

Trend of Maternal Mortality in a Tertiary Care Centre, Rajasthan – A Retrospective Study

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Abstract: Background: Mother is the pillar of the family and maternal deaths during pregnancy and delivery are great loss to baby, family, society and country too. Epidemiological data pertaining to maternal mortality is valuable in each set-up to design interventional programs to reduce the ratio favourably. This study was design to evaluate the mortality rate in our hospital, to assess the epidemiological aspects and causes of maternal mortality, types of delay, and to suggest recommendations for improvement. Methods: A retrospective study was done at a tertiary level care centre from January 2017 to December 2018. Demographic data and other data were collected from maternal death review forms and case records. Data studied and analyzed. Results: In a 2-year study period, 67 mortalities were recorded with MMR of 158. More deaths were recorded in rural (64.17%), illiterate (71.64%) and multigravida (70.15%). PPH was main cause of death (35%) followed by eclampsia (21%), sepsis (19%), severe preeclampsia (13%), APH (8%) and amniotic fluid embolism (4%). Conclusion: High risk cases should be identified. Early referral, easy transport, continued skill based training, monitoring of health services can reduce maternal mortality. Special training should be conducted for ASHA workers and ANM who generally works at grass root level in our country. Continued medical training is required for medical officers who are working at PHC and sub district hospital for early recognition of high risk women and their referral in time to higher centers to avoid maternal near miss or death.

Keywords: MMR, PPH, APH, eclampsia, amniotic fluid embolism, ASHA

1. Introduction

"A mother's hug lasts long after she lets go." The death of a woman during pregnancy or childbirth is one of the most tragic, painful, unforgettable and often preventable tragedy that can befall a family and even a community as a whole.

According to the World Health Organization (WHO), "A **Maternal death** is defined as death of any woman while being pregnant or within forty-two completed days of termination of pregnancy irrespective of duration or site of pregnancy from any cause related to or aggravated by pregnancy but not from accidental or incidental causes." **Maternal mortality ratio (MMR)** is defined as maternal death per 1,00,000 live births. It is an indicator of effectiveness of health care facilities for women of child bearing age. It strongly reflects the overall effectiveness of the health system functioning in a developing country.

Globally, MMR fell by approximately 44% over the past 25 years – 385 in 1990 to 216 in 2015; this falls short of the Millennium Development Goal (MDG) target which called for a reduction of at least 75% in MMR. Although all MDG regions of the world have experienced considerable reductions in maternal mortality. Now, building on the momentum generated by MDG, the Sustainable Development Goals (SDGs) establish a transformative new agenda for maternal health towards ending preventable maternal mortality; target 3.1 of SDG is to reduce the global MMR to less than 70 per 1,00,000 live births by 2030. [1]

In 1938, maternal mortality in India was 2000 which was declined to 1000 in 1959 and then it declined to 540 in 1999[2]. In the 2011-13 period, India's MMR was 167. As per the recently released data, the MMR during 2014-16 period stands at 130; an impressive 22% drop. But it is

unfortunate that Rajasthan still remains amongst states with high MMR of 199 reflecting poor health facilities and inadequate implementation of various programmes and policies aimed at improving general, social and health standards in this region[3].

2. Materials and Methods

A retrospective study was carried out at Umaid Hospital, Jodhpur, a tertiary care healthcentre in Western Rajasthan. Demographic and other data was collected from individual case records and maternal death review forms from January 2017 to December 2018 were included. A total of 67 maternal deaths were included which fulfilled WHO criteria of maternal mortality. Detailed history regarding demographic characters, booking status, referral status, obstetric history, mode of delivery, causes of death, etc. noted and analyzed.

3. Results

In a 2-year study period, 67 mortalities were recorded with 42,355 live births at the centre, hence MMR turning out to be 158. Various sociodemographic characteristics are shown in Table 1. A total of 67 maternal deaths were recorded in a 2-year study period, amongst which more deaths were from rural areas (64.17%) than urban areas (35.82%) and illiterate group constituted 71.64%. Maximum deaths (59.07%) occurred in women of age group 18 – 25 years. It was also observed that mortality occurred more in multigravida 47 cases (70.15%) than primigravida 12 cases (17.91%). 12 deaths (17.91%) occurred in antepartum period, 53 (79.10%) in postpartum and 2 deaths (2.99%) occurred postabortal.

44 cases (65.67%) were referred amongst which maximum cases (17; 25.37%) were referred from CHCs. 38 cases

(69.09%) were delivered at Umaid Hospital, while 17 (30.01%) had delivery outside our centre (Table 2). In the study period, 71.64% of maternal deaths (n=48) were due to direct obstetric causes. Postpartum haemorrhage (35%) was the main cause followed by eclampsia (21%), sepsis (19%), severe preeclampsia (13%), antepartum haemorrhage (8%) and amniotic fluid embolism (4%) (Figure 1). 25 cases had other co-morbid conditions which caused deaths such as ARDS (06), severe anaemia (04), HELLP syndrome (02), pancytopenia, thrombocytopenia, RHD, etc. as shown in Table 4. Maximum deaths occurred within 24 hours of admission (47.76%) (Table 3).

