

**Perinatal Mortality in Shimla
(Himachal Pradesh)**

V.R. Parmar
N. Grover
I. Randhawa
L. Bahl
R.K. Kaushal

Perinatal mortality rate (PNMR: still births >28 weeks gestation/birth weight \geq 1000 g and early neonatal deaths per 1000 births) is considered the best index of the quality of obstetric and pediatric services in a hospital and community, even though it is influenced by the social, economic, environmental and genetic background of the population. The great difference in the incidence of PNMR in developed countries (10-20/1000 births), as compared to our country (60 to 120/1000 births)(1) indicates that preventable perinatal deaths are occurring

From the Departments of Pediatrics and Obstetrics and Gynecology, Indira Gandhi Medical College, Shimla, Himachal Pradesh.

Reprint requests: Dr. (Mrs.) V.R. Parmar, Associate Professor, 2-B, Doctors Residence, Correstophen Estate, Lakkar Bazar, Shimla 171 001.

Received for publication: October 23, 1989;

Accepted: February 23, 1994

which should be reduced with appropriate measures. A retrospective study was undertaken to determine PNMR and the various factors influencing it in our hospital, in order to evolve methods of prevention.

Material and Methods

From January 1980 to December 1987, perinatal mortality was studied in 12,798 consecutive births which occurred in the Department of Obstetrics, Kamla Nehru Hospital, Indira Gandhi Medical College, Shimla. The causes of PNM were determined and the effects of maternal age, parity, antenatal care, period of gestation, birth weight, sex and mode of delivery on the PNMR studied(2).

Results

During the eight year period of study, the perinatal mortality and still birth rates were 68.29/1000 (874/12798) and 34.38/1000 births (4,40/12798), respectively, and the early neonatal death rate was 35.11/1000 (434/12358) live births. Perinatal mortality showed a statistically insignificant decline from 75.4/1000 in 1980 to 2/1000 in 1987.

The extreme of maternal age and parity were associated with significantly higher PNMR, which was 52.2/1000 in the mothers between 20 to 34 years of age, rising to 116.7 and 198/1000 in the mothers below 20 years and above 35 years of age, respectively ($p < 0.001$). Likewise, the PNMR was 76.9 and 87.5/1000, respectively in primipara and grandmultipara as compared to 57.8/1000 in 2nd, 3rd and 4th para ($p < 0.001$; Table I). It was observed that 77.1% ($n=674$) of the perinatal deaths occurred in

BRIEF REPORTS

unbooked cases as compared to 23% (n=200) in booked cases (3 or more antenatal visits). The PNMR was 597.9/1000 in preterm, (<37 weeks), 27.49/1000 in term (37 to 41 weeks) and 93.61/1000 in post term (>42 weeks) deliveries (p<0.001). It was also significantly greater in the LBW group (<2500 g) (p.<0.001; *Table II*).

The PNMR was higher in boys (58.90%) than girls (41.2%), and 5 and 10 times higher in twins and triplet pregnancies than singleton pregnancies. It was highest (318/1000) in breech deliveries followed by

cesarean section (CS) deliveries (229/1000) and vertex deliveries (149/1000). *Table III* shows the pathological causes of perinatal deaths.

Discussion

The PNMR of 68.29/1000 births in the present study compared with reports by other Indian authors(3,4) but was much higher than Western figures of 10-20/1000 births. The significantly higher PNMR in extremes of maternal age, mono and grand multiparity, emergency unbooked admission, curtailed pregnancy and low birth weight was in agreement with other Indian reports(3-5).

The considerably higher PNMR observed in CS deliveries may be because, this hospital being the only referral hospital in Shimla, an emergency CS is often undertaken for a maternal indication and or with a jeopardized fetus. Bhandari and Mandowara(5) had a similar experience, but Gupta and Gupta(4) from an industrial hospital, reported a much lower PNMR in CS deliveries.

Although LBW comprised only 37% of the total births, 72% of the perinatal deaths

TABLE I - Perinatal Mortality and Parity

Parity of mother	No. of births	PND	PNM/1000
I	4368	336	76.02
II	3675	233	63.40
III	1822	114	62.56
IV	1803	86	47.69
V	1200	105	87.50

} 57.88

(p<0.001).

TABLE II - Perinatal Mortality in Relation to Birth Weight

Birth weight (g)	Total births	Still births	Neonatal deaths	PND	PNMR/1000
≤ 1000	84	17	67	84	1000.0
1001-1499	298	65	120	185	621.0
1500-1999	990	67	104	171	172.0
2000-2499	3319	117	75	192	57.8
≥ 2500	8107	174	68	242	29.8
Total	12798	440	434	874	

} 134.72

PNMR in LBW (<2500 g)=134.72/1000 (632 deaths out of 4691 births).

