PROFILE OF PERINATAL MORTALITY

by

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For many years, maternal mortality has been considered as the main yard-stick whereby the maternity services in any country could be judged. With the dramatic improvement in maternal mortality in many countries of the world including developing countries like ours, the focus of attention has been shifted towards perinatal mortality. The latter truly reflects the real value of antenatal and intranatal care.

The very high incidence of perinatal mortality (78 per 1000) in the Eden Hospital, Medical College, Calcutta in comparison to western figure (U.S.A. 13.3 per 1000, Potter, 1952) is due to the fact that most of our cases were admitted as emergencies and there were a large number of patients who had either a premature labour or complicated pregnancy.

The present study consists of clinical analysis of 684 perinatal deaths during the period from 1st August, 1978 to 31st July, 1979 in the Eden Hospital, Medical College, Calcutta.

Table I shows the incidence of perinatal mortality with the break-down figures for still-births and neonatal deaths given separately.

From the above Table, it appears that there were 377 still-births (43.3 per 1000) and 307 neonatal deaths (34.7 per 1000) making it clear that there were more avoidable factors in the antenatal and intranatal period than in postnatal period.

From the above table it is apparent that below 1000 grams birth weight there was hardly any survival (0.500 grams—100 per cent and 501-1000 grams—98.3 per cent mortality), whereas between 2500-3500 grams, perinatal mortality was only 2.002 per cent. Again with oversized babies above 3500 grams perinatal mortality went upto 6.6 per cent.

TABLE I
Incidence of Perinatal Mortality

Total deliveries	Total No. of Still-births	Stillbirth rate	Total No. of Neonatal deaths	Neonatal death rate	Perinatal mortality
8766	377	43.3 per 1000	307	34.7 per 1000	78 per 1000

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TABLE II
Perinatal Mortality in Different Weight Groups

Weight in gram.	Total No. of deliveries	Total No. of stillbirths	Total No. of Neonatal deaths	Percentage of Perinatal Mortality
0 - 500	24	20	4	100.0
501 - 1000	120	52	66	98.3
1001 - 1500	313	79	131	67.3
1501 - 2000	1001	74	56	13.0
2001 - 2499	1904	65	26	4.77
2500 - 3500	5344	85	22	2.002
More than 3500	60	2	2	6.6
Total	8766	377	307	—

TABLE III
Perinatal Mortality in Different Period of Gestation

	Period of Gestation in Weeks			
	28 to 32	33 to 36	37 to 40	41 and above
Still Births	29	160	180	8
Neonatal deaths	43	180	75	9
Total	72	340	255	17
Percentage	10.6	49.5	37.4	2.5

The above Table clearly depicts that the highest perinatal mortality was between 33 to 36 weeks of gestation (49.5 per cent) and lowest was between 40 to 41 weeks (2.5 per cent).

There were more deaths in male babies (53.7 per cent) than in female babies (46.3 per cent). Weight for weight there were more deaths of male babies than female babies both in still birth and neonatal death groups.

For the same duration of pregnancy there were more perinatal deaths both, still births and neonatal deaths, among the male babies than the female babies particularly between 33 to 36 weeks of gestation (12.42 per cent still birth and 15.1 per cent neonatal deaths in male babies

TABLE IV
Perinatal Mortality in Relation to Socio-Economic Condition of Mothers

Socio-economic gradation	No. of still birth	No. of Neo-natal deaths	Total	Per cent
More than Rs. 201 per capita per month	6	5	11	1.4
Rs. 151/- to Rs. 200/- per capita per month	39	27	66	9.7
Rs. 101/- to Rs. 150/- per capita per month	48	35	83	12.3
Rs. 51/- to Rs. 100/- per capita per month	108	98	206	30.1
Less than Rs. 50/- per capita per month	176	142	318	46.5
Total	377	307	684	100.0

versus 11.1 per cent still birth and 12.3 per cent neonatal death in famale babies).

It is apparent from the above Table that with the improvement of socio-economic status, perinatal mortality definitely goes down from 46.5 per cent in income group less than Rs. 50 per capita per month to 1.4 per cent in income group upto Rs. 201 per capita per month.

