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Review Article

REVIEW OF MATERNAL MORTALITY AT PATNA MEDICAL COLLEGE HOSPITAL: A TWO YEARS STUDY

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ABSTRACT

Aims & Objectives: To find out the relevant details of each death.

Setting: Labour room of Patna Medical College Hospital.

Study period: January 2014 to December 2015

Design: Retrospective study

Material and methods: Review of the records of the women who died.

Observations: Total number of deliveries during this period was 12,334. Total number of deaths were 210, MMR was 1702.6. Total number of vaginal births were 7582 and Cesarean birth were 4752.

84.2% women were between age 21-30 years, 57.14% were either primi or second gravida, 64.7% had poor general health, 82% came from low socio economic group and 57% women who died were illiterate. 55% of the women traversed a distance of more than 50 KM to reach our center, 80% of them were referred from some private clinics and 57% were in a critical condition. 33.3% women had no ANC, 44.7% women had more than 8 months pregnancy, 80% of the women received conservative management and admission death interval was less than 24 hours in 55% women. Among the direct causes of death-haemorrhage accounted for 34.28% deaths followed by eclampsia-7.14% and sepsis 10.47%. The indirect causes of death were severe anaemia (32%), hepatitis (15%), heart disease (4.7%) and there was one death each due to blood transfusion and anaesthesia.

Conclusion: Most of these deaths were preventable. Proper antenatal care, empowerment of women and timely referral are the key factors in reducing maternal mortality.

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INTRODUCTION

Maternal death is defined as the death of a women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of pregnancy, from any causes related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes¹. As women have gained access to family planning and skilled birth attendance with back up emergency obstetric care the global maternal mortality ratio has fallen from 380 maternal deaths per 100,000 live birth in 1990 to 210 deaths 100,000 live births in 2013². Almost all maternal deaths (99%) occur in developing countries. More than half of these death occur in sub Saharan Africa and about one third occur in south Asia³.

In our country Hemorrhage- 25.6% ranks first as the cause of maternal death, followed by sepsis 13%, toxemia of pregnancy

11.9%, unsafe abortion 8% and obstructed labour 6.2%. While other cause together account for 35.3% cases⁴

Aims & Objective

With the above pretext we have analysed our records from January-2014 to December 2015 to find out the cause of maternal mortality with special reference to time taken (distance) to reach the hospital, condition at arrival, treatment given and finally admission-death interval (time).

MATERIAL AND METHODS

This is a retrospective detailed study of the records of patients who died during the period including age, parity, general health, socio-economic condition, education status, distance travelled, place of referral, condition at arrival, ANC record, duration of pregnancy, treatment given, admission-death interval and cause of death. We also recorded the total no. of

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deliveries which occurred during the period including vaginal and C.S.

Observation Table

Table 1 Distribution of maternal death according to delivery related characteristics

Age Group	No. of Patients	Percentage	S.D.	P. Value
21-30 yrs	177	84.2	± 13.33	0.495 NS
31-40 yrs	27	12.8		
41 yrs	6	3		
Parity				
<2	120	57.14	± 11.09	0.001
2-5	75	35.71		
>5	15	7.14		
Socio Economic Condition				
Upper	2	0.95	± 10.02	0.001
Middle	34	16.19		
Lower	174	82.85		
Educational Status				
Illiterate	120	57.14	± 11.14	0.001
Schooling	78	37.14		
Graduation	12	5.71		
ANC				
0	70	33.33	± 13.09	0.492 NS
1-2	134	63.80		
4	6	2.90		

Table 2 Referral & Arrival characteristics

Place of Referral	No. of Patients	Percentage	S.D	P. Value
Direct Reporting	2	0.95	± 10.08	0.001
Referred from Govt. Hospital	40	19.04		
Graduation	168	80		
Distance Travelled				
<20 KM	24	11.42	± 12.05	0.489 NS
21-50 KM	70	33.33		
>51 KM	116	55.23		
Condition at Arrival				
Stable	18	8.57	± 11.22	0.498 NS
Unstable	72	34.28		
Critical	120	57.14		
Measures Taken on Arrival				
Conservative	168	80.00	± 10.03	0.001
Operative	42	20.00		

Table 3 Stay at Hospital

	No. of Patients	Percentage	S.D	P. Value
<24 hrs	116	55.23	± 13.01	0.496 NS
24 – 48 hrs	68	32.38		
>48 hrs	26	12.38		

Table 4 Cause of Death

	No. of Patients	Percentage	S.D	P. Value
Haemorrhage	72	34.28	± 10.21	0.001
Eclampsia	57	27.14		
Sepsis	22	10.47		
Other	59	28.9		

Table 5 Direct Causes of Deaths

	No. of Patients	Percentage	S.D	P. Value
Haemorrhage	72	34.28	± 11.19	0.497 NS
Eclampsia	57	27.14		
Sepsis	22	10.47		

