ORIGINAL ARTICLE

Maternal Mortality and Related Obstetric Risk Factors at A Tertiary Care Hospital of Lahore

BUSHRA BANO, ASIA PARVEEN, ALIA NASIR-U-DIN, ZOHRA KHANUM
Department of Obstetrics and Gynaecology Unit 4, Sir Ganga Ram Hospital Lahore.
Assistant Professor, Assistant Professor, Assistant Professor, Professor Department Gynaecology, Department of GyanecologyFatimaJinnah Medical University/Sir Ganga Ram Hospital, Lahore. CorrespondanceAuthor:- Dr. BushraBano, Department of GyanecologyFatimaJinnah Medical University/Sir Ganga Ram Hospital, Lahore.
Correspóndanse Author:- Bushra Bano, Assistant Professor, Department of Gyanecology, Fatima Jinnah Medical University/Sir Ganga Ram Hospital, Lahore. Email Address:- bushra.khalid@yahoo.com

ABSTRACT

Objective: To calculate maternal mortality ratio and evaluation of its associated obstetric risk factors in our set up.

Study Design: Cross sectional study

Setting: Obstetrics and Gynaecology unit 4, Sir Ganga Ram Hospital Lahore from January 2013 to June 2015 (2 and half years).

Materials and Methods: All maternal deaths in antenatal/ intrapartum and postpartum period within 42 days after delivery were studied during the study period, while accidental or incidental causes of death were not included in the study. All the data was recorded on proformawhich was already designed containing variables i.e maternal demographics, pregnancy related risk factors and other information.All received dead mothers were excluded.

Results: A total number of 21811 delivered women were calculated for maternal deathsout of which, there were 51 deaths giving a Maternal Mortality Ratio of 233.8/100,000 live births. Among these 100% were unbooked. Commonest risk factors were anemia (25.4%) heart disease (21.5%), hypertensive disorders of pregnancy (17.6%), post partumhaemorrhage(13.7). Third most common risk factor found was hypertensive pregnancy disorder i.eeclampsia, HELLP syndrome.

Conclusion: This maternal mortality ratio is quite less than the world wide figure because of prompt diagnosis and early intervention, but the main reason for this figure which is still very high because antenatal and pre-pregnancy care was not obtained which, if it is there most of the risk factors can be early picked up and managed accordingly.

Key Words: Maternal Mortality, Risk Factors

INTRODUCTION

Maternal mortality ratio indicates progress and health of an area. Maternal Death in pregnancy or within 6 weeks of pregnancy termination irrespective of the pregnancy duration and site, cause may be related to pregnancy or complicated by pregnancy or its treatment, but not from traumatic or incidental causes.[1]

99% maternal deaths are occurring in developing countries and only 1% in developed countries[2,3], Pakistan is included in 6 nations who contribute to 50% of maternal deaths in 2008[2,3].

Maternal death directly related to obstetric pregnancy complications, due towrong treatment or non availability of treatment accounts for 75-80% of dying mothers in underdeveloped countries. Pakistan is one of them. Haemorrhage24%, sepsis20%, hypertensive disorders (preeclampsia, eclampsia)18%,unsafe abortion13%, obstructed labour9%, others14% are the foremost direct etiologyof obstetric deaths.[4] However, thromboembolism is the maindirect reason of obstetric death in first world countries.[5-10]Indirect causes are pre-existing medical disorders DM, TB, cardiac disease, malaria, HIV.[8]

Maternal Mortality Rate (MMR) is the number of mothers dying during a defined time period per 100,000 live births and serves as indicator of risk for deaths while a woman is pregnant. In 2008, the Maternal Mortality ratio for the world was 260 maternal deaths/100,000 live births[3], and ratio for US was approximately, 24/100,000[11].

