

ORIGINAL ARTICLE

REVIEW OF MATERNAL DEATH IN JIMMA UNIVERSITY SPECIALIZED HOSPITAL

Dereje Negussie¹, MD, Nebiyu Mesfin², MD

ABSTRACT

BACKGROUND: *The estimated maternal mortality ratio for Ethiopia in the year 2000 was 850 per 100,000 live births. Hospital based reports in Addis and Jimma more than a decade ago also documented a ratio of 9.6 and 26 per 1000 live births. There is no updated information on maternal death in the study area. Therefore, this review was to assess the current profile of maternal death in Jimma University Specialized Hospital.*

METHODS: *A retrospective review of maternal death from September 1st, 2002 to August 31st, 2006 was carried out in Jimma University Specialized Hospital. The pattern and causes of maternal deaths were reviewed and discussed.*

RESULT: *There were 9,789 live births and 87 maternal deaths recorded during the study period, making the maternal mortality ratio of 888.5 per 100,000 live births. Direct obstetric causes were: obstructed labor, puerperal sepsis and abortion account for 30 (34.5%), 25(26.4%), and 13(14.9%) respectively. The only indirect cause, cerebral malaria, account for only 2 (2.3%) of the deaths. More than half 47(54.0%) of the deaths occurred within 24 hours of hospital admission.*

CONCLUSION AND RECOMMENDATION: *There was a high rate of maternal death in the study area with a decreasing trend. The majority of deaths were due to obstructed labor. Emergency obstetric care services should be strengthened to curtail the problem. Documentation and record keeping should be improved. A detailed community based studies are needed to reflect the picture of maternal death.*

KEY WORDS: *Maternal Mortality Ratio, Maternal Death, Causes of Maternal Death.*

INTRODUCTION

Reducing maternal mortality is one of the globally agreed goals that every developing country is striving to achieve. It is one of the millennium development goals (1).

According to WHO/UNICEF/ UNFPA report, there were 529,000 maternal deaths world wide of which 99% occur in developing countries in the year 2000. The estimate for Africa was 830 per 100,000 live births. The magnitude for some of the African countries ranged from 850 to 2000 (Sera Leon 2000, Malawi 1800, Angola 1,700, Nigeria 1,600 and Ethiopia 850 per 100,000 live births (1, 2).

The high figures of maternal mortality in the developing world like in the sub-Saharan Africa is not an event occurring due to health problems, at some point in time, rather it is an outcome of a chain of events and disadvantages through the women's life(3). It is the result of complex problems of educational, political, socioeconomic and health infrastructure situation. Preventing maternal morbidity and mortality depends on the availability, accessibility and utilization of skilled human resource, materials and facilities for family planning and maternity care (4).

The trends of maternal mortality are not decreasing from time to time in Sub-Saharan African countries. And experts on reproductive health warned that in Africa the

situation could worsen in the next decades if no remedial actions are taken (5).

Different studies (6-8) indicated a high maternal mortality ratio. Maternal mortality ratio of 9.6 per 1000 was reported from a hospital based report in Addis Ababa, Tikur-Anbesa Hospital (6). Another study from Jimma hospital, revealed a maternal mortality of 2600 per 100,000 live births (7). A community based study from rural Ethiopia using "Sisterhood method" revealed a maternal mortality ratio of 570 per 100,000 live births (8); all of which were conducted over a decade ago.

This study was undertaken to analyze the current pattern and causes of maternal death in Jimma University Specialized Hospital, southwest Ethiopia.

SUBJECTS AND METHODS

Jimma University specialized Hospital is located in Jimma town, which is 357 Kilometers southwest of Addis-Ababa. It is the only referral hospital for over ten million people in the southwest regions. It is a teaching hospital with a total capacity of about four hundred beds. The maternity, labor and delivery ward have 31 beds for high risk pregnancies in addition to four first stage beds and two second stage couches. The gynecology ward on the other hand has twenty-six beds of which four beds were in the post abortion room. The department has five

¹ Faculty of Medical Sciences, Department of Gynecology & Obstetrics, Jimma University P.O. Box 747, Jimma Ethiopia

² Faculty of Medical Sciences, Department of Internal Medicine, Jimma University P.O. Box 378, Jimma Ethiopia

specialists, a total of 2-7 residents since 2004. Moreover, medical interns, midwives and nurses were working in regular working hours while one on call specialist, two residents, two interns and two nurses were working on duty hours during the study period.

The obstetric records of all deliveries in Jimma University Specialized Hospital Obstetrics and Gynecology wards from September 1st, 2002 to August 31st 2006 were reviewed. The data on the number of deaths, causes of deaths as documented on clinical grounds was abstracted using a predestined and pretested format. Because of the lack of pathologic service to carry postmortem examination, it was difficult to ascertain the actual cause of death. The review of maternal death was made with respect to causes, age, and parity, interval between admission and death, and trend over the five years period.

