Original Articles

PERINATAL MORTALITY IN URBAN SLUMS IN LUCKNOW

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Objectives: *To determine the perinatal mortality rate (PNMR) in the urban slums of Lucknow.* ***Design:*** *Cross-sectional survey.* ***Setting:*** *Twenty five Anganwadi centres of urban Lucknow. with a population of 25,901. Methods: Data was collected on birth and early neonatal deaths, gestational age of the neonate (determined at birth) and maternal variables like socio-economic status, maternal age, parity, and bad obstetrical history from January 1992 to March 1993.* ***Results:*** *There were 966 births with a still-birth rate of 37.2 and PNMR of 59.0 per 1000. The relative risk of perinatal mortality with lower socio-economic status was 1.87, bad obstetrical history 2.18, and gestational age <37 weeks 1.95.* ***Conclusions:*** *Further reduction in PNMR may be possible with focussed medical services to women of low socio-economic status having bad obstetrical history and those delivering before term.*

Key words: Perinatal mortality, Urban slums.

PERINATAL mortality rate (PNMR) serves as the most sensitive index of maternal and neonatal care. It also reflects the general health and sociobiological features of mothers and infants (l). In developed countries, perinatal mortality rate (PNMR) is <10 per 1000 as compared to the alarmingly high rate of 60-120/1000 in India. About 1.5 million perinatal deaths (PND) occur every year in our country (2). In India most of the studies are hospital based and the data from urban slums is lacking.

Subjects and Methods

The present study was conducted in an urban slum of Lucknow where Integrated Child Development Services (ICDS) were also available. The area had a registered population of 25,901 in 25 Anganwadi centres. Each Anganwadi centre has one

Anganwadi worker who is a local woman of the area with a population of nearly one thousand. All the births (live and still) from 1st July 1992 to 31st March 1993 were prospectively included. Retrospectively data was collected for six months from 1st January 1992 to 30th June 1992.

An attempt was made to register all pregnant women in the study area. Detailed antenatal, natal and postnatal data, socio-economic status of the family, sex of the baby, age of the mother, parity, number of antenatal contacts, past bad obstetric history and delivery practices were recorded on a proforma with the help of Anganwadi workers. Anganwadi workers were given an orientation and also on the spot reorientation for accurate and complete collection of data. Verbal autopsy was performed for finding the causes of perinatal deaths. Information regarding

each death was recorded on a pretested proforma and cross-checked.

Neonatal jaundice was considered when there was history of deep yellow coloration of the body. *Birth injury* was defined as injury to the baby resulting from mechanical factors such as compression or traction during parturition. *Infections* were suspected when a baby has any three of the following: refusal to feed, convulsions, low or high grade temperature, diarrhea, vomiting, abdominal distension, rapid breathing, umbilical sepsis and pyoderma. *Asphyxia* was considered when the newborn had absent or weak cry or had absent or slow .gasping respiration at the time of birth. *Prolonged labor* was defined if the duration of the first and second stage of labor was more than 18 h. *Maternal severe anemia* was diagnosed when there was pallor and breathlessness on exertion. *Socio-economic status* was divided into lower and higher according to family income less than or more than Rs. 1000/- per month. *Bad obstetric history* was considered when there was previous history of one or more abortion, one or more still birth or one or more neonatal deaths.

For statistical analysis Z test was applied. Relative risk was calculated by appropriate statistical methods (3).

Results

The total population of the study area was 25,901. Total number of deliveries was 966; of these 930 were live births (LB), 36 still births (SB), 21 early neonatal deaths (END) and 57 total perinatal deaths (SB + END). Premature births were 99 of 930 LB (10.7%)

The still birth rate and PNMR were 37.2 and 59.00 per 1000. *Table I* shows that the perinatal mortality rate was higher at extremes of maternal age and parity, with low socio-economic status, bad obstetric

history, inadequate antenatal checkups, prematurity and deliveries by untrained personnel. *Table II* gives relative risk of various associations of perinatal mortality. The highest relative risk was noted with bad obstetric history (2.18), followed by prematurity (1.95), lower socio-economic status (1.87) and no antenatal checkup (1.81). *Table III* shows that asphyxia was the leading cause of death (42.1%) followed by prematurity (14.03%) and infections (12.3%). Congenital anomalies and neonatal jaundice were each responsible for only 1.8% of perinatal deaths.

Discussion

The PNMR in the present study was 59.0/1000 births. Thora *et. a/.* (4) and an ICMR study(5) reported a slightly higher PNMR (88.5 and 65/1000 births, respectively) in ICDS projects of urban slums of Jabalpur and Delhi. This could be because of improvement in maternal and child health care during the last few years. The Registrar General of India (6) also reported a declining PNMR (66.8 in 1976 to 53.8 in 1984).

