

PERINATAL MORTALITY

by

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The maternal as well as perinatal mortality is very high in India especially in Rajasthan State. The reason for this is that the illiteracy, superstitions, lack of antenatal care and reluctance to come to the hospital for delivery is still prevalent in this state. Hence the present study is undertaken to see the factors responsible for the perinatal mortality and whether these are preventable or not and what steps can be taken to reduce the perinatal mortality.

Material and Method

A one year survey of perinatal mortality in Dept. of Obst. and Gyn. in J.L.N. Hospital Ajmer in the year 1978 has been done. Records of all consecutive deliveries in which weight of the foetuses born alive or dead were 750 gms. and over were accepted in the study. All still births and neonatal deaths up to 168 hours (7 days) of birth were considered as perinatal losses. Premature delivery was one in which the period of gestation at delivery was less than 38 weeks. Prolonged pregnancy was one in which the period of gestation at delivery was 41 weeks or over. For each perinatal loss,

two control delivery cases were taken where baby was born alive just following still birth or neonatal death. The deliveries were always conducted by a doctor. The new born infants were looked after by pediatrician and the premature babies were only nursed and were given special attention and sometimes nursed in ordinary incubator when available.

A detailed medical and obstetrical history was taken in every case. Causes of perinatal loss have been established purely on close clinical observations and not on autopsy.

Analysis and Results

There were 267 perinatal deaths out of 2931 births which meant that one in every eleven mother lost her baby. The incidence of perinatal mortality comes to 91.09/1000 births. Of these 93 (34.83%) belonged to low socio-economic group, 10 (3.74%) to higher socio-economic group and rest to middle socio-economic group. About 109 (40.82%) cases belonged to rural population. The educational status was nil in 120 (44.94%), primary education in 76 (28.46%), higher secondary education in 64 (23.97%) and college education in 7 (2.62%) of cases.

Antenatal Care and Perinatal Mortality

Randomly, 534 delivered in the period of study were analysed for the number

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of antenatal visits made, and was compared to a similar one in the study group. The number of antenatal visits in perinatal mortality group was significantly less than in randomly selected group, and the antenatal care received by them was less than adequate, as 55.80% were emergency admissions as compared to 7.49% in randomly selected group. More than 6 visits were in 66.29% in randomly selected group as compared to perinatal mortality group in which it was in 15.35% cases, indicating the importance of prenatal medical attention.

Age and Parity

The perinatal mortality in relation to age in 2931 births was considered. The perinatal mortality showed the increase in rate as the age advances and the values were 82.35 below age group of 20 and was 176.47 above the age of 40. The perinatal mortality was 81.61 in para one which was slightly lower in para two and

three but increased in the para four and above and the values were 124.59 and 169.93 respectively indicating the importance of preventing multiparity.

Maturity of gestation

The perinatal mortality according to maturity of gestation is shown in Table I. Full term deliveries constituted nearly 88.50%, premature in 11.91% and post-mature in 0.95% of total deliveries. The maximum perinatal loss was in premature deliveries. If the birth weight is considered as criteria of prematurity then with birth weight at 2250 gms. and 2500 gms. the percentage of prematurity comes to 185 of 267 (69.28%) and 215 out of 267 (80.52%) respectively. Table II shows the perinatal loss and the type of perinatal deaths. The total stillbirth rate is 1.47 times more than the neonatal death rate. These rates are 2.42 times in fullterm, 1.16 times in premature and 2.1 times in prolonged pregnancy group. The rate of

TABLE I
Deliveries, Perinatal Loss and Perinatal Mortality According to the Maturity

| Deliveries Total 2931 | | | |
|--------------------------|-----------|-----------|---------------------|
| | Full Term | Premature | Prolonged Pregnancy |
| Deliveries | 2594 | 309 | 28 |
| Perinatal Loss | 89 | 175 | 3 |
| Perinatal Mortality Rate | 34.30 | 566.34 | 107.14 |

TABLE II
Perinatal Loss, Perinatal Mortality Rate According to Gestational Maturity and Type of Death

| Maturity | N.D. | | Fresh S.B. | | Macerated S.B. | |
|---------------------|------|--------|------------|--------|----------------|--------|
| | No. | Rate | No. | Rate | No. | Rate |
| Overall | 108 | 36.84 | 89 | 30.36 | 70 | 23.88 |
| Full term | 26 | 10.02 | 40 | 15.42 | 23 | 8.86 |
| Premature | 81 | 262.13 | 47 | 152.10 | 47 | 152.10 |
| Prolonged pregnancy | 1 | 35.71 | 2 | 71.42 | — | — |

N.D.: Neonatal Death. S.B.: Still Births.

fresh still births is more than the macerated still births.

