

PERINATAL MORTALITY IN CAESAREAN BIRTHS (A TEN-YEAR REVIEW FROM A TEACHING HOSPITAL)

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SUMMARY

An analysis of caesarean births with perinatal mortality rate (P.N.M.R.) over a period of ten years at Chittaranjan Sevasadan, Calcutta has been carried out. Caesarean Section (C.S.) has been found to have increased from 4.12% in 1980 to 9.32% in 1989. But P.N.M.R. over this period has not shown any appreciable change. The gross P.N.M.R. in caesarean births was 60.7 and corrected P.N.M.R. was 58.2. The overall P.N.M.R. over this period was 53.3.

Perinatal mortality (P.N.M.) was strikingly high when C.S. had to be undertaken for placenta praevia, accidental haemorrhage, preeclampsia, eclampsia, cord prolapse and obstructed labour. Prematurity, asphyxia, respiratory distress syndrome (R.D.S.) and sepsis were the leading causes of P.N.M.

Maternal age (below 20 years and above 35 years), parity (para 0, para 5 and above), lower socio-economic status and emergency C.S. are other important factors having an adverse effect on perinatal outcome.

INTRODUCTION

How relevant is caesarean section in reducing the perinatal mortality? This question has assumed importance since caesarean birth rate has almost doubled in the course of last ten years and many indications are now entirely fetal. In some developed countries (as in U.S.A.) there has been significant reduction in perinatal mortality rate associated with an upward swing in the rate of C.S. In others (as in Ireland), same reduction in

P.N.M.R. has been achieved without any increase in C.S. rate.

The present study was undertaken to ascertain if there was any improvement in perinatal survival despite a rising caesarean rate in a teaching hospital with a high complement of unbooked cases and emergency admission.

MATERIALS AND METHODS

The present retrospective study undertaken at Chittaranjan Seva Sadan Hospital, Calcutta, from January 1980 to December 1989, comprised of 5911 caesarean sections with 359 perinatal deaths.

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Each case record was studied in details with particular emphasis on patient characteristic. P.N.M. in relation to indications of C.S. and birth weight were evaluated. Causes of P.N.M. have also been ascertained.

OBSERVATIONS

Table I depicts the yearwise distribution of P.N.M. in relation to total deliveries and C.S.

Age and Parity

The mean age of the patients was 22.6 years with standard deviation (S.D.) 1.85 and the mean parity was 1.4 with S.D. 2.21. One hundred sixty four (45.68%) perinatal deaths were observed in patients below 20 years and 146 (40.67%) Perinatal deaths were observed in patients above 35 years of age. 185 (51.53%) perinatal deaths in

Para 0 and 106 (29.53%) in para 5 and above, were also observed.

Type of Patients : 67.72% of patients were unbooked and mostly referred from different health centres and State Government Hospitals of adjoining district of South 24 Parganas, only 32.28% of patients were booked. Majority (81.5%) of patients were of lower socio-economic status.

Timing of C.S. : 70.55% of patients had emergency C.S. with P.N.M.R. of 77, only 29.45% of patients had elective C.S. with P.N.M.R. of 21.8

Table II shows indications of Caesarean Section & P.N.M. Perinatal Mortality in relation to birth weight has been depicted in Table III.

The causes of P.N.M. have been shown in

TABLE I
Yearwise distribution of perinatal mortality in relation to total deliveries and caesarean sections

Year	No. of Total deliveries	Overall P.N.M.	No. of C.S.	Incidence of C.S.	P N M in C.S.
1980	8406	486 (57.8)	346	4.12%	21 (60.7)
1981	8615	492 (57.1)	502	5.83%	32 (63.7)
1982	10339	564 (54.6)	464	4.49%	29 (62.5)
1983	9911	508 (51.3)	483	4.87%	27 (55.9)
1984	9170	482 (52.6)	474	5.17%	28 (59.1)
1985	9869	499 (506)	652	5.59%	35 (63.4)
1986	9407	489 (51.9)	727	7.73%	42 (57.8)
1987	9261	472 (50.9)	802	8.66%	56 (69.8)
1988	8847	486 (54.9)	754	8.52%	41 (54.4)
1989	8661	450 (51.9)	807	9.32%	48 (59.5)
Total	92486	4928 (53.3)	5911	6.39%	359 (60.7)

The figures in () indicates P.N.M.R. per thousand births.

TABLE II
Indications of Caesarean Section and Perinatal Mortality

Indications	No. of C.S.	No. of P.N.M.	P.N.M.R.
Previous C.S.	1562	32	20.5
Foetal distress	1220	46	36.06
Foetopelvic disproportion and failure to progress	853	33	38.7
Breech	736	24	32.6
Placenta Praevia	549	66	120.2
Postdatism with failed induction	266	9	33.8
Preeclampsia	198	15	75.7
Accidental haemorrhage	162	38	234.5
Cord prolapse	108	19	175.9
Obstructed labor	106	61	575.4
Eclampsia	77	13	168.8
Others	74	3	40.3

TABLE III
Perinatal mortality in relation to birth weight

Birth weight in grams	No. of C.S.	Still births	First week neonatal death	Total
< 1000	13	10	3	13(1000)
1000 to 1500	206	15	83	98(475.7)
1501 to 2000	680	12	60	72(105.8)
2001 to 2500	850	2	57	59 (69.4)
2501 to 3000	1398	4	47	51 (36.5)
3001 to 3500	1496	3	33	36 (24.1)
3501 to 4000	998	3	17	20 (20.0)
> 4000	270	3	7	10 (37.0)

() Indicates P.N.M.R. per thousand births.

