

A FIVE YEAR REVIEW OF MATERNAL MORTALITY

YUVAKSHI JUNEJA • UMA RAI

SUMMARY

This paper analyses the causes of maternal deaths over the last 5 years from 1988-1992 at Smt. Sucheta Kriplani Hospital, New Delhi, India. During this time there were 10187 obstetric admissions, 63500 total births and 236 maternal deaths. Cumulative maternal mortality rate was 3.71 per thousand births. Causes of deaths were the same over these years, sepsis, haemorrhage and toxæmia being the leading causes amongst the direct causes and hepatitis and anaemia being the indirect ones. 90% deaths occurred within a week of hospital admission. Almost 70% deaths were due to preventable causes. These deaths could have been avoided by antenatal supervision, early detection of problems like anaemia and PIH, and timely referral of high risk cases to the hospitals.

INTRODUCTION

Maternal mortality is an indicator of the quality of obstetric care in a community. It directly reflects on the available health care services. Maternal mortality is defined as the number of women dying from any cause, while pregnant or within 42 days of termination of pregnancy per 100,000 total births. Maternal mortality in the developing countries is 10-20 times higher as compared to developed countries. In India MMR was 20/1000 births in 1946, declining to about 4/1000 in 1984. In our country accurate figures

are not available due to poor reporting of births and deaths and most data reported are from teaching institutions all over the country. DR. K. Bhaskar Rao (1986) collected data from 41 teaching institutions and showed a MMR of 721/100,000 births. MMR in SSKH during the year 1981 was 505/100,000 birth declining to 348/100,000 in the year 1991.

MMR ranges from city to city in India, lowest being reported from Kerala and Bombay i.e. 100/100,000 whereas highest is reported from Madhya Pradesh, Mizoram and Rajasthan i.e. 500/100,000 (P. K. Devi 1986). It indirectly indicates the literacy status of the community and the availability

Dept. of Obst. & Gyn. Lady Hardinge Medical College, New Delhi.

Accepted for Publication on 08.09.1993.

of health care services.

Thus in our country there is a maternal death occurring every 4 minutes. In order to find out the cause of high maternal death rate in our country, we attempted to study and analyse the cases of maternal deaths over a period of 5 years from 1988-1992 in SSKH and associated hospitals. Ours is a teaching hospital and a referral center with a annual delivery rate of 12000-15000 and abortions ranging from 2000-2500 per annum.

OBSERVATIONS

During these five years (1988-1992) total obstetric admissions were 101874, total number of deliveries were 63500 and total maternal deaths were 236, as seen from Table I.

Cumulative maternal mortality rate was 3.71 per thousand births (Table I). As seen from Table II, 68.64% patients belonged to 20-30 years age group, whereas number of deaths in the age group less than 20 yrs and more than 30 yrs were almost the same. 89% patients died within 7 days of admission out of which 34% died

within 24 hrs of admission (Table III). Causes of death were classified as direct, indirect and associated causes (Table IV and V). Direct causes were found to be operating in 54.68% causes and indirect causes in 38.55%

Table II

Age distribution of cases

Age in years	Number	Percentage
< 20	41	17.37
21 - 30	162	68.64
> 30	33	13.98

Table III

Time interval from admission to death

No. of cases	Within 24 hours	more than 24 hrs - 7 days	more than 7 days
	81 (34.32%)	130 (55.08%)	25 (10.59%)

Table I

Maternal mortality per year (1988-1992) at Lady Hardinge Medical College and Smt. S. K. Hospital, New Delhi

Year	Total Obstetric admissions	Total births	Total maternal deaths	Maternal mortality rate per thousand births
1988	20321	12978	52	4
1989	17790	11635	60	5.15
1990	19320	13489	45	3.33
1991	22025	12639	44	3.48
1992	22418	12759	35	2.70
Total	101874	63500	236	3.71

Table IV

Causes	No. of cases	Percentage
A. Direct		
i) Sepsis	48	20.33
ii) Haemorrhage	43	18.22
iii) Hypertensive disorders of pregnancy	26	11.01
iv) Thromboembolism	3	1.27
v) Amniotic fluid embolism	3	1.27
vi) Chorioamnionitis	1	0.42
vii) Tetanus	1	0.42
viii) Post LSCS infection	1	0.42
B. Indirect causes		
Heaptitis with pregnancy	52	21.61
Anaemia	31	13.13
Heart disease	9	3.81
C. Other associated causes	19	6.77

Table V

Causes of Maternal Deaths due to Haemorrhage

Causes	No. of cases	Percentage
PPH	16	37.20
APH	10	23.25
Rupture uterus	9	20.93
Inversion uterus	4	9.30
Mole	1	2.32
Ectopic pregnancy	1	2.32
Abortion	2	4.64
Total	43	100.00

Table VI

Associated causes of death

Causes	No. of cases
Chest infection including kochs (4 cases)	7
Meningitis	5
Anaesthetic accident	1
Blood transfusion reaction	1
Malaria with pregnancy	1
Enteric fever	1
Aspiration following ? grandmal seizure	1
Acute gastroenteritis with acute renal failure	1
Viral encephalitis	1

cases. 6.77% deaths were due to associated causes. Leading cause of death amongst the direct causes was sepsis seen in 20.33% cases. Haemorrhage was the second leading

cause seen in 18.22% cases. Of these deaths due to haemorrhage maximum were due to PPH, in 37.20% (Table V) followed by APH and rupture uterus. 4 deaths (9.30% were due

