MATERNITY CARE MONITORING*

(A Stepping Stone to Success By 2000AD)

by

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SUMMARY

This prospective study reveals that nulliparous women and those with three or more live births form a distinct "High Risk Pregnancy" group which warrants close and careful monitoring especially at the antenatal level.

Introduction

The need for improvement and provision of maternity care will remain an important health concern till the turn of this century. Nearly all increase in births will occur in developing countries, where 85 percent of births and 95 percent of perinatal deaths are expected to occur by 2000 AD. It is estimated that 40 million perinatal deaths will occur during this period (Malcolm Potts et al 1983). These figures are indeed startling! The vast majority of these deaths, however, are preventable by developed country standards. Only modest improvements in maternity care can be expected if we are to wait for socioeconomic developments.

Sri Lanka and China are exemplary in improving maternity care without the prerequisite of socio-economic developments.

An effective method in the organisation of present maternity services is efficient Maternity Care Monitoring (MCM). The objective of MCM is to improve a health service through knowledge and a sense of responsibility among those delivering the services. The application of these principles to a most neglected and critical health concern — maternity care, is a new concept.

This paper attempts to utilise the MCM system to draw meaningful conclusions from maternity data at the Nowrosjee Wadia Maternity Hospital, Bombay.

Materials and Methods

This is an analysis of the management and outcome of 1750 consecutive deliveries at the Nowrosjee Wadia Maternity Hospital from August to November 1983. All relevant

data was recorded on a standard one-page Maternity Record form of the Indian Fertility Research Programme. This form was developed by the International Fertility Research Programme with the support and encouragement of FIGO and WHO in 1978.

All deliveries regardless of outcome were included in this study.

Results and Analysis

The sociodemographic characteristics and the past obstetric history of the population under study were noted. The four main factors — parity, antenatal care, anemia and perinatal outcome were each correlated with factors like antenatal condition, type of delivery, complications of labour/delivery. and birthweight. The significant antenatal complications considered were anemia, toxaemia, antepartum haemorrhage and intrauterine growth retardation.

Sociodemographic Characteristics

A small but significant number (7.4%) of the cases were in the high risk teenage pregnancy group with its added health hazards. Majority of the cases (80.8%) were in the age group of 20-30 years with the mean age being 24.6 years. The mean number of living children was 1.3. Most of the cases (86.2%) had some grade of formal education with 14.0 percent being either graduates or postgraduates. The mean number of school years completed was 7.2.

Past Obstetric History

The past obstetric history revealed that spontaneous abortion was the most frequently reported event followed by infant death and induced abortion.

Parity Correlates

The mean number of antenatal visits was higher for the nulliparous (Malcolm Potts et al 1983; Pachauri and Jamshedji 1980) than the multiparous women. The incidence of antenatal complications was significantly higher for women with parity 3+ than the nulliparous women. The overall incidence of operative interference was significantly higher in the nulliparous women than in the multiparous women. The complications of labour and delivery were reported to be significantly higher in women with parity 3+ The mean birthweight of infants delivered by women with parity 1-2 was higher than those delivered by nulliparous and para 3+ women (Table I).

Correlates of Antenatal Care

A positive correlation was found with the increase of antenatal care and the increase in the incidence of complications during labour and/or delivery, foetal/neonatal complications and mean birthweight (Table II).

The level of formal education, the gestational age in weeks, the number of antenatal visits paid and the consequent birthweight of the newborn were significantly lower for the anaemic women than for those with haemoglobin 10 grams or more (Table III).

Correlates of Perinatal Outcome

Pregnancies of less than 37 completed weeks of gestation had a high incidence of perinatal deaths. The mean number of antenatal visits was higher for the mothers with infants discharged alive than for those with foetal/neonatal loss. The poor antenatal condition of the women accounted for the highest rate of foetal/neonatal death during the antenatal period (32.2%) than during the intranatal (17.2%) and postnatal (2.2%) periods. Caesarean section had the highest rate of operative deliveries. The women whose infants were discharged alive had a

TABLE I
Parity Correlates of 1750 Women Delivered

Correlate	Parity		
	0 = 607	1-2 N = 715	3 + N = 428
Number of Antenatal Visits (%)			
0	7.0	3.3	4.6
1-3	24.2	43.3	55.7
4-7	53.4	43.0	27.6
8 +	15.7	10.4	12.1
Mean	(4.6)	(3.9)	(3.4)
Antenatal Complications (%)			
Total	21.2	19.2	30.0
Type of Delivery (%)			
Spontaneous	83.2	92.5	86.7
Caeserean section	10.1	4.8	8.7
Breech	1.9	0.9	0.0
Forceps	3.2	1.1	0.0
Other	1.6	0.4	0.0
Complications 'of Labour/Delivery (%)			
Total	7.6	4.0	17.8
Mean Birthweight (Grams)	2695.2	3028.8	2851.5

TABLE II
Correlates of Antenatal Care

Correlate	Number of Antenatal Visits			
	0 N = 371	1-3 N = 490	4-7 N = 503	8+ N = 386
Mean education	7.1	6.7	7.5	8.2
Total Antenatal Complications (%)	18.3	16.1	47.2	28.2
Total Complications of Labour/ Delivery	21.9	9.3	7.9	6.5
Total Foetal/Neonatal Complications (%)	26.4	14.5	9.3	6.4
Mean Birthweight (gms)	2342.0	2628.8	2902.3	3218.7