Table 1: Sociodemographic characteristics, n = 67

Characters	Cases	%
Age (years)		
18 - 25	40	59.07
26 - 30	16	23.88
31 - 35	05	07.46
>35	06	08.95
Residence		
Rural	43	64.17
Urban	24	35.82
Literacy		
Literate	19	28.35
Illiterate	48	71.64
Booking status		
Booked	05	07.46
Unbooked	62	92.54
Gravidity		
Primigravida	20	29.85
Multigravida	47	70.15
Time		
Antenatal	12	17.91
Postnatal	53	79.10
Postabortal	02	02.99
Referral		
District hospital	16	23.88
CHC	17	25.37
PHC	05	07.46
Private Hospital	06	08.95
Not referred	23	34.33

Table 2: Delivery status, n = 55

Place of delivery	Cases	%
Delivered at Umaid hospital	38	69.09
Delivered outside	17	30.91
Mode of delivery		
Vaginal	29	52.73
Caesarean section	24	43.64
Abortion	02	03.63

Table 3: Admission-death interval time, n = 67

<24 hrs	32	47.76 %
24 - 48 hrs	18	26.86 %
>2 - 7 days	13	19.41 %
>7 days	04	05.97 %

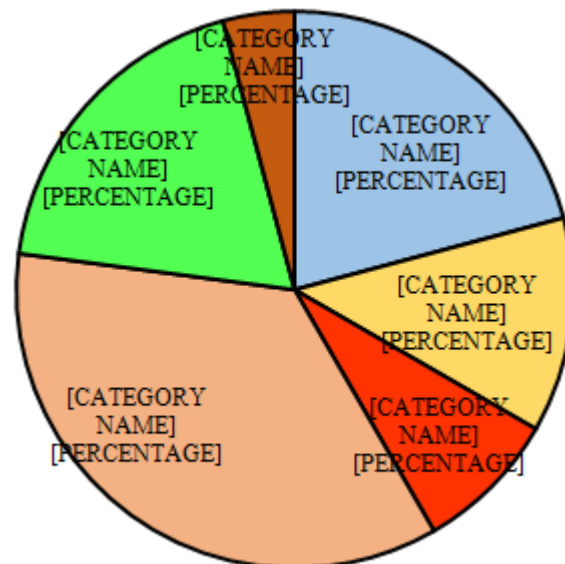


Figure 1: Obstetric causes of death, n = 48

Table 4: Co-morbid conditions causing death

ARDS	06
Pancytopenia	06
Severe anaemia	04
HELLP syndrome	02
Thrombocytopenia	01
Pulmonary embolism	01
Jaundice	01
Malaria	01
H1N1	01
HEV	01
RHD	01
TOTAL	25

4. Discussion

Maternal mortality is an index of reproductive health of the society. High incidence of maternal deaths reflects poor quality of maternal services, late referral and low socioeconomic status of the community. The MMR of our institution for the year 2017-18 is 158 which is less than MMR of Rajasthan as a whole but unfortunately more than national MMR of 130. This could be due to the fact that our hospital is a tertiary care centre which receives patients in a complicated and late stage.

In our study, 59.07% of maternal deaths were in the age group of 18-25 years, as highest numbers of births are reported in this age group. More maternal deaths were reported in women from rural areas (64.17%) and were illiterate (71.64%). These findings were similar with the studies done by Jain, Jadhav, Pal, Onakewhor, Shah and Khandale SN et al [4-9]. This shows the lack of awareness among women and also ineffective supervision of various health policies and family welfare programmes running in rural and remote areas. More deaths were reported in multigravida (70.15%). This can be due to poor contraception practices and prevalence of orthodox thoughts like having multiple children at short intervals, poor ANC attendance, home deliveries by untrained birth attendants. Further, complications associated with multiparity like anaemia, PPH, APH, malpresentations and obstructed labour

leading to operational interventions, increases risk of mortality.

In our study, 71.64% of deaths occurred due to direct obstetric causes. Postpartum haemorrhage (35%) was the major cause followed by eclampsia (21%). Our findings were consistent with studies by Purandre et al, Priya et al and Kashyap V et al [10-12]. Maximum mortality occurred within 24 hours of admission at our hospital (47.76%) as these patients were brought late, in critical condition and often unaccompanied by health worker.

It is a tragic situation as these deaths are not caused by any illness but occurred during or after a natural process. Most of these deaths are preventable if patients are given appropriate treatment at periphery and timely referred to higher centers. Health education of pregnant mothers and community about warning signs, training of ASHA workers, training of medical officers and staff nurses working in rural areas by programs like basic emergency obstetric care (BEMOC) and skilled attendant at birth (SAB) training can help in reducing maternal mortality.

5. Conclusion

Maternal deaths are a significant cause of death in women in the 15–49 years age group as they make up a larger proportion of all-cause deaths especially in the rural region. Early detection of high risk cases and timely referral of these patients at tertiary care centre, promoting 100% institutional delivery, improving transportation, skilled manpower at every level can help in reducing maternal mortality. Promoting formal education amongst women and creating awareness regarding contraceptive practices and family planning measures can also create a big difference.

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