The higher the socio-economic status and greater the number of antenatal visits, the less was the number of perinatal deaths. Out of total 684 perinatal deaths, 355 deaths occurred where there was no antenatal visit. On the other hand, with 3, 4, 5 or more antenatal visits the perinatal deaths were 53, 20 and 14 only respectively.

It is clear from Table V that with no antenatal visit perinatal mortality was 51.9 per cent, whereas with five or more visits it came down to 1.8 per cent.

With advancing maternal age the perinatal mortality increases considerably 31-35 years—16.7 per cent; 36-40 years—20.5 per cent and 41 and above—16.1 per cent).

Table VI confirms that with increasing parity both still birth and neonatal deaths rises steeply (4th gravida—10.9 per cent, 5th gravida—13.3 per cent and 6th gravida and above—16.5 per cent).

Table VII confirms that perinatal death was maximum on the 1st day of confinement—47.3 per cent in comparison to that on 7th day—1.1 per cent.

There was no significant statistical correlation between maternal height and perinatal mortality.

In undernourished women perinatal mortality was maximum (between 45 to 50 Kg—59.8 per cent, whereas in more than 52.5 Kg. body weight the figure was 7.5 per cent). Perinatal mortality in

TABLE V

Perinatal Mortality in Relation to Antenatal Care

No. of Visits	Still birth	Neonatal Deaths	Total	Percentage
Nil	214	141	355	51.9
* (S'ngle)	72	82	154	22.6
** (Two)	48	40	88	12.9
*** (Three)	31	22	53	7.9
**** (Four)	7	9	20	2.9
Five or more	5	13	14	1.8
Total	377	307	684	100.0

TABLE VI

Parity of Mother with Perinatal Mortality

Parity	No. of birth	Still birth	Neonatal deaths	No. of perinatal deaths	Percentage
Primigravida	3528	138	111	249	7.06
2nd Gravida	2147	58	66	124	5.7
3rd Gravida	1332	49	34	83	6.2
4th Gravida	731	41	39	80	10.9
5th Gravida	502	39	28	67	13.3
6th & above	526	52	29	81	15.4

TABLE VII

Distribution of Early Neonatal Death According to Day of Death

Date of Death	No. of cases	Percentage
1	145	47.3
2	87	28.2
3	29	9.6
4	21	6.8
5	13	4.3
6	8	2.7
7	4	1.1
Total	307	100.0

multiple births was 6 times more than that in single births (424.2/1000 to 72.7/1000). Maximum perinatal deaths were in transverse lie (45.4 per cent), next common being face and brow 32.1 per cent.

Table VIII shows that maximum perinatal deaths were in version and extraction, out of 25 deliveries 15 died giving 41.2 per cent mortality, next highest were in breech extraction and spontaneous breecn 29.3 ad 17.6 per cent respectively; on the other hand, in forceps and L.U.C.S., perinatal deaths were 7.6 and 8.18 per cent respectively.

Table IX shows that commonest clinical cause of perinatal death is prematurity 22.6 per cent, closely followed by antepartum haemorrhage—9.70 per cent and maternal distress—10.62 per cent.

Pethidine and morphine when used within 3 hours of delivery might cause very heavy casualty among the newborn babies—28.8 per cent and 12.0 per cent respectively.

General anaethesia was used in 90 out of 684 total cases, which contributed an incidence of 13.15 per cent of total perinatal loss. The indications for general anaesthesia are given below:

Indication	*No. of cases*
L.U.C.S.	45
Destructive operation	15
Forceps	18
Internal podalic version	12
Total	90

Discussion

Perinatal mortality is affected by many influences other than the availability of medical care and the efficiency with which it is given. Baird *et al* (1952) gave a lot of emphasis upon the socio-economic factors. Perinatal mortality varies according to the social class from which the mothers come. Further, their economic status during childhood may well affect their reproductive capacity in later years. In developing countries like ours where

TABLE VIII

Perinatal Mortality with Mehods of Delivery

Methods	Total deliveries	Still births	Neonatal deaths	Total deaths	Percentage
Spontaneous	6826	259	217	476	6.96
Spontaneous breech	221	23	16	39	17.6
Breech extraction	31	7	2	9	29.3
Version and extraction	34	12	3	15	41.2
Forceps	683	25	27	52	7.6
L.U.C.S.	956	36	42	78	8.16
Destructive operation	15	15	—	15	
Total	8766	377	307	684	

