

Maternal Mortality-10 years study

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Summary

Maternal mortality was analysed over 10 years from 1988 to 1997. There was decline in death rate from 1988 to 1997. There were 542 deaths out of 61,660 live births, giving a MMR of 879/100,000 live births. Out of these, 387 (71.4%) were due to direct causes, 138 (25.46%) were due to indirect causes, and 17 (3.13%) were due to unrelated causes. Amongst direct causes, eclampsia, haemorrhage and sepsis were the most important killers causing 25.8%, 24.4% and 12.7% of deaths respectively. Of the indirect causes, anemia was the commonest cause of death accounting for 11.6%, jaundice and heart disease were responsible for 9.4% and 4.1% of the cases.

Introduction:

Every pregnancy should culminate in healthy mother and healthy baby. Woman plays a pivotal role in the family. Her death is a greater tragedy than perinatal loss. Maternal mortality is a sensitive index of health care utilized by the community and of awareness towards health care system. The analysis was done to study the cause of deaths occurring in Vani Vilas Hospital and to find avoidable factors if any.

Materials and methods:

A 10-year retrospective analysis of maternal mortality was conducted at Vani Vilas Hospital, Bangalore. Analysis of individual records of all maternal deaths from January 1988 to 1997 was done in respect to antenatal registration, economic status, age, parity and cause of death.

Observations:

In 10 years from 1988 to 1997, there were totally 61,660 live births and 542 deaths giving an incidence of 879/100,000 live births.

Out of 542 deaths, 491 (90.6%) patients were admitted as emergency and only 51 patients (9.4%) were booked.

Out study showed 39.7% Primigravidae, 40.8% multigravidae and 19.7% grandmultiparae. 57.5% were between 21-30 years, 29% were teenagers and 2.4% were more than 41 years.

Out of 542 patients, 22 (4.06%) were in 1st trimester, 32 (5.9%) had completed 20 weeks, 95 (17.53%) had completed 28 weeks and the remaining 393 (72.5%) were more than 28 weeks pregnant.

Table I

Outcome	No. of cases	%
L.S.C.S	40	7.38%
Hysterectomy	25	4.61%
Destructive operation	4	0.74%
Undelivered	182	33.58%
Total	542	100%

Out of 25 cases of hysterectomy, 12 cases had undergone L.S.C.S. and later hysterectomy was decided upon due to atonic post partum haemorrhage, placenta praevia etc. In 13 cases hysterectomy was done for ruptured uterus (9), post partum haemorrhage (2), septic uterus(1), and couvelaire uterus (1). In only one patient, post mortem section was done as the baby was alive and mother had died due to T.B. meningitis, but baby took its last breath after extraction. Four patients who underwent destructive operations died due to HELLP syndrome, DIC (2) and septicaemia. Out of 4 cases, 3 had severe PIH and craniotomy was done and in the last case decapitation was done outside for neglected shoulder presentation and she died on 5th day due to septicaemia.

Table II shows time interval between admission to hospital and death. Majority of the patients died within 24 hours.

Table II

Time	No. of cases	%
Less than 24 hours	296	54.6%
25 to 72 hours	129	23.8%
72 hours to 7 days	47	8.7%
More than 7 days	70	12.9%
Total	542	100%

Shortest interval was 1 minute and longest was 40 days (2 cases). Out of 2 patients one had severe PIH and another had a cardiac disease.

Booked cases:

Out of 51 booked cases, 8 died due to heart disease, 7 due to anaemia, 7 due to pulmonary embolism; 3 due to hepatic coma, 10 due to PIH with eclampsia with CVA 4 due to sepsis 3 due to retained placenta, 2 due to PPH, 2 due to snake bite, 2 due to accidental haemorrhage and 1 due to TBM.

Majority of the patients had PIH and eclampsia. Out of 140 such cases, 75 died due to cerebrovascular accident, 7 had HELLP syndrome. More than 50 patients had come in coma. Maximum systolic blood pressure was 240 and diastolic 140. Maximum convulsions were 16.

Table III: The following table shows direct, indirect and non-related causes of death :

I	Direct causes		II	Indirect causes		III	Non-related causes	
	No. of cases (387)	% (71.4)		No. of Cases (138)	% (25.46)		No. of cases	%
(A)	PIH & Eclampsia	140	25.8%	(A)	Jaundice	51	9.4%	
(B)	Haemorrhage	132	24.4%	(B)	Anemia	63	11.6%	Tubercular Meningitis 3 Pneumonia 2 Typhoid 1 Cholera 1 Gastroenteritis 2 Status asthmaticus 1 Tick-20 poisoning 1 Neurocystic cercosis 1 Snake bite 2 Blood reaction 1 Lymphoma obstructing superior vena cava 1
a)	Incomplete abortion	6						
b)	Rupture uterus	21						
c)	Accidental Haemorrhage	23						
d)	Placenta Praevia	16						
e)	Retained placenta	42						
f)	Ectopic pregnancy	01						
g)	Molar pregnancy	01						
(C)	Sepsis	69	12.7%	(C)	Heart disease	22	4.1%	
a)	Septic abortion	39						
b)	Puerperal sepsis	24						
c)	Post operative sepsis	04						
d)	Post operative CVT	02						
(D)	Other causes	46	8.5%	(D)	Others	2		
a)	Amniotic fluid Embolism	21			Twisted ovarian cyst(1) Uterus didelphys with intestinal obstruction (1)			
b)	Pulmonary embolism	22						
c)	Inversion of uterus	02						
d)	Anaesthetic Complication	01						

There were totally 132 cases of haemorrhage due to various reasons. Postpartum bleeding was highest in the list. Majority of the patients had delivered outside and had come in moribund condition.

