

Maternal Mortality in Apex Hospital of Bihar

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Summary

This study was undertaken at Patna Medical College Hospital to find out the maternal mortality rate and the various epidemiological factors related to it during a nine years period from 1990 to 1998.

MMR varied between 1151 to 2667 per one lac live births with a mean of 1692.55. Eclampsia accounted for 26% of all maternal deaths, haemorrhage 20.04% anaemia 18.64%, obstructed labour and ruptured uterus 12.18% and sepsis 9.79%. Thirty five percent of deaths occurred within 24 hours of admission and 53% between 24 hours and 7 days. Approximately 11% of victims were teenagers, 16% were more than 30 years of age and the remaining were between 20 to 30 years. Thirty seven percent of dying mothers were primigravidas, 23% were grandmultis and 40% were 2nd to 4th gravida. Sixty seven percent of deaths occurred in women from rural areas, 26% in urban slum and 7% in urban habitat. 91.8% of maternal deaths occurred in Hindus and 8% in Muslims. Booked cases accounted for 11% of deaths while unbooked for 89%. Sixty eight percent belonged to low, 26% to low middle, 5% to upper middle and less than 1% to high socio-economic group.

Lack of knowledge, illiteracy, poor transport facilities and late referral were found to be most important causes of maternal mortality.

Objective

1. To analyse the causes and epidemiological aspects of maternal mortality e.g. age, parity, socio-economic status and literacy.
2. To compare the results with those from institutions of other states.

Material & Methods

All maternal deaths occurring in the department of Obstetrics and Gynaecology of Patna Medical College Hospital between 1990 to 1998 were retrospectively analysed for epidemiological factors. Maternal mortality rate for each year was calculated (Table-I). Each maternal death was scrutinized to pinpoint the exact cause of death (Table II & III). Presence of avoidable factor was looked for and methods to avoid such deaths were suggested.

Discussion

Maternal mortality rate of any given area is an indirect measurement of care being delivered there to women on the whole and to pregnant women in particular. However, maternal mortality rate of any hospital and that too of an apex hospital can not be a true representative of that area. The figures are biased due to high number of serious and complicated cases. As evident from Table I, MMR of PMCH has not decreased during the study period from 1990 to 1998, and has rather increased. During the same period, the number of live births has gradually decreased. This is because the concept of hospital delivery is gradually changing in favour of private or corporate hospital. Women even from lower middle class prefer to deliver in a private clinic rather than in a government hospital. Women attending labour room of PMCH are generally a mixture of seriously ill patients requiring intensive care, and

Table I
MMR in Different Years (Per One Lac Livebirths)

Year	No. of Live Births	No. of Maternal Deaths	MMR.
1990	8337	096	1151.47
1991	9500	101	1063.15
1992	7101	108	1478.66
1993	6871	128	1790.00
1994	5392	106	2077.00
1995	5398	105	2019.00
1996	6037	135	2236.00
1997	5196	104	2021.00
1998 (upto Oct.)	2887	077	2667.00
Total	56719	960	1692.55

Table-II
Major Direct Causes of Maternal Mortality

Year	Eclampsia	Haemorrhage	Obst. Labour + Ruptured Uterus	Sepsis
1990	22	20	16	15
1991	35	14	15	12
1992	25	18	14	10
1993	35	31	07	09
1994	29	28	12	08
1995	24	23	17	16
1996	24	35	12	10
1997	34	15	13	07
1998	22	12	11	07
Total	250 (26.04%)	196 (20.4%)	117 (12.18%)	94 (9.79%)

labouring women from poor socio-economic status, many of whom have high risk pregnancy including severe anaemia. The number of deliveries therefore show a small decline through the nine years period which should have increased considerably considering the high birth rate of India. The data however does not show a proportionate decrease in the number of maternal deaths. This is because more number of serious cases are now being referred from periphery. Women who used to die unattended at home in the past are now brought to hospital, at least for their last breaths. This may be considered a good response in the public. Such a change in attitude is expected to increase the number of serious cases in the hospital and thus increase the number of maternal deaths.

On analysis of the causes of death during the study period (table II & III), eclampsia in the direct group and anaemia in the indirect group topped the list during most of the years, both of which are almost preventable. This is a matter of great concern, as it highlights the failure of various programmes from national and international levels for betterment of reproductive health.

Thirty five percent of maternal deaths occurred within 24 hours of admission which is directly related to late referral from periphery (Table IV). In rural areas, deliveries are mostly conducted by those who are not properly trained and hardly have any idea of asepsis. Women in severely obstructed labour and many a times with ruptured uterus are generally referred to tertiary centres. Poor and sometimes non-existent transport facility take their own toll, so that by the time the patient arrives at the hospital, it is too late and irreversible damage has already occurred. The same is true for medical termination of pregnancy, vast majority of which is being done by unauthorised persons in rural areas. Poor and illiterate women with poor general health subject themselves to great risk for the sake of terminating pregnancies and they are referred to authorized places only after they have developed some serious complications. Each MTP death must be thoroughly investigated and the guilty punished.