Ethical clearance was obtained from the hospital director's office and information were kept confidential.

The WHO definition of maternal death was used; which is the death of women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accident or incidental causes.

Direct Obstetric death is defined as maternal death resulting from obstetric complications of the pregnancy

state (pregnancy, labor and puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of this above.

Indirect obstetric death is maternal death resulting from previously existing disease which was aggravated by physiologic effects of pregnancy.

Parity is defined as the number of births after 28 weeks of pregnancy irrespective of the outcome.

Grand multiparity is defined as five or more pregnancy irrespective of the outcome.

Great-grand multiparity is defined as tenth or more pregnancy irrespective of the outcome.

Abortion is defined as expulsion of conceptus material before 28 weeks of gestation in Ethiopia.

RESULTS

The clinical records of 5 patients could not be found, making retrieval rate 94.6%.

When we analyze the sociodemographic characteristics, Seventy-three (83.9%) were married. The majority (95.4%) were living out of Jimma Town.

There were 87 maternal deaths and 9,780 live births making the maternal mortality ratio of 888.5 per 100,000 live births. The maternal mortality ratio was ranging from 1828 in 1994 to 417 per 100,000 live births in 2006 (Fig 1).

Table 1. Maternal death by age, Jimma University Specialized Hospital, September 2002- August 2006.

Age Group (in Years)	Number of Maternal Deaths	Percent of Total Deaths
15-20	15	17.2
21-25	26	30.0
26-30	23	26.4
31-35	13	14.9
≥35	10	11.5
Total	87	100

Sixty two of the maternal deaths occurred in age group 21-30 years. Fifteen (17.1%) and 10(11.3%) of deaths occurred in the age groups of ≤ 20 years and ≥35

years respectively. Thirty one (35.6%) of deaths occurred in nullipara mothers while sixteen (16.5%) of deaths occurring in grand and great grand multipara (Tables 1 and 2).

Table 2:- Number of maternal deaths with parity, Jimma University Specialized Hospital, Sept. 2002- Aug. 2006 G.C.

Parity	Number of Maternal Deaths	Percent of Total Deaths
0	31	35.6
1 - 4	40	46.0
≥ 5	16	18.4
Total	87	100%

Concerning prenatal follow up, the majority, 73 (83.1%) had never had visited health institutions. Forty seven (54.0%) had died within 24 hours of arrival.

When deaths were classified according to cause; 30(34.5%) obstructed labor, 28(26.4%) peripueal sepsis,

13(14.9%) abortion and its complications. Two (2.3%) of the deaths were due to cerebral malaria, which is one of the commonest cause of indirect maternal death (Table 3).

Fig.1. Graph depicting the trend of maternal mortality ratio over five years period, Jimma University Specialized Hospital, September 2002-Augus 2006.

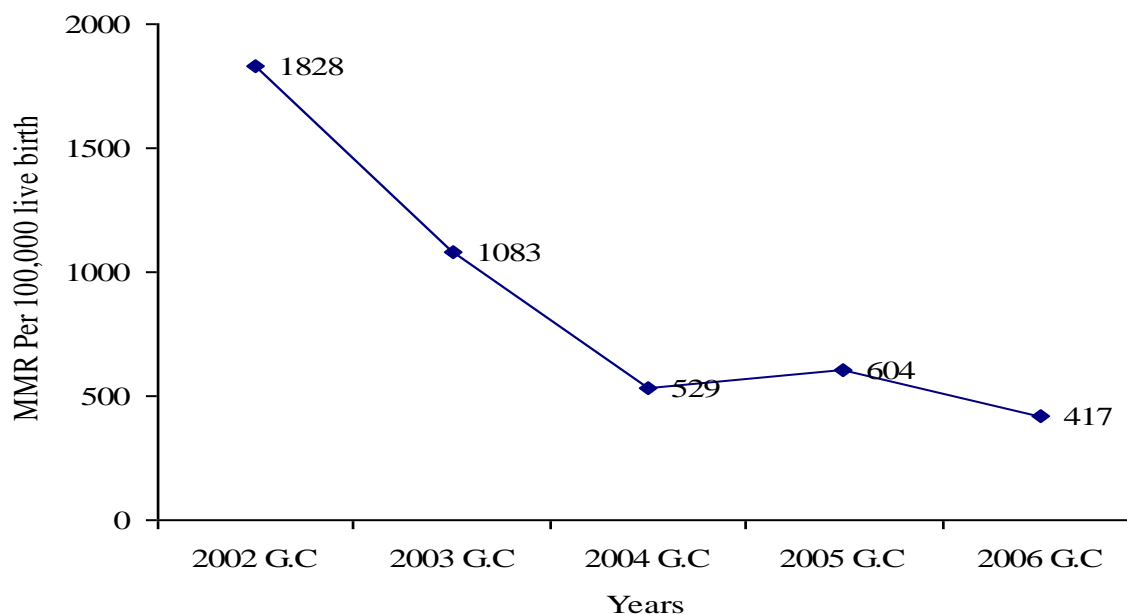


Table 3:- Cause of maternal death with maternal mortality ratio per 100,000 live births, Jimma University Specialized Hospital, September 2002-August 2006.