Maternal mortality rate is defined as the number of maternal deaths during a defined time

period per 100,000 women of reproductive years during the same time period. Lifetime risk of death of a mother takes into account the probability of death as a result of pregnancy in a woman during her reproductive age. It was highest in Afghanistan and lowest in developed countries (1 in 4300),[3]

Nearmiss maternal mortalities or severe obstetric morbidities can be used to provide information on the quality of maternity care for women experiencing life threatening events during pregnancy and as indirect indicators in the evaluation of maternal deaths.[12,13]

Criteria for nearmiss maternal mortality is commonly described in terms of following:[14,17]

1. Multisystem failure or severe organ system dysfunction, (eg. respiratory, renal failure)
2. Need for major interventions/resuscitation, (eg. Hysterectomy, intubation, intensive care unit admission, transfusion)
3. Serious category of disease, (eg. Severe haemorrhage, eclampsia)

Many factors affect maternal mortality like political commitment, many healthcare outlets are not well equipped with facilities of medicine, logistics, financial investments. Low status of women in society compelled with their low literacy levels prevent women from taking antenatal care even if available, these women are usually unbooked and there is delay in seeking appropriate care.

Our aim is to reduce maternal mortality as much as we can, by making an easy access to antenatal care, obstetric care, improving quality of care, early recognition of complications, appropriate referral and transportation and by the data generated by more studies.

Millennium Development Goals (MDG) -target 5A stands for a reducing maternal mortality ratio by 3/4th. Still, after each year more than half a million women are dead from pregnancy related causes. Unfortunately we are unable to achieve MDGs target of reducing maternal deaths because oflimited resources and improper surveillance programs.

MATERIALS AND METHODS

All maternal deaths in antenatal, intrapartum and postpartum period within 42 days after delivery were analyzed at obstetrics and gynaecology department unit 4 at Sir Ganga Ram Hospital Lahore from January 2013 to June 2015. The recorded relevant information was collected on aproforma which was already designed according to requirementsincluding all variablesi.e age, parity, duration of pregnancy, antenatal and intrapartumcomplications, route of delivery and cause of maternal death. All received dead mothers were excluded.

RESULTS

During the two and half year period, 21811 women delivered and analyzed for maternal mortality out of these 51 maternal mortality observed with Maternal Mortality ratio of 233.8/100,000 live births (TABLE 1). Among these 100% were unbooked. There were 49 out of 51(90.47%) deaths in mothers betweenyears 21-30. 100% deaths seen in women with para 1-5. Most of maternal deaths occurred atterm(60.78%). (TABLE II)

Table I: Total Deliveriesand Dying Mothers

Total deliveries	**21811**
Total maternal deaths	51
Maternal mortality ratio	233.8/100,000 live births

Table II: Maternal Biodata

Variable	**Total Cases**	**%**
Booked	0	0
Unbooked	51	100%
Age in years		
<20	0	0
21-30	49	90.47%
>30	2	9.52%
Parity		
Para 1-5	51	100%
>5	0	0
Gestational age in weeks		
24-31+6	0	0
32-36+6	20	39.21%
>37	31	60.78%

Commonest risk factor responsible for maternal death was found to be severe anaemia n=13 (25.49%) indirect cause secondary to PPH, APH and antenatal malnourishment, followed by heart disease which was found in n=11 (21.5%). Third common risk factor was hypertensive disorder eclampsia, HELLP syndrome n=9 (17.6%). The other major cause of death was hypovolemia, DIC due to primary PPH in (13.7% cases) n=7 (Table III) antepartum haemorrahge was another risk factor found in 9.8% cases. The

combination of APH and PPH was found to be 23% exceeds all other risk factors hence hemorrhage being the commonest risk factor found in our study. More than one risk factors were observed in many patients septicemia 1.96%, fulminant hepatic failure n=3 (5.8%) and myxoedema coma n=1 (1.96%) were seen in few other patients. Somehow the major cause of maternal death i.e. PPH was in less patient as prompt diagnosis and early intervention to save maternal life was performed at tertiary care.