TABLE III-Causes of Perinatal Deaths *

Birth weight (g) (n)	Perinatal deaths				
	Normally formed macerated still births	Congenital malformat- ions: SB & NND	Conditions associated with immaturity: NND	Asphyxial conditions developing in labor: NND & fresh SB.	Others: Infections, septicemia, pneumonia, meningitis, hypothermia; <i>etc.</i>
1000 (84)	9	14	48	13	-
1001-1499 (298)	12	10	86	63	14
1500-1999 (990)	6	20	72	58	15
2000-2499 (3319)	2	44	21	94	31
2500 & above (8107)	6	38	5	152	41
Total	35	126	232	380	101
(%)	(4.1)	(14.4)	(26.5)	(43.5)	(11.5)

Wigglesworth J, 1980; SB = Still birth; NND = Neonatal death.

were LBW, with PNMR being 2 and 6 times more when the birth weight was between 2,000 to 2,499 g and 1500 to 1999 g, respectively than when it was 2,500 g. Perinatal asphyxial conditions accounted for 43% of the perinatal deaths and was in agreement with Joshi *et al.* (3) but much higher than in the AIIMS study(1) which had only booked cases. This is probably related to the higher PNMR in emergency CS deliveries and high number of unbooked pregnancies in the present study. The higher PNMR in immaturity in our study compared to other reports(1,3) may have been due to profound hypothermia (12%) and aspiration of feeds (6%) resulting from the cold weather round the year in Shimla and the inadequate infrastructure for care of high risk babies. Congenital malformation and infections were other important causes of perinatal mortality in our study.

From the above observations it is concluded that perinatal mortality can be reduced considerably by: (a) improving antenatal and pediatric care, especially in the rural areas, as it was noted that 77% of PNMR occurred in emergency and unbooked admissions; (b) Early identification and referral of high risk mothers by community health workers, using a simplified scoring system for the Indian rural mothers(6,7); (c) close supervision and timely admissions in hospitals to reduce the incidence and severity of obstetric emergencies, LBW and perinatal mortality; (d) Provision of Level II and III neonatal care in certain centres.

REFERENCES

1. Singh M. Hospital-based data on perinatal mortality in India. *Indian Pediatr* 1986, 23: 579-584.
2. Wigglesworth JS. Monitoring perinatal

BRIEF REPORTS

- mortality. A pathological approach. *Lancet* 1980, 2: 684-686.
3. Joshi V, Bhakoo ON, Gopalan S, Gupta AN. Primary causes of perinatal mortality: Autopsy study of 134 cases. *Indian J Med Res* 1979, 69: 963-971.
 4. Gupta PK, Gupta AP. Perinatal mortality. *Indian Pediatr* 1985, 22: 201-205.
 5. Bhandari B, Mandowara SL. Perinatal mortality in South East Rajasthan. *Indian Pediatr* 1983, 20: 599-602.
 6. Bhargava SK, Srinivasan S, Rishan J. A simplified scoring system for identification of high risk births. *Indian Pediatr* 1982, 10: 209-215.
 7. Mahajan J, Guha D. Identification of high risk mothers in the community. *National Neonatology Forum* 1987, 1: 1-4.
-

Birth Weight Pattern in Karnataka

K.N. Prasad
R.S. Phaneendra Rao
A. Sujatha

A number of indicators of early maturity of newborn are accepted worldwide, but there is no agreed overall definition. The most commonly used indicator of newborn maturity is birth weight(1). The birth weight of an infant is highly sensitive in two important aspects(2); firstly, it is strongly condi-

tioned by the health and nutritional status of the mother. Secondly, it is the single most determinant of the chances of newborn to survive and experience healthy growth and development. It is, therefore, considered as a subject of clinical and epidemiological investigation and target for public health interventions(1).

It is a common experience that data on mean birth weight and low birth weight are available mostly from hospital based studies in different parts of the world. But only few such data are available from developing countries such as India on birth weight pattern among rural population. The present study was undertaken with an objective to find out the pattern of birth weight in general by utilizing the data available from well established rural maternity homes in the coastal areas of Udupi taluk.

Material and Methods

Udupi is one of the coastal taluk in South Kanara district in Karnataka. The villages are densely populated and a good network of roads and transport exists in the taluk. The overall literacy rate is high (78.5%) and female literacy in particular is

From the Department of Community Medicine, Kasturba Medical College, Manipal.

Reprint requests: Dr. R.S. Phaneendra Rao, Department of Community Medicine, Kasturba Medical College, Manipal 576119, Karnataka.

Received for publication: July 9, 1993;

Accepted: March 2, 1994