CLINICAL APPLICATION OF SCORING SYSTEM FOR PREDICTING FOETUS AT RISK

by

RANJANA JAIN
PREETI MISRA
DEVIKA RANI CHOWDHARY
and
MUKESH RAGHAV

SUMMARY

The present study is based on simple scoring system devised by Fortney et al for predicting high risk foetus. A total of 200 cases were included in this study. It was observed that sensitivity of this score is 83% and efficacy rate is 87%. It can be concluded that this method of high-risk score is a valuable clinical technique which can be easily performed even at Primary Health Centre to reduce the perinatal mortality.

Introduction

The ability to predict the birth of a jeopardized infant before it's delivery is important, so that optimal management of pregnancy can be planned and the chances of favourable outcome can be increased. Risk scoring is one of the methods to screen high-risk pregnancy. Various scoring systems have been developed to predict the high-risk pregnancy (Goodwin *et al*, 1969; Habel *et al*, 1973; Edwards *et al*, 1979 and Sokol *et al*, 1977), but for an effective scoring system it must be simple, sensitive, clinically applicable and easy to implement. Fortney and Whitehorne (1982) have developed a simple scoring system for predicting high-risk foetus. The present study is to find out the clinical applicability and efficacy of this system.

From: Department of Obstetrics and Gynaecology, S. P. Medical College and A. G. Hospital, Bikaner. (Rajasthan).

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Material and Methods

This prospective study was carried out in the Department of Obstetrics and Gynaecology, S.P. Medical College, Bikaner from January to June, 1983. Cases were selected randomly from the patients admitted for labour. The scoring was done by the method devised by Fortney and Whitehorne, 1982. The 9 factors in two categories were selected and various numbers were assigned as follows:

0-18 numbers were assigned and there relationship to outcome were evaluated. The adverse outcomes selected were:

(i) Still birth or neonatal death before mother's discharge from the hospital.

(ii) Low birth weight (2500 gms. or less).

I *ANTEPARTUM FACTORS*

Age in years (1)	Score	Parity (2)	Score	Gravidity (3)	Score	Bad O.H. (4)*	Score	Ante partum pathology (5)	Score
Below 16	2	Nulli para	1	Nullipara	1	None	0	No	0
16-17	1	1-3	0	1-3	0	One	1	Yes	1
18-29	0	4-6	1	4-6	1	More than one	2		
30-34	1	7 and above	2	7 and above	2				
35 and above	2								

* In bad obstetric history, number of previous still births, spontaneous abortions and caesarean sections are added together.

II *INTRAPARTUM FACTORS*

No. of antenatal visits (6)	Score	Presentation (7)	Score	Duration of labour (8)	Score	Gestation in weeks (9)	Score
None or 1	2	Vertex	0	Elective C.S. or Precipitate Labour	1	20-27	5
				Up to 18 Hrs.	0	28-35	4
2 to 5	1	Occipito posterior or	1				
6 and above	0	transverse or any other		7-18	1	36-39	1
						40-42	0
						43 and above	1

Five criteria were used to evaluate the index:

(a) When the patient is classified as high-risk when she is not at risk. (False Positive.)

(b) High risk obstetric patient who is misclassified as being low risk. (False Negative.)

(c) Sensitivity: The percentage of high risk patients who were defined as at high-risk.

(d) Specificity: The percentage of low risk patients who are classified as being at low-risk.

(e) Rate: What percentage of obstetric patients classified as being at high-risk, actually have a adverse outcome of pregnancy?

Observations

Total number of cases selected for the study were 200. The observations tabulated show that out of 61 patients, who were at risk, 48 could be diagnosed by Scoring (77%). Out of 14 patients who could not be diagnosed, 2 had accidental

haemorrhage and 2 had significant cord problems during labour, giving the corrected sensitivity of 83%.

TABLE

Showing Clinical Applicability of Scoring System

Actual	Diagnosis		Total
	At risk	Not at risk	
At risk	48 (18.6)	14 (43.4)	62
Not at risk	12 (41.4)	126 (96.6)	138
Total	60	140	200

$X^2 = 96..25$
p = <0.001 (Highly significant)
False positive = 20%
False negative = 20%: Corrected — 7%
Sensitivity = 77%: Corrected — 83%
Specificity = 91%
Rate = 80%: Corrected — 87%

False positive rate of 20% was found that is these patients were defined at risk by scoring, while in fact they were not at risk. False negative rate of 7% was found that is these patients were really at risk, but misclassified by scoring.

Discussion

Obstetric risk scoring is a formalized way of recognising, documenting and cumulating antepartum and intrapartum factors to predict later complications for mother, foetus and infant. If simple, practical and reliable, it can be clinically useful in determining appropriate levels of care. The patients who require more intensive observation and care can be screened.

Although it is true that in this modern day, all obstetric patients should be delivered in hospitals with well trained, experienced professional personnel in attendance and proper equipments available to handle these obstetric emergencies effectively and well. But these conditions are not prevailing in most of the hospitals at peripheries. So, this score used in the present study may be useful in environment where large number of obstetric patients are cared for by nurses, midwives, doctors in training with a limited number of experienced supervisory professional personnel and with very limited equipments. The proforma is very simple and can be filled even by a trained nurse in 3 to 5 minutes. If a patient gets a high risk score, she may be referred to well equiped hospital early. Although low risk score is not a guarantee for safe delivery and early labour is potentially dangerous, looking at the limitation of personnel and resources, the value of this sort of screening can not be ignored to reduce the perinatal mortality.

It is concluded from the present study that risk scoring is a valuable clinical technique which may be more widely used. This method is simple and easy to perform and even at periphery, screening can be done by a midwife. This systematic approach is also complementary to the many advancements made today in the area of health care for the mother and her infant.

References

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