J. of Obst. & Gyn. of India Vol. 51, No. 2: March/April 2001 Pg 34-37

Evaluation of Perinatal Morbidity and Mortality In Preterm Labour

Meena J. Jotwani, Sindhu B. Bhute, Kamal K. Deshmukh

Department of Obstetrics & Gynaecology, Jawaharlal Nehru Medical College, Sawangi (Meghe), Wardha.

Summary:

Over a period of one year, 3781 pregnant mothers (including twelve with twins) delivered. They were analysed retrospectively in order to find out the incidence of preterm labour & the resultant mortality and morbidity associated with the preterm delivery. Out of 3793 newborns, 388 (10.2%) were preterm. The overall perinatal mortality for the year was 55.3/1000 deliveries whereas preterm deliveries contributed to 64.76% of perinatal deaths. Out of 388 preterm babies 47 were stillborn and 89 had early neonatal deaths, thus giving a perinatal mortality rate of 350.4 per thousand births. Septicemia, birth asphyxia and intraventricular haemorrhage accounted for most of the early neonatal deaths. Hyperbilirubinemia, respiratory distress syndrome, infections and feeding problems were the common morbidities observed in preterm babies.

Introduction:

Preterm birth has emerged as the most important cause of perinatal mortality and morbidity and subsequent long term handicap. A large part of perinatal mortality occurs in low birth babies due to the functional immaturity of various systems. Thus preterm labour poses a problem to the obstetrician as well as to the neonatologist. The present study was undertaken to analyse the perinatal mortality and morbidity due to preterm deliveries at the District General Hospital, Wardha.

Material and Methods:

Three thousand seven hundred and eighty one pregnant mothers (including twelve with twins) delivered over a period of one year (1st Jan 97 to 31st Dec 97) in the District General Hospital which is attached to J. N. Medical College, Sawangi. The case records of all the preterm deliveries were reviewed with regard to maternal age, parity, medical and obstetrical complications during pregnancy and labour. The fetal outcome in terms of mode of delivery, birth weight, perinatal mortality and morbidity was analysed.

Results:

Table - I Incidence of Preterm Labour

Author and Year	Incidence of Preterm Labour
1. Agrawal et al (1994)	11.6%
2. Bhavsar & Shrotri (1989)	14%
3. Dolar & Nagpal (1995)	14
4. Present Study. (1997)	10.2%

Table –I shows incidence of preterm labour reported by various authors.

Table II shows that out of 3793 births, 3714 were live births and 79 were stillbirths. One thirty one (131) babie

Table - II Perinatal Mortality in Relation to Gestation

	Preterm	%	Term	%	Posterm	Total
1. Number of Babies Delivered	388	–	3356	–	49	3793
2. Live Births	341	–	3326	–	47	3714
3. Still Births	47	12.11	30	0.89	2	79
4. Early Neonatal Deaths	89	22.9	41	1.2	1	131
5. Perinatal Deaths [PND]	136	–	71	–	3	210
PERINATAL MORTALITY RATE [PNMR]	350.4/1000 BIRTHS.	–	21.1/ 1000 BIRTHS	–	61.2/1000 BIRTHS	55.3/1000 BIRTHS

died during the first 7 days of life giving a perinatal mortality rate of 55.3/1000 births. Out of 3793 babies 388 were preterm (10.2%). Out of these 388 preterm babies 47 were still born (12.11%) and out of 341 born alive 89 (22.9%) died within 7 days of delivery (early neonatal death). The total perinatal mortality amongst preterm births was found to be 350.4/1000 births. Thus preterm births contributed to 64.76% of total perinatal deaths.

Table-III shows perinatal mortality reported by various authors. Agrawal etal 1988 reported a perinatal mortality of 56.4%, Bhavsar & Shrotri (1989) reported 74%, Malik & Mir (1992) reported 56.2% and present study shows it to be 64.7%.

Table - III Perinatal Mortality in Preterm

Author and Year.	Place	%
1. Agrawal et al (1994)	Banaras	56.4%
2. Bhavsar & Shrotri (1989)	Pune	74.0%
3. Malik & Mir (1992)	Srinagar	56.2%
4. Present Study (1997)	Wardha	64.7%

Table IV shows the relation of birth weight with perinatal mortality Preterm babies were divided in three groups according to birth weight. Group-I (birth wt< 1000gm), Group-II (birth wt between 1000 to < 1500gms) and Group III (birth wt between 1500 to < 2500 gms). It is evident from Table IV tht PNM was highest in Group-I and lowest in Group-III and as the birth weight increases, PNM decreases.

Table-V shows perinatal mortality and mode of delivery. Out of 388 preterm women 14 were delivered by LSCS and 17 by forceps , whereas there were 64 vaginal breech deliveries and 293 vaginal cephalic deliveries. PNMR was highest for vaginal breech delivery viz 484.3/1000.

Table-VI shows the various obstetric factors associated with perinatal deaths. The factors like pregnancy induced hypertension (36.06%) abnormal presentation, (31.14%), antepartum haemorrhage (10.65%) PROM (8.19%) and cord prolapse (3.27%) contributed to most of the perinatal deaths. The PIH, APH and cord prolapse were responsible for more of stillbirths where as PROM, malpresentation and fetal distress were associated with neonatal deaths.