Of the 267 perinatal deaths 30 (11.23%) foetuses were less than 1000 gms. and after excluding these cases the corrected perinatal mortality comes to 81.69/1000 births (237 out of 2901). The weight of the foetuses were between 1050 to 2000 (47.19% 2050 to 2500 (22.09%), 2550 to 3500 (17.97%) and above 3550 gms. (1.49%) of cases in perinatal mortality group.

Maternal Conditions and Obstetric Events Associated with Perinatal Mortality

In 202 (75.65%) out of 267 perinatal mortality cases at least one medical or obstetric events were associated with it, as shown in Tables III and IV. The im-

TABLE III

Medical Conditions Associated with Perinatal Loss

| Diseases | No. of Cases | Percentage |
|-----------------------------|--------------|------------|
| Preeclamptic toxemia | 12 | 4.49 |
| Eclampsia | 14 | 5.24 |
| Hypertension | 3 | 1.12 |
| Anaemia | 8 | 2.99 |
| Diabetes | 3 | 1.12 |
| Rh incompatibility | 2 | 0.74 |
| Hepatic Coma | 3 | 1.12 |
| Pyrexia | 1 | 0.37 |
| Advanced cancer breast | 1 | 0.37 |
| Septicemia (fracture femur) | 1 | 0.37 |

portant medical conditions were toxemia of pregnancy, anaemia, infective hepatitis and diabetes mellitus. The important obstetric events were accidental haemorrhage, placenta previa, multiple pregnancy, prolonged labour and post-maturity. These conditions have existed with each type of foetal loss and each of the gestational period almost to an equal extent barring fullterm deliveries.

TABLE IV

Obstetrical Events Associated with Perinatal Loss

| Obstetrical Events | No. of cases | Percentage |
|--------------------------------------------|--------------|------------|
| Accidental haemorrhage | 24 | 8.98 |
| Placenta previa | 24 | 8.98 |
| Placenta previa and accidental haemorrhage | 1 | 0.37 |
| Antepartum haemorrhage of unknown origin | 1 | 0.37 |
| Multiple pregnancy | 19 | 7.11 |
| Prolonged and obstructed labour | 62 | 23.22 |
| Cord prolapse | 8 | 2.99 |
| Placental anomaly | 7 | 2.62 |
| Cord round neck | 3 | 1.12 |
| Post maturity | 3 | 1.12 |
| Incompetent os | 1 | 0.37 |
| Amniotic fluid embolism | 1 | 0.37 |

Actual Causes of Perinatal Mortality

The actual causes of stillbirths and neonatal deaths has been assigned after a careful clinical observations as shown in Table V. Prematurity accounted for

TABLE V

Actual Causes of Perinatal Mortality

| Causes | No. of Cases | Percentage |
|----------------------------------|--------------|------------|
| Prematurity | 65 | 24.34 |
| Intrapartum asphyxia | 65 | 24.34 |
| Neonatal asphyxia | 19 | 7.11 |
| Foetal hypoxia | 49 | 18.35 |
| Respiratory distress syndrome | 4 | 1.49 |
| Congenital malformations | 33 | 11.98 |
| Septicemia | 6 | 2.24 |
| Aspiration pneumonia | 3 | 1.12 |
| Intracranial haemorrhage | 3 | 1.12 |
| Rh incompatibility | 2 | 0.74 |
| Aspiration pneumonia | 1 | 0.37 |
| Unexplained intra-uterine deaths | 17 | 6.36 |

24.34% of all deaths. Foetal hypoxia was present in 18.35% and asphyxia in 24.34% of cases, the causes of these were antepartum haemorrhage, toxemia of pregnancy and prolonged and obstructed labour. In prolonged labour cases 56 were fullterm, 9 premature and one prolonged pregnancy still birth while prematurity was common in toxemia and antepartum haemorrhage. Congenital malformations were lethal in 11.98% and unexplained intrauterine foetal deaths were present in 6.36% of cases.

Discussion

The perinatal mortality amongst the Indian community is very high due to poor standard of dietary habits and customs. Higher perinatal mortality has been reported by different parts of India.

Mehta (1977) reported the incidence of perinatal mortality in Bombay City to be 40.8/1000 and 26.9/1000 births for the year 1960 to 67 and 1967 to 74 respectively while Ghosh (1970) reported for Delhi to be 62.00/1000 births. The mortality in the present study is very high as compared to above authors which is due to the fact that illiteracy, ignorance and lack of transport facility and insufficient antenatal care is still prevalent in Rajasthan. The emergency admissions are also more as 55.80% perinatal deaths were emergency.