TABLE IV
Causes of Perinatal Mortality
(n = 359)

Causes	No. of P.N.M.	Percentage
Prematurity	210	58.50
Asphyxia	46	12.81
R.D.S.	28	7.80
Sepsis	19	5.29
Stillbirths	52	14.48
Congenital Anomalies	4	1.11

Table IV.

DISCUSSION

O'Driscoll and Foley (1983) first questioned the assumption that any significant reduction in P.N.M.R. has to be accompanied by a significant rise in C.S. rate. They reported that while C.S. rates were increasing in the United States from less than 5% in 1965 to more than 15% in 1983; in Dublin during the same period P.N.M.R. fell from 42.1 to 16.8 per thousand births without any appreciable change in C.S. rate.

In the present study which covered a period of ten years, the C.S. rate has almost doubled from 4.12% in 1980 to 9.32% in 1989. But the P.N.M.R. has not shown any appreciable change. It was 60.7 in 1980 and 59.5 in 1989. Dawn (1990) reported 50 to 100 P.N.M.R. in Caesarean Section in different teaching hospitals in India. Sood and Rajourkar (1990) reported an uncorrected P.N.M.R. of 88 in C.S. from a teaching hospital in India.

It is evident from this study (Table II) that P.N.M.R. was very high when C.S. had to be carried out as an emergency procedure as in placenta praevia, accidental haemorrhage,

toxaemia, cord prolapse and obstructed labour. The factors responsible for such suboptimal outcome could be attributed to prematurity, asphyxia and quite often sepsis.

Causes leading directly to perinatal mortality are in sequential order prematurity (58.5%) asphyxia (12.81%), R.D.S. (7.80%) and sepsis (5.29%). Stillbirths accounted for 14.48% of perinatal mortality in the present study. The emergency, admission and referrals have remained unabated. Infections contacted before admission as a result of internal examinations conducted under poor hygienic condition increased considerably the risk.

Infections apart, Nelson and Hokegard (1984) reported a high incidence of R.D.S. in caesarean births. They suggested that catecholamines surge during vaginal delivery may have functional importance for neonatal adaptations after birth.

Birth weight plays a significant role in the survival of the neonates. The present study shows that babies weighing more than 2000 gms but less than 4000 gms have lower P.N.M.R. than babies weighing less than 2000 gms or more than 4000 gms (Table III). Iatrogenic preterm delivery is more common than usually suspected. Correct estimation of gestational age during antenatal period and expert paediatric support in immediate post partum period are important determinants of perinatal outcome.

Besides fetoneonatal factors perinatal mortality is closely associated with maternal health, nutrition, medical disorders and socio-economic status. Assessment of health and nutrition is not easy. Maternal weight at conception, weight gain during pregnancy and haemoglobin estimation are important parameters. These affect the maternal perinatal outcome independently of the mode of delivery.

As Chamberlain (1988) has pointed out, the background of the mother and the community in which she lives have a large influence on perinatal mortality rates. Running through the whole is the

continuing thread of the biological background of age, parity and social class.

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1.11	4	Congenital
14.88	22	Stillbirths
2.39	19	Scars
7.80	28	R.D.S.
12.81	46	Abortus
		Perinatal mortality

Table IV

DISCUSSION

O'Driscoll and Foley (1983) first questioned the assumption that any significant reduction in P.M.R. has to be accompanied by a significant rise in C.S. rate. They reported that while C.S. rates were increasing in the United States from 10.7% in 1965 to more than 15% in 1982; in Dublin during the same period P.M.R. fell from 42.1 to 16.8 per 1000 live births without any appreciable change in C.S. rate.

In the present study which covered a period of ten years, the C.S. rate has almost doubled from 4.12% in 1980 to 7.5% in 1989. Similar P.M.R. has not shown any appreciable change. It was 62.7 in 1980 and 59.5 in 1989. Dawn (1990) reported 50 to 100 P.M.R. in Christian Science hospitals teaching hospitals in India. Sood and Rajourkar (1990) reported an uncorrected P.M.R. of 88 in C.S. from a teaching hospital in India.

It is evident from the study (Table II) that P.M.R. was very high when C.S. had to be carried out to save emergency procedures as in placenta praevia, accreta, placental abruption,

perinatal mortality in the present study. The emergency admission and delivery have to be noted. Infection control before delivery is a result of lateral examination conducted under poor hygienic conditions in a cross country. The risk of infection is reported a high incidence of N.D.S. in cross country. The suggested that the incidence of infection during vaginal delivery may have functional importance for neonatal adaptation after birth. Birth weight plays a significant role in the survival of the neonate. The present study shows that babies weighing more than 3000 gm but less than 4500 gm have lower P.M.R. than babies weighing less than 3000 gm or more than 4500 gm (Table III). Large size babies are more common than small babies. Correct estimation of gestational age during antenatal period and expectant management in antenatal period are important factors in the management of perinatal outcome.

Besides low mortality in the present study, it is clearly associated with maternal health, multiple medical disorders and socio-economic status. Assessment of health and nutrition is not easy. Maternal weight at conception, weight gain during pregnancy and haemoglobin estimation are important parameters. These affect the fetal perinatal outcome. Independence of the mode of delivery.

As Chamberlain (1983) has pointed out, the background of the mother and the community in which she lives have a large influence on perinatal mortality rates. Running through the whole of the