Cause of Death	Number	Percent of all causes	MMR per 100,000 live births
Obstructed labor	30	34.5	306.4
Puerperal Sepsis	23	26.4	234.9
Abortion	13	15.0	132.8
Post Partum Hemorrhage	4	4.6	40.8
Eclampsia	5	5.7	51.1
Ante partum Hemorrhage	3	3.4	30.6
Ectopic Pregnancy	2	2.3	20.4
Chorioamnionitis	2	2.3	20.4
Cerebral Malaria	2	2.3	20.4
Unknown	3	3.4	30.6
Total	87	100%	888.5

DISCUSSION

The maternal mortality ratio of 888.5 per 100,000 live births over the five years period of this study is comparable to the hospital based study in Addis Ababa, Tikur- Anbessa Hospital(6), which was 960 per 100,000 live births. But, it is less by nearly a third from the study by Johannes Ali in Jimma Hospital twelve years back, which was 2600(7). This observed difference could be due to better health service coverage in the rural setups which improves the early referral of cases and improved quality of Obstetric and Gynecologic care as a result of expansion and commencement of specialty training in Jimma hospital.

There was a generally decreasing trend in maternal mortality from 2002 G.C to 2006 G.C, from 1828 per 100,000 to 417 per 100,000 live births possibly due to the above mentioned reasons, except a slight increase in 2005(Fig.1).

Unlike the previous report from the same hospital 12 years back, the leading cause of death was obstructed labor which accounted for 34.5%. This could be as a result of better family planning service and use of condom to prevent HIV/AIDS which may decrease the rate of unplanned pregnancy leading to induced abortion and it's complications in recent years, contrary to that of Johannes's report, were the leading cause of death was the results of abortion complications(7). The

commencement and availability of postabortal care (PAC) in most health institutions could have decrease the maternal death due to abortion complications.

Uterine rupture was the third common cause of death in Addis Ababa, Tikur-Anbessa Hospital which is also different to our finding. This could be due to the fact that all the uterine rupture cases were included in obstructed labor complication in this study unlike the above mentioned report.

Only 2(2%) of cases were attributed to malaria, an indirect causes of maternal death, unlike the report from Tikur Anbesa where indirect causes such as viral hepatitis was reported to be an important cause of maternal deaths. This difference is due to the fact that our study does not include maternal deaths from other wards (6).

The current relatively high maternal mortality ratio in this study may be as a result of low level of care due to shortage of trained human power, and poor facilities leading to poor care and referral services.

In conclusion, as more than one-third of the cause of maternal death was due to obstructer and prolonged labor, it is prudent to improve availability, accessibility and utilization of the essential emergency obstetric care services to decrease maternal loss to materialize the millennium development goal. Skilled attendance of labor coupled with early referral to the next higher level for better and timely intervention is equally important. The use of partograph in all health institutions to timely pick abnormal labor can't be overemphasized (7). A community based assessment should be done to reflect the true picture of maternal mortality in the study area.

ACKNOWLEDGEMENT

We would like to thank W/ro Hiwot Aydefer for typing the final report paper. All staff, interns and residents of maternity and gynecology wards are acknowledged for their contribution in patient care.

REFERENCES

1. World Health Organization. Maternal mortality in 2000, estimates developed by WHO/UNFPA/UNICEF. Geneva: WHO 2005.
2. World Health Organization. Estimates of Maternal mortality for 2000, a joint report by WHO/UNICEF/UNFPA/ World Bank. Geneva: WHO, 2006.
3. Motasham A, Negash D. Root causes of maternal mortality, infancy and childhood. *The Journal of family welfare*, 1997; 43(2): 4-7.
4. World health organization. Maternal mortality, a global fact book. Geneva: WHO, 1991.
5. Roystone E, Armstrong S. Preventing maternal deaths. Geneva: WHO, organization, 1989: 233.
6. Seyoum Y, Getahun K. A six year review of maternal mortality on a teaching hospital in Addis Ababa. *Ethiop Med J*, 1988; 26:115-20.
7. Ali Y. Analysis of maternal deaths in Jimma Hospital, South western Ethiopia. *Ethiop Med J*, 1994; 32:125-29.
8. Shiferaw T, Tessema F. Maternal mortality in rural communicates of Illibabor, South western Ethiopia: as estimated by the "sister hood method". *Ethiop Med J* 1993; 31 (4): 239-249.