In the present series, almost 11% of victims were aged less than 20 years (Table-V). Such a large number of teenagers ending in maternal mortality highlights the

Table-III
Indirect Causes of Maternal Death

Year	Anaemia	Jaundice	Heart Dis.	Anaesth.	Miscella.
1990	15	01	02	02	03
1991	11	04	03	02	05
1992	15	02	03	04	17
1993	33	06	04	03	Nil
1994	14	06	01	03	05
1995	10	06	02	02	05
1996	35	10	03	01	05
1997	26	04	02	01	02
1998	20	03	02	Nil	Nil
Total	179 (18.64%)	42 (4.37%)	22 (2.24%)	18 (1.87%)	42 (4.37%)

Miscellaneous group includes systemic infections, abdominal catastrophes, mismatched blood transfusion, pulmonary embolism and other rare conditions.

Table IV: Time Interval Between Admission and Death

Time Interval	No. of Deaths	Percentage
< 24 hours	336	35%
24 hr to 7 days	509	53%
> 7 days	115	12%

Table V: Epidemiological Characteristics of Maternal Deaths

Age (in years)	Number	Percentage
< 20	105	10.93
20-24	316	32.91
25-29	380	39.58
30-34	115	11.98
35 and above	044	04.58
Parity		
Primi	355	37
Multis	384	40
Grandmulti	221	23
Residence		
Urban	067	07
Urban Slum	250	26
Rural	643	67
Religion		
Hindu	882	91.8
Muslim	77	8.1
Others	1	0.1
Antenatal Care		
Booked	106	11
Unbooked	854	89
Socio Economic Status		
Low	653	68.02
Low-Middle	250	26.04
Upper-Middle	049	05.1
High	008	00.83

prevalence of early marriage and child bearing in this part of our country. It is an well established fact that teenage pregnancy is hazardous for health and is associated with high mortality and morbidity.

Thirty seven percent of maternal deaths occurred in primigravidas (Table V). First pregnancy should be considered a high risk pregnancy which demands good antenatal and intranatal care with facilities for operative delivery in background. The present study reflects the poor availability of such care in this region. Major causes of death in these young primigravidas were eclampsia, sepsis (secondary to MTP) and obstructed labour. Grand multiparas contributed to 23% of maternal deaths. A few of them were mothers of even 16 to 18 children. The commonest cause of death in them was haemorrhage.

The concept of booking is almost nonexistent in the hospital from where PMCH receives all types of seriously ill cases from all over the state as well as a few from neighbouring states. The number of such cases is much higher than the booked ones (Table V). Even though some women receive antenatal care in MCH outdoor of the hospital, their number is too small and their antenatal attendance too poor.

67% of women who eventually died, belonged to rural areas while 26% were from urban slum areas (Table V). Majority of women from such areas are unaware of the importance of good antenatal care thus leading to high mortality.

Almost 92% of the maternal deaths occurred in

Hindus (Table V). This may be explained partly by the higher number of Hindus in this area but also partly by the lower standard of health care and respect for women in our society.

Ninety four percent of maternal death cases belonged to low or lower-middle socio-economic group (Table V). Sex discrimination and negligence of girl child results into poor general health and anaemia when she attains womanhood. Early marriage adds fuel to this problem because in most of the families, daughters in-law have to do major share of household work while they are denied an equal share of balanced and healthy food. Early and rapidly repeated child bearing further jeopardizes their health. Being illiterate, they are unable to know the benefits of family planning and antenatal care and are therefore poorly cared for during pregnancy and labour.

To change the present scenario of maternal mortality, there is urgent need of improvement in MCH care at all levels in our society with particular emphasis on early referral and transport. Each and every person in the society should have at least some education and there should be adequate dissemination of information to women and their families. The message of reproductive health should be more vividly conveyed through mass media. There should be free telecast concerning women's health at every 1/2 to 1 hour interval. The age of marriage should be strictly adhered to, and the parents marrying off their daughters at a lower age should be penalised. Each maternal death must be audited (Table-VI) and the guilty punished. Balanced and nutritional food should be provided to all children

Table VI: MMR at PMCH as Compared to Other Institutions in India

Institution	Year	MMR	Percentage Distribution of Major Causes				
			Hge.	Toxemia	Sepsis	Anaemia	Jaundice
Satdarjung Hosp New Delhi Roy Choudhary et al (1990)	1979-87	638	18.1	12.72	23.2	13.7	16.8
Eden Hospital Medical College Calcutta Bara Sengupta (1992)	1979-80	1009	23.8	17.9	19.9	15.2	05.9
VNGMC Yavatmal Ramteke & Pajai (1996)	1992-94	1048.24	29.25	12.93	12.24	12.93	05.4
KRHC Gwalior Sapre & Joshi (1999)		1448.65	17.17	25.44	12.89	28.87	04.99
Present Series	1990-98	1692.55	20.40	26.04	09.79	18.64	04.37

and adolescent girls by the government's help. There is urgent need of boosting the morale of health providers with good salary and ensured safety besides providing them with equipment, assistance and reorientation training at intervals.

Conclusion

The present study shows a very high maternal mortality rate at Patna Medical College Hospital. There is urgent need of improvement at all levels in the society.

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