TABLE III
Anaemia Correlates

Correlate	Anaemic (Hb 10 gms) N = 789 Mean	Non-anaemic (Hb 10 gms) N = 961 Mean
Education	6.0	7.6
Gestational Age (Weeks)	37.0	36.7
Number of Antenatal Visits	3.3	4.4
Birthweight (gms)	2678.2	2988.4

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higher rate of operative interventions than for those who had foetal/neonatal loss. The incidence of complications during labour and/or delivery was 10 times higher for women who had foetal or neonatal death than for those with infants discharged alive. The mean birthweight was two times higher for the infants who were discharged alive than for those who died before discharge from the hospital (Table IV).

percentage of antenatal, intranatal and post-natal deaths was 7.5, 11.6, and 22.0 percent, respectively (Table V).

There was no maternal death in our study.

Birthweight Correlates

This analysis shows that 3 to 4 years for birth spacing is the optimum time for delivering a healthy infant. First born infants

TABLE IV
Correlates of Perinatal Outcome

Correlate	Discharged Alive N = 1679	Antepartum Death N = 13	Intrapartum Death N = 20	Postpartum Death N = 38
Gestational Age (Weeks)	38.2	33.4	35.1	33.4
Mean No. of Antenatal Visits	6.4	4.8	3.3	1.3
Antenatal Complications Total (% Women)	22.2	32.2	17.2	2.2
Type of Delivery (%) Spontaneous	86.1	90.3	85.4	75.9
Caesarean section	10.6	9.7	7.3	8.0
Forceps	2.5	0.0	0.0	8.0
Breech	0.9	0.0	7.3	8.0
Complications of Labour/Delivery (%)	3.4	32.2	17.1	12.7
Mean Birthweight (gms)	3043.5	1766.6	1615.5	1766.4

Perinatal Mortality

The overall perinatal mortality rate was 41.1 per 1000 deliveries in this series. The

TABLE V
Perinatal Mortality Rates

Tpye of Death	Number	Rate/ 1000 deliveries
Antepartum	13	7.5
Intrapartum	20	11.6
Postpartum	38	22.0
Perinatal Mortality	71	41.1

had the lowest mean birthweight (Table VI).

TABLE VI
Birthweight and Birth Spacing

Birth Spacing (Period in years)	Mean Birthweight (gms)
Not previously pregnant	2734.5
⩽ 12	2890.0
13-24	2950.8
25-36	3044.7
37-48	3001.1
49 +	2985.6

Table VII shows an increase in birth-weight with an increase in the male-female ratio, indicating a higher incidence of low birthweight among the females than among the males.

TABLE VII
Male-Female Sex Ratio and Birthweight

Birthweight (Gms)	Males per 100 females
501 < 2000	53.9
501 < 2500	84.0
2500+	156.9
Total series	110.5

Discussion

The results of this analysis show that women with pàra 3+ are by far at a greater risk followed by nulliparous women. The nulliparous women probably being younger and more educated than their older counterparts were more aware of the antenatal services. The incidence of complications during labour/delivery was 7.6 percent compared to the incidence of antenatal complications 21.2 percent. Fortney and Whitehorne have rated nulliparous women at a higher risk than women with 1-3 live births (Fortney and Whitehorne 1983).

This analysis reveals that a woman should have at least 3 antenatal visits for a satisfactory perinatal outcome. Timely operative interference has reduced the foetal/neonatal death rate marginally. Breech deliveries amount for a high number of foetal/neonatal deaths during the intranatal period.

Preterm delivery is still one of the foremost causes of perinatal mortality in our country. The perinatal mortality rate in this series was well within the perinatal mortality rate in the country. However, a major drawback of this study is that perinatal mortality was recorded only upto the time of discharge from hospital.

This study shows that 3-4 years is the optimum period for birth spacing. Fortney and Higgins (1983) have shown the period to be between 3-6 years.

The results of this study corroborates the findings of other studies both at the national levels (Bernard, *et al* 1978; Mehta 1983).

Women with no previous live births or with 3+ live births no antenatal care and anemia pose a challenge to the obstetrician.

Conclusion

As provided by the Declaration of the Alma Ata on Primary Health Care in September 1978, the monitoring of progress in maternity care should become the single most important evaluation system needed to support the goal of universal primary care by the year 2000 AD.

Acknowledgement

References

1. Bernard, R. P., Kendall, E. M. and Manton, K. G.: International Maternity Care Monitoring: A Beginning. Presented at March Dimes Symposium Perinatal Medicine: Present and Future Advances, Chicago, Illinois, April 1978.
2. Fortney, J. A. and Whitenorne, E. W.: In: Childbirth in developing countries, M. Potts et al (eds.) 16-28, 1983.
3. Fortney, J. A. and Higgind, J. E.: In: Childbirth in Developing Countries, M. Potts et al (eds.), 112-128, 1983.
4. Malcolm Potts, B. S., Janowitz and J. A. Fortney (eds.): Childbirth in developing countries. MTP Press Ltd., Boston 1983.
5. Mehta, A. C.: J. Obstet. Gynec. India. 33: 721, 1983.
6. Pachauri, S. and Jamshedji, A.: Scientific Papers of the India Fertility Research Programme, 138-165, 1980.