The incidence of prematurity in the present study was 10.4% which is comparable to the observations made by other workers (7-10). PNMR was also higher in preterm babies as compared to term babies. Others have also reported a higher PNMR in preterm babies (11, 12).

A higher PNMR was observed among males as compared to females but the difference was statistically insignificant. Extremes of maternal ages and high parity were associated with higher perinatal mortality rate. Other workers also reported similar observations regarding maternal age (l, 13-15) and a higher PNMR at extremes of parity (1, 11, 15, and 16). A higher perinatal mortality was observed in cases with no or inadequate (<3) antenatal contacts in conformity with

TABLE I- *Perinatal Outcome in relation to Medico-Social Factors*

Factors	No. of births	SB	END	PND	PNMR	P value
Sex						
Male	491	17	13	30	61.00	>0.05
Female	475	19	8	27	57.00	
Socio-economic status						
Higher	447	11	7	18	40.00	<0.05
Lower	519	25	14	39	75.00	
Maternal Age (yr)						
<20	93	6	13	9	97.00	<0.05
20-30	655	21	11	32	40.00	
<30	218	9	7	16	73.00	
Parity						
Primipara	122	8	2	10	82.00	0.25
Multipara	844	28	19	47	55.70	
Antenatal Contacts						
No	80	6	2	8	100.00	0.10
Yes	886	30	19	49	55.30	
Bad Obstetric history						
Absent	880	30	17	47	53.00	0.02
Present	86	6	4	10	116.00	
Gestational Age						
Preterm	99	14	13	27	273.00	<0.0001
Term	828	22	8	30	36.00	
Post Term	3	-	-	-	-	
Delivery conducted by						
Doctor (Hospital)	183	9	5	14	76.00	<0.05
Trained Workers	265	4	2	6	23.00	
Untrained	518	23	14	37	71.00	

SB= Still birth; END= Early neonatal death.

PND= Perinatal death; PNMR= Perinatal mortality rate

tacts in conformity with earlier experience (l,7,17).

Bad obstetric history had an adverse effect on fetus and newborn, showing a higher PNMR in this group. A higher mortality was observed in hospital deliveries as usually high risk and complicated cases sought admission in the hospital. Similar observations were reported by Thora *et al (*4)*.

Risk factors with high relative risk included bad obstetric history, gestational age <37 weeks, low socio-economic status no antenatal checkups and deliveries conducted by untrained personnel. Despite availability of facilities for deliveries by trained personnel, more than 50% deliveries were conducted by untrained personnel and 80% were home deliveries. Asphyxia was the leading cause of the death followed by prematurity and infections. Similar observations are reported previously (l, 12, and 18).

Improvement of maternal and child health care specially with regard to

TABLE-II *Associates of Perinatal Morality*

Variables	Distribution in		Relative Risk
	Dead	Living	(95% CI)
Sex			
Male	30	461	1.07
Female	27	448	(0.65-1.78)
Socio-economic			
Lower	39	480	1.87
Higher	18	429	(1.08-3.22)
Maternal Age (yr)			
<20	9	84	1.76
≥20	48	825	(0.89-3.47)
Maternal Age (yr)			
<30	41	707	0.75
≥30	16	202	(0.43-1.3)
Parity			
Primigravida	10	112	1.47
Others	47	797	(0.76-2.84)
Antenatal Checkups			
None	8	72	1.81
Yes	49	837	(0.89-3.68)
Obstetric history			
Bad	10	76	2.18
Not bad	47	833	(1.14-4.15)
Gestational Age (wks)			
<37	27	72	1.95
≥37	30	801	(1.36-2.8)
Delivery conduction			
By untrained person	37	481	1.60
Trained person	20	428	(0.94-2.72)

TABLE III-*Causes of perinatal death*

Causes	SB (n=36)	END (n=21)	PND (n=57)	% of all perinatal deaths
Congenital anomalies	-	1	1	1.8
Neonatal jaundice	-	1	1	1.8
Birth injury	3	-	3	5.3
Prematurity	-	8	8	14.0
Infections	-	7	7	12.3
Asphyxia	20	4	24	42.1
Unknown	13	-	13	21.8

* Probable causes of intrapartum asphyxia were APH (4), Cord around the neck (2), prolonged labor (2), malpresentation (3), toxemia (4) and anemia (5).

Motherhood is expected to improve the scenario in the near future.

Acknowledgement

registration of pregnant mothers, detection of high risk cases and timely intervention, which can be ensured by a minimum of three antenatal visits, delivery by trained personnel and limitation of family size will help in achieving the goal of reducing PNMR to <30 by 2000 AD.

Implementation of the National Programme of Child Survival and Safe

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