order to predict the later complications for mother, fetus and the infant. The abnormal conditions tend to occur together and may act synergistically as risk factors producing a cumulative effect. Thus the women with lowest numbers and least severity of risk factors, might be expected to have the best out-

comes, and those with greatest numbers and the most severe factors, the worst outcomes, and those with greatest numbers and the most severe factors, the worst outcomes. This type of an organised approach might be useful in improving the assessment of the individual patients and as a part of regional perinatal information system.

There are many risk scoring systems have been suggested, but they suffer from complexities and hence become impracticable. We in Dr. A. C. Mehta's unit in Nowrosjee Wadia Maternity Hospital are in the process of devising a scoring system, our concern being to devise a simple method of risk score in the antena-

tal period, applicable even at rural centres at primary health-care level.

*Material and Methods*

We determined that the following information can always be available at the first antenatal visit and risk scoring system should be based on this particular information.

Table I shows a list of risk factors taken into consideration. Then according to the severity of each factor, an appropriate score was given as it is indicated in the bracket shown below each risk factor. Then the total score of each case was calculated.

In order to establish utility of risk score based on this data, the study had to be devided into three phases.

*Phase A*

Assignment of score, to the woman who has already delivered, to get a quick idea how accurately the scoring system works.

TABLE I

| | | | | |
|---|---|---|---|---|
| (a) Age (yrs.) | 20-34 (0) | 19 or less (1) | 35 or more (1) | |
| (b) Parity | Para 1 to 3 (0) | Nullipara (1) | Para 4 & + (1) | |
| (c) Spacing months) | 24 mths. & + (0) | 13 to 23 mths. (1) | 12 mths. (2) | |
| (d) Past obstetric history | (i) Abortion (1) | Neon. death (2) | Prem. del. (3) | Stillbirth (4) |
| | (ii) Previous L.S.C.S. (2) | | Rupture uterus (4) | |
| (e) Education | 5th std. & + (0) | 3rd-4th std. (1) | 1st-2nd std. (2) | Nil (3) |
| (f) Occupation | Housewife (0) | Clerical (1) | Hard work (2) | |
| (g) Income (Rs. months) | 501 & more (0) | 201-500 (1) | 200 or less (3) | |
| (h) Tobacco habits (regular) | Nil (0) | Bettlenut (1) | Tobacco chewing (2) | Smoking (3) |
| (i) Height (cms.) | 145 cm. & above (0) | | 141-144 cms. (1) | 140 cm. or less (2) |
| (j) Weight (Kg.) | 41 & more (0) | 38-40 kg. (1) | 35-37 kg. (2) | 34 kg. or less (3) |
| (k) Blood pressure (mm. hg.) | 120 80 (0) | 130-140 90-100 (1) | 150-160 100-110 (2) | More than 160 More than 110 (3) |
| (l) Haemoglobin (gms.%) | 10.6 & more (0) | 9.1-10.5 (1) | 7.5-9.0 (2) | 7.4 & less (3) |
| (m) Rh factor | Positive (0) | Negative (1) | Isoimmunised (3) | |
| (n) Previous antenatal care | Regular (0) | Irregular (1) | Nil (2) | |
| (o) Cervical typing (at 35 weeks or less) | Type V & VI (1) | Type VII (2) | Type VIII & IX (3) | |

## Phase B

Follow up of women picked up at Antenatal clinic after giving them a score at their first antenatal visit.

This communication concerns phase (A) of the project and consists in application of scoring system to the cases who have already delivered.

A randomised case selection was done from amongst the women who delivered from 20th January to 20th March 1981 at Nowrosjee Wadia Maternity Hospital. Emergency admissions to the labour ward were excluded, and above mentioned risk factors were noted down in each of these cases. The total score was calculated and the pregnancy outcome of that case was compared with its score on the following points:

1. Birth Weight.
2. Gestational maturity.
3. Incidence of active interference.
4. Perinatal loss.

## Results

In this study of 300 cases the highest score obtained was 19 and the lowest was 0. Scores were grouped as (0-2), (3-5), (6-8) and (9 and above) to compare the outcome and the severity of risk to which the fetus is exposed in each group.

Table II shows cases with per cent distribution in each score group. In this study 13.4% cases were in the high risk group of 9 and above, which is quite significant.