The frequent prevalence of medical conditions like anemia, toxemia, hypertension and diabetes are common conditions in general population, are the factors responsible for perinatal deaths as shown in Table VI. The other causes are ac-

TABLE VI

Incidence of Maternal, Obstetric and Foetal Condition in the Total Study Population of 2931 Cases and Amongst Those with Perinatal Mortality Cases

| Items | Total Cases | % of Total Cases | Perinatal Loss | % In Perinatal Loss |
|------------------------------|-------------|------------------|----------------|---------------------|
| Preeclamptic Toxemia | 272 | 9.28 | 12 | 4.41 |
| Eclampsia | 39 | 1.33 | 14 | 35.89 |
| Hypertension | 11 | 0.37 | 3 | 27.27 |
| Anaemia | 130 | 4.43 | 8 | 16.66 |
| Prolonged Labour | 188 | 6.41 | 60 | 22.34 |
| Placenta Previa | 50 | 1.70 | 25 | 50.00 |
| Accidental Haemorrhage | 39 | 1.33 | 24 | 61.53 |
| Unclassified APH | 4 | 0.13 | 1 | 25.00 |
| Breech Delivery | 107 | 3.65 | 5 | 4.67 |
| Twins | 41 | 1.39 | 19 | 46.34 |
| Congenital Malformation | 51 | 1.74 | 33 | 64.70 |
| Cord prolapse & Presentation | 14 | 0.47 | 8 | 57.14 |
| Incompetent Os | 11 | 0.37 | 1 | 9.09 |
| Rh Incompatibility | 6 | 0.20 | 2 | 33.33 |
| Placental Anomaly | 17 | 0.58 | 10 | 58.82 |
| Postmaturity | 28 | 0.95 | 3 | 10.71 |
| Diabetes | 9 | 0.30 | 3 | 33.33 |
| Infective Hepatitis | 9 | 0.30 | 3 | 33.33 |
| Pyrexia | 9 | 0.30 | 1 | 11.11 |
| Amniotic Fluid Embolism | 1 | 0.03 | 1 | 100.00 |
| Septicemia | 1 | 0.03 | 1 | 100.00 |
| Normal Deliveries | 1894 | 64.61 | 27 | 1.42 |

cidental haemorrhage, placenta previa and prolonged and obstructed labour. Twins and breech delivery also contributed to perinatal loss, the incidence of which cannot be changed. The factors responsible for prolonged and obstructed labour is ignorance on the part of the patient, lack of facilities for antenatal care in villages and transport facilities.

The death rate due to asphyxia and anoxia is also very high. Reduction in asphyxia will be possible by timely induction of labour at term or immediately thereafter and better and early appreciation of cord compression. The problems of hypoxia, foetal asphyxia, prematurity and intrauterine death have to be solved. Clear understanding of foetal growth and its supply line, of the factors leading to onset of labour and application of modern tests for the same, will resolve in future the problems of unexplained intrauterine foetal deaths. More number of congenital malformations should lead us in search of factors responsible for it.

The preventable factors for perinatal loss are shown in Table VII. In 204 (76.40%) cases the preventable factors were present. The most important was insufficient antenatal care and failure of timely admissions. This is due to the

fact that in villages illiteracy and reluctance to consult the doctor during pregnancy and to consult Dai for delivery.

The perinatal mortality can be prevented by proper antenatal care, booking the high risk cases for hospital delivery, educating the women to overcome the fear of hospital delivery, as is seen in the present study that the important cause for perinatal loss was prolonged and obstructed labour, which could have been prevented by early admission.

A constant supervision by the senior staff and their availability for consultation and if necessary, to personally assess and on decide on the line of treatment in high risk cases and to conduct complicated deliveries by themselves will prevent perinatal loss due to error in labour or delay in delivery as in 18 cases it was the causative factor. Difficult forceps should be avoided, if doubt of disproportion exists in breech delivery caesarean section should be done.

Death due to prematurity can be avoided by making proper facility for care of newborn in a good equipped nursery with incubators. The deaths due to feeding problems and infant handling can be prevented by proper maternal education in infant handling.

TABLE VII
Preventible Factors for Perinatal Loss

| Factors | S.B. | N.D. | Total | Percentage |
|-----------------------------------------------------------|------|------|-------|------------|
| Insufficient antenatal care | 26 | 30 | 56 | 20.97 |
| Failure of timely admission | 26 | 9 | 35 | 13.10 |
| Insufficient antenatal care & failure of timely admission | 51 | — | 51 | 19.10 |
| Error in labour/delay in delivery | 9 | 9 | 18 | 6.74 |
| Inadequate facilities for care of new born | — | 37 | 37 | 13.85 |
| Lack of expert management | 0 | 1 | 1 | 0.37 |
| Feeding problems | 0 | 2 | 2 | 0.74 |
| Error in infant handling | — | 4 | 4 | 1.49 |
| Not preventible | 47 | 16 | 63 | 23.59 |

Summary

The incidence of perinatal mortality in J.L.N. Hospital Ajmer is 81.69/1000 births. Of these 55.80% were emergency admissions. Antepartum haemorrhage, toxemia and prolonged and obstructed labour were the main causes of perinatal loss. The direct causes of perinatal loss were asphyxia, hypoxia and prematurity.

The preventable factors were present in 204 (76.40%) of cases. The preventable factors are discussed.

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