Table VII
Maternal mortality rates reported by different workers in India

Workers	Year	MMR/ 100,000	Direct causes	Haemorrhage	Toxaemia	Sepsis	Jaundice	Anaemia
Varawalla et al Nowrosjee Wadia Hospital Bombay	1977-	104	70.30%	35.6%	16.7%	3.3%	6.7%	6.7%
Panat & Mehendale Sasoon General Hospital, Pune, 1987	1980-85	315	50.37%	14.11%	16.8%	19.45%	29.40%	—
Rai Chowdhuri et al Safdarjung Hospital New Delhi, 1990	1979-87	638	59.3%	18.1%	12.72%	23.2%	13.7%	16.8%
Bera, Sengupta, Eden Hospital Medical College, Calcutta, 1991	1979-90	1009	62.1%	23.8%	17.9%	16.4%	19.9%	5.9%
Juneja & Rai Smt. Sucheta Kriplani Hospital, New Delhi, 1993	1988-92	371	54.68%	18.22%	11.0%	20.33%	21.61%	13.13%

to inversion uterus, where both haemorrhage and neurogenic shock were responsible.

Third leading cause of death was found to be hypertensive disorders of pregnancy, responsible in 11.01% cases, of which eclampsia was responsible in 22 cases (9.32%) and severe PIH in 4 cases (1.69%). Amongst the indirect causes hepatitis was the leading cause being responsible for 51 deaths (21.6%). This was followed by anaemia in 13.13% cases and heart disease with pregnancy 3.81% cases. Amongst the associated causes chest infection including 4 cases of tuberculosis, was the leading cause of maternal death (Table VI).

Table VII shows the maternal mortality rate reported by various workers from different parts of the country.

DISCUSSION

As seen in Table I MMR in SSKH had declined from 400/100,000 in 1989 to 290/100,000 in 1992. However the leading causes of deaths over the year have remained the same (Table VIII). Amongst the direct causes are haemorrhage, sepsis and hypertensive disorders of pregnancy and indirect ones being hepatitis and anaemia. Almost 35% cases were brought to the

hospital in a moribund condition, dying within 24 hours of hospital admission.

Sepsis was the leading cause of death in our hospital both postpartum and post abortal. This could be preventable to a great extent by encouraging women to seek help from trained and qualified personnel in either hospitals or health center. Haemorrhage as a major cause of death still remains unabated. We found it in 18% cases. These deaths can be reduced by prompt and early transfer of patients to the hospital and adequate blood transfusion facilities. Deaths due to anaemia and hypertensive disorder of pregnancy could be totally preventable by encouraging regular antenatal checkups where these problems can be detected early and treated. Hepatitis still remains the major indirect cause of maternal mortality. Though hygienic living conditions and improved sanitation would be the most important preventive factors, morbidity and mortality could be reduced by early detection of the problem during antenatal examination and prompt institutionalisation of these cases.

Tetanus as a cause of death was not seen in our hospital in the last 3 years, there being only one case reported in the last 5 years in 1989. Wide spread

Table VIII

Major causes of maternal deaths from 1988-1992

Cause	1988	1989	1990	1991	1992
Hepatitis	13 (25%)	13 (24.07%)	5 (11.36%)	12 (28.57%)	8 (22.85%)
Haemorrhage	9 (17.30%)	8 (14.81%)	12 (27.27%)	8 (19.04%)	6 (17.14%)
Sepsis	10 (19.23%)	16 (29.62%)	8 (18.18%)	8 (19.04%)	6 (17.14%)
Hypertensive disorders of pregnancy	3 (5.76%)	10 (18.51%)	6 (13.63%)	4 (9.52%)	3 (8.57%)
Anaemia	9 (17.30%)	7 (12.96%)	4 (9.09%)	7 (16.66%)	4 (11.42%)

availability of prophylactic immunization against tetanus at almost all health centres and its acceptance by the community is probably responsible for this.

CONCLUSION

Though pregnancy is essentially a healthy process, unexpected complications occur even in most healthy social environment and at this point efficient medical services are absolutely essential to save life. Poor quality of antenatal services, shortage of staff, lack of supervision, lack of transport facilities, lack of emergency obstetric care, and under utilisation of available MCH services are the major contributors to high maternal mortality in our country. In the devel-

oping country MMR is extremely high, about 100 to 200 time higher than the developed countries. So there is a great scope for reducing preventable maternal deaths like due to haemorrhage, anaemia and infection.

REFERENCES

1. Bera S. K., Sengupta A. J. of *Obstet & Gynec. of India*, 42 : 182, 1992.
2. Panat P. S., Mahendale S. S. J. of *Obstet & Gynec. of India*, 37 : 527, 1987.
3. Rao K. B. : In *postgraduate Obst. & Gynaecology*, Edited by Krishnamenon M. K., Devi P. K. & Rao K. B., 3rd edition, Madras : Orient Longman, 1986, page 196.
4. Rai Chowdhuri, Ganju V., Dewan J. : *J. of Obstet. & Gynec. of India*, 40, 84, 1990.
5. Varawalla N. Y., Kelar V., Dhurandhar J. K. & Ingle K. M. : *J. of Obstet. & Gynec. of India* : 39, 509, 1989.