TABLE II

*Per cent Distribution of Cases in Different Score Groups*

| Score | No. of cases | Per cent |
|-------|--------------|----------|
| 0-2 | 58 | 19.3 |
| 3-5 | 138 | 46.0 |
| 6-8 | 64 | 21.3 |
| 9 & + | 40 | 13.4 |
| | 300 | 100 |

Table III compares the average birth weights of male and female babies in primiparas and multiparas, it also shows the total average birth weight of babies in different score groups.

From this Table it can be seen that as the score increases the birth weight gradually falls.

Fig. 1 shows a graphical comparison of birth weights of male and female babies in primiparas and multiparas. Part (A) of the figure illustrates comparison of male babies and part (B) that of female babies.

From part (A) it is seen that the difference in birth weight is not much in both the groups, but slope of the graph becomes

TABLE III

*Average Birth Weight of Male and Female Babies in Primiparas and Multiparas*

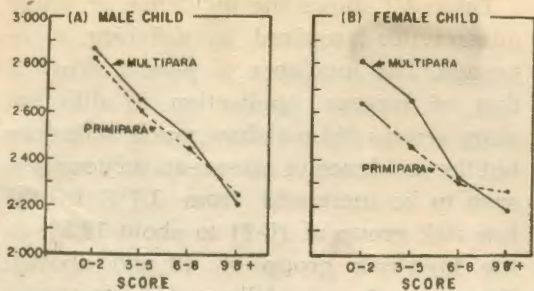| Score | Baby's Average Birth Wt. (Kg) in | | | | Mean birth wt. (Kg.) |
|-------|---------------------------------|--------------|-------|--------------|----------|
| | Primiparas | | Multiparas | | |
| | Male child | Female child | Male child | Female child | |
| 0-2 | 2.810 | 2.630 | 2.850 | 2.800 | 2.770 |
| 3-5 | 2.610 | 2.470 | 2.640 | 2.650 | 2.590 |
| 6-8 | 2.460 | 2.300 | 2.490 | 2.310 | 2.390 |
| 9 & above | 2.250 | 2.275 | 2.200 | 2.190 | 2.180 |

Fig. 1

Graphical comparison of birth weight of male and female babies in primiparas and multiparas different score groups. Part 'A' illustrates the comparison of male babies and part 'B' that of female babies.

steep after score group of (6-8), indicating that birth weight is markedly affected after score group of (6-8). A similar comparison in female babies as it is shown in part (B) of the figure, indicates that slope of the graph is not so steep after score group (6-8), showing thereby female babies are relatively heavier as compared to the male babies in high-risk score groups.

Table IV illustrates the incidence of preterm deliveries, in different score groups. The same is represented graphically in Fig. 2. In group (0-2) it was 3.5%, but as the score increased the incidence of preterm deliveries also gradually increased upto 40% in score group of (9 and above).

TABLE IV

*Incidence of Preterm Deliveries in Different Score Groups*

| Score | No. | Per cent |
|---|---|---|
| 0-2 | 2 | 3.5 |
| 3-5 | 13 | 9.0 |
| 6-8 | 12 | 18.8 |
| 9 & above | 16 | 40.0 |

Table V compares the percentage distribution of babies with different birth weights in different score groups.
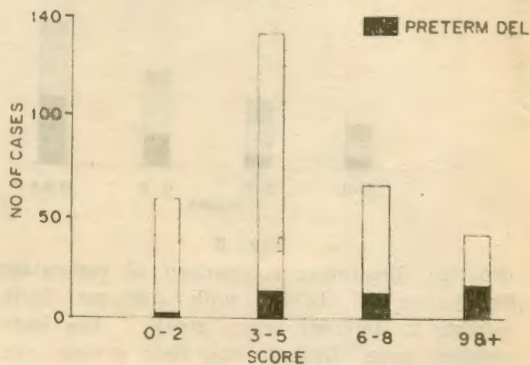


Fig. 2

The incidence of preterm deliveries in different score groups (Preterm foetal maturity less than 37 weeks of gestation).

