HIGH-RISK SCORING FOR PREDICTION OF PREGNANCY OUTCOME AT A TEACHING HOSPITAL

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SUMMARY

Risk scoring system for prediction of pregnancy outcome was devised using known antenatal risk factors, maternal anthropometry and neonatal risk indicators. The score was categorised as no-risk, low risk and high-risk,. There were no perinatal deaths in no-risk category. Perinatal mortality rate in low-risk and high-risk categories was 67.9 and 162.8 respectively. Difference in outcome in three categories was statistically significant.

INTRODUCTION

High-risk strategy prioritizes the action for needy individuals. Identification of risk commonly means screening for those who qualify for special attention. The success of this programme depends upon soundness of epidemiological exercise that goes in identification of risk factor. Risk scoring is more systematic way of doing the same. The present study involves prediction of pregnancy outcome by a risk scoring system devised by using commonly known risk factors.

MATERIAL AND METHODS

The study was conducted during August 1988 to July 1989 at J.J. Hospital, Bombay, a teaching hospital catering to the needs of a population predominantly comprising of lower socio-economic group. The perinates under study included both born at J.J. Hospital and also those referred to the neonatal unit for special care. The mother was interviewed after delivery for socio-demographic history and her past reproductive performance. Details about pregnancy and delivery were obtained from the case record. At the same time, the anthropometric measurments like height, weight and mid-arm circumference were recorded.

Details about the newborn care were obtained from the case records and included birth weight gestational age assessment and some of the important problems like asphyxia, respiratory distress, congenital malformations and hypothermia. The scoring was done as mentioned in the appendix.

The risk was categorised according to the score i.e. no risk (0-3),low-risk (4-9), and high risk (10 and more). Analysis was performed using IBM PC/XT computer and SPSS software. Chi-square test was applied as a test of significance.

RESULTS

There were 1622 deliveries and 121 perinatal deaths. 459 belonged to no risk, 721 to low risk and 442 to high risk category. There were no perinatal deaths in no risk group, in low risk category there were 49 perinatal deaths, PMR was 69.7 and in high risk group there were 72 deaths, PMR was 162.8. The difference in three categories was statistically significant.

DISCUSSION

Risk scoring methods are available for prediction of perinatal death, (Hobel et al 1973, Nesbitt et al 1969, Goodwin et al 1969, Talsaria et al 1991) and for prediction of depressed neonate and an early diagnosis of handicapped child (Yeh et al 1977). Scoring system can be based on antepartum factors (Edwards et al 1979) or combined antepartum and intrapartum factors (Nobel et al 1973, Sokol et al 1977). Our scale takes into consideration socio-demography, maternal anthropometry, obstetric history and neonatal problems. This is appropriate for a tertiary care centre where well-equipped and well-staffed maternity and neonatal services are available. The difference in the outcome in no-risk, low risk and high risk groups was statistically significant. The centres not equipped to handle high-risk, obstetric or neonatology should follow an antepartum scale to enable them to make timely

TABLE I
Distribution of risk scores and pregnancy outcome

Risk category (score)	Number (%)	Outcome Discharges	Deaths	PMR
No risk (0-3)	459 (28.2)	459	-	-
Low risk (4-9)	721 (44.4)	672	49	67.9
High risk (10 & more)	442 (27.2)	370	72	162.8

$$X^2 = 69, \quad p = .00$$

referrals. This will also ensure in-uterotransportation of high-risk neonate to a referral centre.

APPENDIX

Risk pregnancy scoring for different variables.

1. Parity. 1 and 2 = 0, 3 = 1, 4 and more = 2.
2. Age of the mother (Years). Less than 18 or 35 and more = 2, 19-34 = 0.
3. Income per month (Rs.) More than 1000 = 0, 500-1000 = 1, Less than 500 = 2.
4. Mother's education (years of scholoing). 10 and more = 0, 5-9 = 1, 1-4 = 2, no education = 3.
5. Mother : working or non-working. non-working = 0, working = 1.
6. Height of the mother (Cm.) 145 and more = 0, Less than 145 = 1.
7. Weight of the mother (Kg.) More than 40 = 0, 38-40 = 1, 35-37 = 2, Less than 35 = 3.
8. Mid-arm circumference of the mother (Cm.) 25 and more = 0, 22-24 = 1, 18-22 = 2, less than 18 = 3.
9. Use of contraceptive. No = 1, Yes = 0.
10. History of pregnancy induced hyper-tension - No = 0, Yes = 1.
11. History of antepartum hemorrhage - No = 0, Yes = 2.
12. History of anaemia - No. = 0, Yes = 2.
13. History of other diseases, complication of pregnancy (Tuberculosis, diabetes, heart disease, endocrinal disorders) No = 0, Yes = 4.
14. Multiple pregnancy - No = 0, Yes = 2.
15. History of prolonged rupture of membranes (more than 24 hours) No = 0, Yes = 2.
16. Duration of labour (Hours) less than 12 = 0, 12 and more = 2.
17. History of meconium passage in utero. No=0, Yes=2.
18. History of abnormal foetal heart rate- No=0, Yes=2.
19. Presentation. Vertex = 0, Others = 2.
20. Induced labour. No = 0, Yes = 2.
21. Operative intervention. No = 0, Yes = 2.
22. Birth weight (g). More than 2500 =0, 1500-2500 = 2, less than 1500 = 4.
23. Gestational age (weeks). More than 37 = 0, 34-37 =2, less than 34 = 4.
24. Appropriateness of growth - AGA=0, SGA/LGA = 2.
25. Apgar score at 1 min. More than 7 = 0, 4-7 =1, 3 and less = 2.
26. Whether resuscitation was required - No = 0, Yes = 2.
27. Temperature on admission - More than 35.5° C = 0, less than 35.5° C = 4.
28. Presence of hypoxic - ischaemic encephalopathy - No = 0, Yes = 2.
29. Presence of respiratory distress - No = 0, Yes = 2.
30. Congenital malformation - None = 0, Minor = 1, Major= 4.

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