There were 23 cases of accidental haemorrhage, out of which, one was due to fall. She underwent L.S.C.S. and hysterectomy for bleeding and died within 10 hours after admission. Majority of patients had PIH.

There were totally 16 cases of placenta praevia. In one of the cases, there was placenta percreta. She underwent L.S.C.S. and hysterectomy. This patient had hysterotomy previously.

Out of 21 cases of rupture uterus, 11 were operated, 9 underwent hysterectomy and in 2 cases repair could be done. Ten patients died before laparotomy could be done.

Only one patient had ectopic pregnancy and she died due to DIC after laparotomy. Auto transfusion was done in this case as the blood was not available.

There were 69 cases of sepsis, Thirty nine were admitted as septic abortion and 27 cases had aborted outside. Only one patient underwent hysterectomy and another patient had a laparotomy to drain pus. In 10 cases colpotomy was done.

In 26 cases of puerperal sepsis, 21 had delivered outside. Four patients had post-operative sepsis who were handled outside and had come with chorio-amnionitis.

Twenty one cases of amniotic fluid embolism died either during labour or soon after labour. Twenty two cases had pulmonary embolism and out of these, 4 had cortical venous thrombosis. Only one patient who had sever PIH had cardiac arrest on the table. Two cases of inversion of the uterus were referred from outside.

In indirect causes, there were 63 cases of anaemia with pregnancy. This was the leading indirect cause of death. Most of these patients were less than 5 grams% of Hb, and could not stand the stress of labour and least amount of bleeding. Majority of them had congestive cardiac failure. Out of 63 cases, 37 delivered and deteriorated after delivery and 3 aborted and the rest died without delivery.

Jaundice was the second indirect cause of maternal mortality. All these patients had entered the hospital as emergency. Highest recorded bilirubin was 28.7 mg%. Out of 51 cases, 29 delivered normally, 3

aborted and the rest died before delivery. Out of 51, 42 patients died due to hepatic coma and others died due to DIC and renal failure. One patient had hepatoma. Among 22 cases of cardiac disease, only one had undergone valvotomy and 12, had multiple valvular disease of rheumatic origin. Three had congenital heart disease, 1 had coronary insufficiency, 4 had atrial fibrillation and 1 had cardiomyopathy. Out of 22 cases, 11 died undelivered. Only one patient underwent L.S.C.S. on obstetric grounds.

In non-related causes, there were 3 cases of tubercular meningitis. Out of which, one was admitted in coma and other 2 died after delivery. Three patients were admitted with the history of vomiting out of which one had cholera(?) and other 2 had gastroenteritis. One patient had typhoid and she died due to perforation and peritonitis. Another patient was admitted in coma and was diagnosed as neurocystic cercosis by C.T scan. This patient died next day after the admission. One patient had come with pain in abdomen and amenorrhoea of 20 weeks duration. This was a case of twisted ovarian cyst and she died within 2 ½ hours after admission. A case of lymphoma was admitted with pleural and pericardial effusion with congestive cardiac failure. This patient also had superior vena caval obstruction and she died soon after abortion. Another patient was admitted with vomiting and pain in abdomen and amenorrhoea of 24 weeks. This patient had uterus didelphus and she expired within few hours after admission.

There were 2 cases of snake bite, both of these had delivered – one had a still born baby; one died due to bleeding and the other had pulmonary embolism.

One patient of primigravida had consumed Tick-20 and she was on atropine and died within 4 hours after admission.

Table IV shows the leading causes of death year-wise:

Table IV

Year	Cause	%
1988	Sepsis	28.6%
1989	PIH	34.8%
1990	Haemorrhage	22.7%
1991	Haemorrhage	31.9%
1992	PIH	26.0%
1993	PIH	30.6%
1994	Haemorrhage	27.8%
1995	Haemorrhage	34.0%
1996	PIH	33.3%
1997	Haemorrhage	31.7%

Leading causes of death are sepsis, PIH and Haemorrhage

Table V shows MMR per 100,000 live births and shows gradual decline of maternal deaths

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
No. of live births	5095	6845	6858	4693	6838	5650	5685	6503	6465	7628
No. of deaths	77	69	75	47	50	49	54	47	33	41
MMR	1511	1008	1093	1001	801	867	950	723	510	537

Discussion:

The present study shows that there is a gradual decline in MMR from 1511 in 1988 to 537 in 1997 per 100,000 live births, which correlates with the study of Jayaram (1992).

Leading causes of death are PIH, eclampsia and haemorrhage, which also correlates with the study of Choudhary and Shrotri. Sepsis was third leading cause of death accounting for 12.7% of maternal deaths. Criminal abortions using sticks and MTP done by unauthorized persons killed 39 (72%) mothers. All these had come from slum and rural area with very poor general health.

Amongst booked cases, there were 51 deaths. These were due to placenta praevia, post partum haemorrhage, amniotic fluid embolism, cardiac disease and severe PIH, a few were admitted with leaking.

More than 90% of these patients were unbooked, very poor and referred in moribund condition.

In our booked cases, 7 patients were advised haematinics and admission for blood transfusion but they never turned up. Four patients had leaking and they had mistaken the leak for urine.

Conclusion: Detection of the disease in incipient stage, early reference at grass root level and availability of blood round the clock could have decreased maternal deaths. Though modern facilities are available in larger cities, awareness to utilize these facilities and health education has not reached rural population. Neither is there any involvement of the general population as blood donors.

References:

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2. N.B. Choudhary A. N. Shrotri J. Obst. & Gyn Ind: 44:225; 1994