Babies weighing less than 2000 gms. were only 3.5% in group (0-2) however this percentage increased with increasing score and nearly 33% of the babies in the group (9 and above) weighed less than 2000 gms. On the other hand, 79.3% of the babies weighed 2500 gms. and more in

TABLE V

*Per cent Distribution of Babies With Different Birth Weights in Different score Groups*

| Score | No. of cases with foetal weight (Gms.) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | < 2000 gm | | 2000-2250 | | 2251-2499 | | 2500 & above | |
| | No. | % | No. | % | No. | % | No. | % |
| 0-2 | 2 | 3.5 | 5 | 8.6 | 5 | 8.6 | 46 | 79.3 |
| 3-5 | 7 | 5.1 | 21 | 15.2 | 17 | 12.3 | 93 | 67.4 |
| 6-8 | 10 | 15.6 | 15 | 23.4 | 5 | 7.8 | 34 | 53.2 |
| 9 & above | 13 | 33.3 | 12 | 30.8 | 2 | 5.1 | 12 | 30.8 |

low score group of (0-2) the percentage gradually dropping with increasing score and was only 30% in group (9 and above). The above findings are shown graphically in Fig. 3.
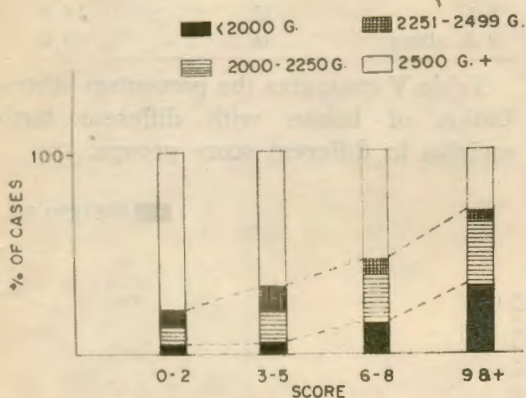


Fig. 3

Diagram illustrating comparison of percentage distribution of babies with different birth weights in different score group. The birth weights were divided into four groups viz. (1) Less than 2000 gms. (2) 2001-2250 gms. (3) 2251-2499 and (4) 2500 gms and more.

Table VI shows the incidence of active interference required in different score groups. The incidence of pitocin drips or that of forceps application in different score groups did not show much difference but the incidence of caesarean sections was seen to be increased from 1.7% in the low risk group of (0-2) to about 12.5% in the high-risk group of (9 and above). Out of the 5 cases delivered by caesarean section in score group (9 and above), two were operated for severe degree of intra-uterine growth retardation, two had contracted pelvis and a history of previous caesarean section and the indication in one case was pre-term breech presentation.

Table VII shows the incidence of still-births, neonatal deaths and congenital malformations in different score groups.

In the score group (9 and above), 7 stillbirths were noted giving an incidence of 17.5% which was quite high. Out of these 7 cases, one had severe anemia, three cases had presented with severe

TABLE VI

*Incidence of Active Interference in Different Score Groups*

| Score | Pitocin drip (indn./accl.) | | Forceps | | Caesarean section | |
|-------|------|------|------|------|------|------|
|  | No. | % | No. | % | No. | % |
| 0-2 | 2 | 3.5 | 4 | 6.8 | 1 | 1.7 |
| 3-5 | 7 | 5.1 | 7 | 5.1 | 3 | 2.2 |
| 6-8 | 4 | 6.3 | 4 | 6.3 | 2 | 3.1 |
| 9 & above | 2 | 5.0 | 0 | 0 | 5 | 12.5 |

TABLE VII

*Incidence of Stillbirths, Neonatal Deaths and Congenital Malformations in Different Score Groups*

| Score | Stillbirths | | Neonatal deaths | | congenital malformations | |
|-------|------|------|------|------|------|------|
|  | No. | % | No. | % | No. | % |
| 0-2 | — | — | 1 | 1.7 | — | — |
| 3-5 | 1 | 0.7 | 2 | 1.4 | 1 | 0.7 |
| 6-8 | — | — | 4 | 6.3 | 1 | 1.6 |
| 9 and above | 7 | 17.5 | 4 | 10.0 | — | — |

uterine growth retardation not res-
..ing to treatment, one case delivered
..sh stillbirth following accidental
..emorrhage. One case had rupture of the
uterus in the present pregnancy, she had
a history of previous two caesarean sec-
tions; and one case had a breech presenta-
tion which terminated into a fresh still-
birth. The other parameters i.e. neonatal
death and congenital malformations were
also seen to be adversely affected in the
higher risk score group.

## Conclusion

If the score is lowest, foetal outcome is
the best with respect to the birth weight,
gestational maturity, the course of labour
is likely to be uneventful and the perinatal
morbidity and mortality is minimum. But
as the score increases the above mention-
ed factors are seriously affected giving a
poorer outcome. The factors which we

have considered are all simple ones, but
still they have shown some definite rela-
tionship with the foetal outcome. It is
possible that some of them are less signi-
ficant to predict the foetal outcome. In
'Phase-B' part of our study, we will try to
eliminate those and make the system more
perfect for its final application.