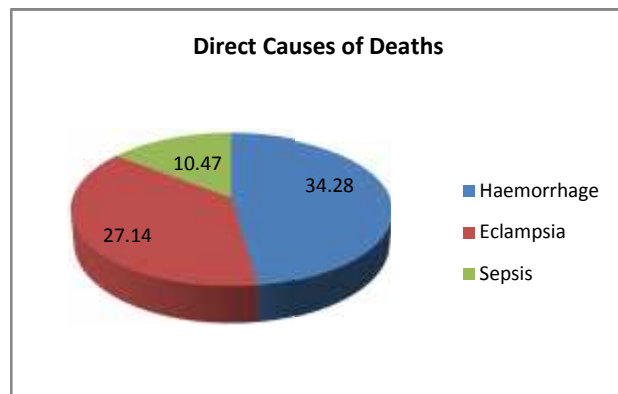
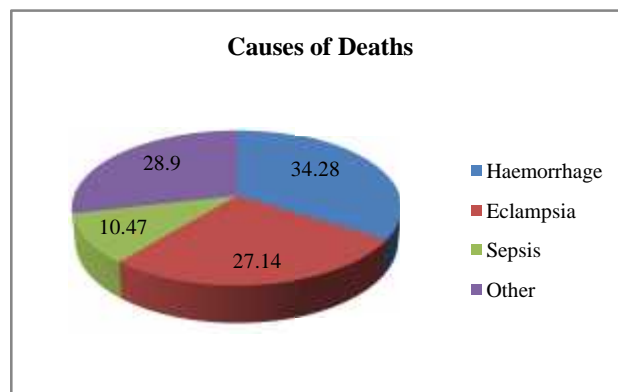
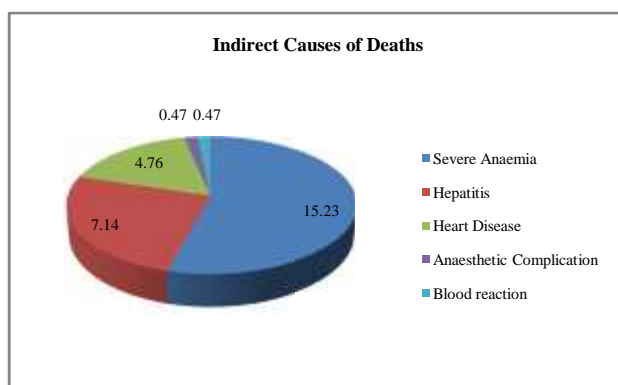


Table 6 Indirect Causes of Deaths

	No. of Patients	Percentage	S.D	P. Value
Severe Anaemia	32	15.23	± 11.12	0.001
Hepatitis	15	7.14		
Heart Disease	10	4.76		
Anaesthetic Complication	01	0.47		
Blood reaction	01	0.47		



DISCUSSION

Maternal mortality rate of India in 2015 was 174 per one lakh live birth and annual rate of decline is 4.7⁴. In 1990- India’s MMR according to UN Agency was 560 and the drop is commendable. Kerala continues to register the lowest MMR at 61 per one lakh live birth, followed by Maharashtra with MMR of 68 per one lakh live birth. Significantly MMR of Bihar 208 per one lakh live birth and Uttar Pradesh 285 per one lakh live birth have also shown a decline.

The MMR in our institute in the present study is 1702. These high rates are because only critical cases are being referred to this institute.

In our study 84.2% deaths occurred in women between 21-30 years of age. 57.4% of women were primi gravida, 82% came from low socio economic group, 57.14% were illiterate and 33% had no ANC. These findings are similar to the study of Ratan Das *et al*, Guin Gita *et al*⁶, Puri Alka *et al*⁷, Yadav K. *et al*⁸, Vidyadharan B. *et al*⁹ and Ann L. Montgomery *et al*¹⁰.

55.23% women traversed a distance of more than 50 KM to reach our centre and 80% of them were referred from private hospitals. This points out that maximum number of cases came from distance rural area and were treated some private clinic and were referred only when they became serious.

Routine care plays an important role in preventions and early identification of complications leading to maternal deaths. 57% of the women who came to our labour room were in a critical condition and 55% died within 24 hours. This could be due to delay in decision to seek care, delay in reaching that care and delay in receiving care once a health care provider is reached. Other studies have also reported similar findings^{6,7,8,9,10}. Conservative treatment as required was given in 80% of cases.

44.7% women were carrying pregnancy of more than 36 weeks duration. Obstetric haemorrhage was the major contributor to maternal mortality 34.2% followed by eclampsia 27% and Sepsis 10.47%. Puri Alka *et al*⁷ and Yadav *et al*⁸ had similar findings. The incidence of obstetric haemorrhage has gone up probably due to more interventions to induce and augment labour. Eclampsia was responsible for 27% of death in our series. Despite of the availability of magnesium sulphate for prophylaxis and treatment of eclamptic seizures the rate of eclampsia and maternal complications are high. This is probably because magnesium sulphate will only prevent seizures in women who are hospitalized with severe pre-eclampsia during labour and post partum. The high maternal mortality was noted primarily among patients who had multiple seizures outside the hospital and those without prenatal care.

Skilled birth attendants should undergo regular training and drills regarding active management of third stage of labour, use of uterotonics, application of NASG, use of intrauterine condom balloon tamponade and magnesium sulphate. They should be able to identify high risk cases and refer the patient early after giving primary treatment. Availability of blood and blood products at district level and PHC will be a boon for saving maternal lives.

Among the indirect causes severe anaemia was present in 15.23% of women and viral hepatitis in 7.14%, these are again preventable and treatable.

CONCLUSION

Our high maternal mortality rates are attributed to haemorrhage, eclampsia and sepsis. A mandatory registration of all pregnancies, compulsory four ANC, screening of high risk cases and timely referral to higher centers with good transport facility can minimize these deaths. It can only be ensured by a proper medical audit of these deaths and finding out the accountability of the persons from the grass root level of the health care system. Proper functioning of EMOC services at all levels can help a lot to save these women.

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