SIMPLE SCORING OF MATERNAL FACTORS INFLUENCING PERINATAL MORBIDITY AND MORTALITY

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SUMMARY

A simple scoring system of maternal factors which influence the perinatal outcome is suggested. Patients with higher scores need care by specialists, obstetricians and/or neonatologists. Not only doctors but sisters, ANM and paramedical workers can also determine the score for any patient and if necessary refer her to larger hospital where specialists and facilities are available. Thus not only the perinatal morbidity and mortality will be reduced, but the available medical and paramedical manpower will also be properly utilised.

Introduction

It has been seen that in our obstetric population, a relatively small number gives rise to a majority of the perinatal morbidity and mortality. It is this small group which needs specialised care of skilled personnel. The health personnel without special obstetrical and neonatal skills and facilities can tackle the low risk patients at primary health centres, subcentres or even at the patient's home. In this way our meagre health resources would be properly channelised.

Our study was aimed at developing a very simple scoring system to identify high risk patients. It can be carried out even by paramedical workers at subcentres and PHC. The factors which cannot be tackled by maternal and child health services, such as socio-economic status, housing, environmental conditions, per capita income etc. were purposely excluded.

Material and Methods

This study was carried out at Government Medical College, Nagpur. Total 784 patients who were in labour were entered in this study. In this scoring system, the factors taken into consideration were grouped into 11 categories, namely, maternal age, parity, obstetrical history, antenatal care, obstetrical problems in current pregnancy, medical disorders, acute or chronic infection and fever during antenatal period and/or labour, duration of labour in hours, duration of leaking in hours, history of interference or unclean vaginal examinations and mode of delivery.

Scores of '0 to 2' were assigned depending upon the assumed value of severity of each factor. The total score of the 11 factors was then corelated with the perinatal mortality and morbidity. The parameters for morbidity were the gestational

age, birth weight, Apgar score at 1 and 5 minutes, infection and complication in the neonate.

In all 784 patients were studied. Table I summarizes the distribution of the patients according to the perinatal mortality and morbidity.

age, low birth weight, low Apgar score, infections and complications in early neonatal period increased proportionately with the increase in maternal score. The incidence of low birth weight increased from 4% with score 1 to 60% with score more than 10. Low Apgar score showed

TABLE I
Distribution of Cases Under Different Categories

	No. of cases	Percentage
Total number of cases	784	
Live births	752	95.92
Perinatal deaths	32	4.08
— Fresh stillbirths	9	1.1
—· Macerated stillbirth	2	0.25
— Neonatal deaths	21	2.60
Preterm births	104	13.02
Small for date babies	114	14.50
Babies with low Apgar score	90	11.50
Babies with infection	104	13.02
Babies with other complications	88	11.00

Observations

With score 0 to 4, there was no perinatal mortality. With score 5, it was 5.5%. There was a steady rise in the same with increasing score and a maximum of 40% mortality occurred when the maternal score exceeded 10.

As far as morbidity was concerned low birth weight babies were seen in 4% of cases scoring 1. All other determinants of morbidity were seen from score 3 onwards. The incidence of low gestational

a similar trend with incidence of 12.8% with score 3 to 80% with score 11 and more. Infections and complications also increased from 21.4% with score 3, to 70% when the score exceeded 10.

Patients were broadly divided into three groups—low risk (with score 0 to 6), average risk (with score 7 to 10) and high risk (with score more than 10). Chi square (X^2) test was applied at 0.05 to 0.01 levels, and it showed statistically significant difference in mortality as well as morbidity in these 3 groups (Table II).

TABLE II
Shows Perinatal Mortality and Morbidity in 3 Different Groups

	Group I < 6	Group II $7-10$	Group III > 10
Total Cases	650	124	10
Perinatal deaths	9	19	4
Pre term babies	52	45	7
Small for dates	67	41	6
Low Apgar Score	38	44	8
Infection	57	40	7
Other Complications	44	37	7

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Discussion

In India perinatal and neonatal morta- lity contributes to over 50% of the deaths in the first year of life. Both perinatal morbidity and mortality are high in our country and relatively more in the rural population. Moreover 70% of the women of child bearing age reside in rural areas, where the facility for special health care is limited.

So far, different scoring systems have been developed to identify the high risk pregnancies by Nesbitt and Aubrey (1969), Effer and Goodwin (1969), Hobel *et al* (1973), Coopland *et al* (1977) and Morrison *et al* (1979-80). All these scor- ing systems were carried out by authori- ties in developed countries and they do not well apply to conditions in develop- ing countries like ours, as at large we lack their advanced facilities fcr antenatal care and intrapartum foetal monitoring and highly sophisticated neonatal care units. If at all such kind of facilities are avail- able, they are limited to a negligible urban population.

In India, a simplified scoring system for identification of high risk births was sug- gested by Bhargava *et al* (1982), which is similar to our scoring system. We have also elaborated certain intrapartum factors which definitely influence the perinatal outcome.

Our scoring system would certainly help to score any pregnant patient in labour, according to the high risk factors involved. Even an auxillary nurse mid- wife or community health worker can do this and judge the situation and urgency for interference, help or care by specialists. A low score of 0 to 3 is considered safe, so that no active interference apart from simple assistance is necessary. Patients with score 4 to 6 can be handled by doc- tors at PHC, if they are properly trained. Scores higher than 6 indicate that specialis- ed management is essential, preferably in a well equipped hospital.

Thus timely transfer or referral of high risk patients would certainly help in re- ducing the perinatal morbidity and morta- lity. This in a long run would also help in a better acceptance of national family wel- fare programme, because, with reduced perinatal mortality parents would volun- teer for family planning methods.

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