TABLE IX
Clinical Causes of Perinatal Deaths

Cause of death	Still births	Neo-natal deaths	Total	Per cent
1. Undetermined—				
(i) Premature (less than 2.5 Kg.)	51	106	157	22.6
(ii) Mature	90	42	132	19.7
2. Antepartum haemorrhage	49	21	70	9.70
3. Toxaemia	46	20	66	9.2
4. Abnormal labour and delivery	43	10	53	8.01
5. Cord complication	27	1	28	3.8
6. Congenital anomalies	18	21	39	5.5
7. Maternal distress	48	26	74	10.62
8. Neonatal distress—				
(i) Infection	3	40	43	6.2
(ii) Isoimmunisation	2	6	8	2.01
(iii) R.D.S.	-	4	4	0.5
(iv) Haemorrhagic diseases of new born	-	1	1	0.14
(v) Postpartum massive aspiration (faulty feeding technique, regurgitation and inhalation etc..	-	9	9	2.02
Total	377	307	684	100.0

parity is high and reproductive rates unlimited by any form of birth or family planning, perinatal mortality is invariably higher.

A study of perinatal deaths in relation to maturity reveals that perinatal mortality was lowest between the 38th and the 41st week of gestation. Babies born before the 38th week or after 42nd week run a greater risk of being either still born or dying in the 1st week of life.

The highest perinatal mortality rate was found in the present series between the ages of 15 to 19 years the lowest being the age group between 20 to 24 years rising in the age group of 30 to 40 years. Most of the primiparae belonged to the age group of 15 to 19 years and had a poor physique and nutritional state and very few had any antenatal care. The high perinatal mortality in this group was due to bith trauma toxaemia and congenital deformities, particularly so in elderly primiparae. The high perinatal loss in mothers above the age of 30 years was due to grand multiparity with a high incidence of malpresentations and obstructed labour.

Perinatal mortality was highest in the present study below the birth weight of 2500 grams, whereas between 2500 to 3500 grams perinatal mortality was only 2.002 per cent.

The present study showed that perinatal mortality had direct relationship with number of antenatal visits. With no antenatal visit perinatal mortality was 51.9 per cent, whereas with 5 or more visits it came down to 1.8 per cent. Similar observations were also made by Nair and Nayer (1965). Majority of their patients received little by way of perinatal care and considerable proportion of them got admitted to the hospitals

late in labour with various complications.

In the present study there were more perinatal deaths in male babies than in female babies (12.42 per cent still birth and 15.1 per cent neonatal deaths in male babies, versus 11.1 per cent still birth and 12.3 per cent neonatal death in female babies.

Tietze (1953) remarked that there was a well documented excess perinatal mortality in male babies during the last trimester of pregnancy. According to Nesbitt (1957) perinatal mortality was 13 per cent higher in male babies than in female babies.

In the present study of 684 perinatal deaths out of 8386 vertex presentation there were 582 deaths (6.9 per cent). Of the malpresentation during the study period, out of 289 breech deliveries 67 babies died (23.2 per cent), face and brow 28 cases—9 babies died (32.1 per cent), transverse—44 cases, 20 babies died (45.4 per cent) and compound presentation 19 cases—6 babies died (31.6 per cent).

Nature of Delivery

In the present study, 6.96 per cent of total perinatal deaths occurred in spontaneous vertex delivery group. In breech deliveries 46.9 per cent, of which spontaneous breech 17.6 per cent and breech extraction 29.3 per cent. Forceps—7.6 per cent, caesarean section—8.16 per cent, version and extraction 44.0 per cent and 15 deaths were due to destructive operations.

Summary

During this period the total number of deliveries was 8766, still births—377 (43.3 per 1000) and neonatal deaths 307 (34.7 per 1000) making the total perinatal mortality rate as 78 per 1000.

Higher incidence of perinatal mortality was analysed in the background of maternal age, parity, height and weight, duration of pregnancy, socioeconomic status, antenatal visits, foetal sex. birth weight, presentation of the foetus. mode of delivery, maternal diseases and complications due to pregnancy and labour.

For significant progress in the perinatal mortality, a plea has been made to focus specifically those women of child-bearing age in the population who are at increased risk. A similar approach has been suggested for infants of high risk, in order to reduce prinatal mortality.

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