Table - IV Co-Relation of Perinatal Mortality with Birth Weight

Wt. in Gms	No. of Preterm Newborns	Still Births	Early Neonatal Deaths	PND	PNMR/1000
I < 1000	20	5	13	18 (90%)	900
II 1000 To < 1500	50	7	26	33 (66%)	660
III 1500 To < 2500	318	35	50	85 (26.72%)	267
Total	388	47	89	136	350.4

Table - V Perinatal Mortality and Mode of Delivery

Mode of Delivery	Total Cases	PND	Percent	PNMR/1000
Vaginal Cephalic	293	96	32.76%	327.6
Vaginal Breech	64	31	48.43%	484.3
Forceps Delivery	17	6	35.76%	352.9
Lower Segment Caesarean Section	14	3	21.42%	214.2
Total	388	136	–	350.4

Table - VI Obstetric Complications Association with Perinatal Mortality in Preterm Labour

Obstetric Causes	PND	Percent
Pregnancy Induced Hypertension	44	36.06
Abnormal Presentation	38	31.14
Antepartum Haemorrhage	13	10.65
Premature Rupture of Membranes	10	8.19
Cord Prolapse	4	3.27
Twins	3	2.45
Maternal Jaundice	1	0.81
Severe Anaemia	4	3.27
Congenital Anomalies	5	4.09
Total	122	100

Table-VII shows the principle morbidities amongst the preterm babies observed were jaundice in 88 babies (35.48), septicemia in 63 (25.40%), feeding problems in 59 (23.79%) respiratory distress in 29 (11.69%) and neonatal convulsions in 9 (3.62%).

Table - VII Causes of Perinatal Morbidity in Preterm

Perinatal Morbidity	No.	Percent
Physiological Jaundice	80	32.25
Pathological Jaundice	8	3.22
Septicemia	63	25.40
Resp. Distress	29	11.69
Feeding Problems	59	23.79
Neonatal Convulsions	09	3.62
Total	248	100

Table : VIII Causes of Early Neonatal Deaths in Preterm

Causes of Early Neonatal Deaths	No.	Percent
Extreme Prematurity	11	12.3
Birth Asphyxia	22	24.7
Respiratory Distress		
1. Hyaline Membrane Disease	6	6.7
2. Asp. Pneumonia	12	13.4
3. Pulmonary Haemorrhage	2	2.2
Infections		
1. Septicemia	17	19.1
2. Encephalitis	4	4.4
3. Tetanus Neonatorum	1	1.1
Hyperbilirubinemia	2	2.2
Hypothermia	3	3.3
Intra Cranial Haemorrhage	6	6.7
Total	89	100

Table VIII shows that the principle causes of early neonatal deaths in preterm were severe birth asphyxia (24.7%), infections (24.6%) respiratory distress (22.3%) and intracranial haemorrhage (6.7%).

Discussion:

The incidence of preterm deliveries varies from country to country and institution to institution. In India the incidence of preterm labour lies between 10-15% (ICMR 1990). Agrawal et al (1988), reported the preterm delivery rate of 11.6%, Bhavsar & Shrotri (1989) and Dolar & Nagpal (1995) reported an incidence of 14%. The preterm delivery rate of 10.2% from our hospital is similar to that reported by Agrawal et al (1988).

It was observed that preterm births accounted for a disproportionately large percentage of perinatal deaths. Among 210 perinatal deaths, 136 (64.76%) were preterm which is similar to that found by Agrawal et al (1988) viz 56.4% and Bhavsar & Shrotri (1989) viz 74%. Similarly Malik & Mir (1992) have found perinatal mortality of 56.2% among babies with gestational age less than 37 weeks. Birth weight and gestational age have a joint influence on perinatal mortality. It is seen from Table IV that PNM was higher in the babies weighing less than 1000 gms and as the birth weight increases, number of perinatal deaths decrease. This shows that low birth weight carried an increased risk of PNM.

The PNMR was highest in vaginal breech deliveries (484.3/1000). Similar results were found by Bhavsar & Shrotri (1989), i.e. PNMR of 111.9/1000. PNMR was lowest in LSCS (214.2/1000). Though there was joint influence of birth weight and mode of delivery in caesarean babies there was better neonatal resuscitation by neonatologist as all the caesarean deliveries were attended by neontologist. Amongst the obstetric factors, pre-eclampsia, abnormal presentation & antepartum haemorrhages, were found to be the leading causes of PNM. Similar causes were found by Agrawal et al (1988) and Malik & Mir (1992).

The major causes of neonatal deaths were severe birth asphyxia, infections, respiratory distress and intracranial haemorrhage. Malik & Mir (1992) observed asphyxia in 31%, congenital anomalies in 18.7% & sepsis in 18.7%.

Jaundice was the most common morbidity in preterm babies followed by septicemia, feeding problem respiratory distress and neonatal convulsions.

Thus preterm labour is common problem affecting 10% of all deliveries in our institution. When compared to term babies preterm babies show poor survival and high morbidity due to functional immaturity

of various systems and poor tolerance to stress of labour and delivery. Thus, there is urgent need for newer and superior modalities for neonatal resuscitation and intensive care technology and means of arresting preterm labour as "prevention is better than cure."

References:

1. Agrawal A, Swain A, Ohja K, Bhatia S. : J. Obst and Gyn. Ind. 44: 210; 1994.
2. Bhavsar S., Shrotri A. : J. Obst and Gyn. Ind. 39: 685; 1989.
3. Dolar R., Nagpal S. : J. Obst and Gyn. Ind. 45: 380; 1995.
4. Lopez J. : J. Obst and Gyn. Ind. 35: 432; 1985.
5. Malik S. Mir N. : Asia oceania J. Obst and Gyn. 18: 1; 1992.
6. Murdo G. Elderm, Roberto Romero, Ronald E. Lamont : Preterm labour, management of preterm birth. 1997 1-28. Churchill Livingstone, London
7. Singh Meharban : Care of the Newborn P. 1-10 IV th Edition. 1991. Sagar publication. New Delhi.