Table III: Risk Factors for Maternal DeathsTotal no. of maternal deaths=n= 51

Risk Factor	No. of Maternal Deaths	% Age
Direct risk factor:		
Antepartum haemorrhage	5	9.8%
Postpartum haemorrhage	7	13.7%
Eclampsia/HELLP	9	17.6%
Indirect risk factors:		
Hepatic failure	3	5.88%
Heart diseases	11	21.5%
DIC (secondary to HELLP, APH, PPH, sepsis)	6	11.76%
DM	1	1.96%
Severe anemia	13	25.49%
Septicemia(secondary)	2	3.92%
Pulmonary embolism	1	1.96%
Myxoedema Coma	1	1.96%

DISCUSSION

In this study, Maternal Mortality Ratio is 233.8/100,000 live births is comparable to results reported in studies conducted at tertiary care centres including Ziauddin medical university hospital Karachi 97.7/100,000 live births during 1997-99, Lady Wallington hospital Lahore 490/100,000 live births during 1998-99, PIMS Islamabad 309/100,000 live births during 1998-99. National figures for maternal mortality ratio obtained from selected community based study was 276/100,000 livebirths during the year 2012.

However, this data does not reflect the true picture as this study is conducted in limited number of patients in a tertiary care hospital not a community based study. The cause of death was established on the basis of clinical features and few investigations alone as postmortems were not carried out in any case. Maternal mortality ratio is always reflecting the educational and social, progress as well as economical improvements of a country and not only the magnitude of maternity care . Most of the women has not seeked the pregency care and they give birth by TBAs, who is usually untrained. All cases in our study were unbookedand were from verydeprived class. most women in our study were very young between 21-30 years which is very alarming. In our study para 1-5 had a higher Maternal Mortality Ratio because in developed countries cause of maternal death is usually pulmonary embolism but in our area most of the deaths were secondary to PPH followed by DIC and secondary to associated medical disorders i.e. hypertensive disorders compared to primiparae and multiparae. The most common direct risk factor in our study was PPH which is comparable with results of study conducted in Faisalabad[18], followed by fulminant hepatic failure due to hepatitis E, then hypertensive disorders of pregnancy, then cardiomyopathy due to pre-existing cardiac disease but remained undiagnosed because patients not seeking antenatal facilities. Most of risk factors associated with maternal deaths can be prevented if they are picked up early and timely treated.

Simple measures like antenatal check up, calcium supplements in pregnancy will reduce pre-eclampsia.Dectection of raised blood pressure at an early stage and its management will reduced the grave situations like pre-eclampsia/eclampsia. The Government of Pakistan has started social action plans and health care programs for maternal and neonatal care through community workers and Traditional Birth Attendants (TBAs) since 1997 to improve the primary health care services network. JokhioAH, et al in 2005 reported that trained the birth attendants were effective in decreasing the maternal mortality[19]. Despite of limitations of the low sample size our study definitely gives an overview regarding the current condition of care of women while pregnant.

CONCLUSION

The maternal mortality ratio in current study is quite high than the develop worldwide figure despite of prompt diagnosis and early intervention because the main reason for this figure all of these patients were referrals with delay at each level and all were unbooked. Most important issue is pre-pregnancy care,antenatal booking, skilled trained birth attendant from where practicallymost of the factors can be evaluated,analyzed and

treatedbeforehand. So Government should emphasize and address those areas where the delay in referrals is found and where the proper antenatal systems is not established.

REFERENCES

1. AbouZahar, C, Wardlaw, T.Maternal Mortality in 2000: estimates developed by WHO, UNICEF, and UNFPA. WHO. 2003. Geneva, Switzerland.
2. Hogan MC, Foreman KJ, Naghavi M, et al. Maternal Mortality for 181 countries, 1980-2008: a systematic analysis of progress towards Millennium Development Goal 5. Lancet 2010; 375:1609.
3. Trends in maternal mortality: 1990 to 2008 Estimates developed by WHO, UNICEF, UNFPA and The World Bank
4. Say, L, Inuoe, M, Mills, S, Suzuki, E. Maternal mortality 2005: Estimates developed by WHO, UNICEF, UNFPA, and the World Bank 2007.
5. Franks AL, Atrash HK, Lawson HW, Colberg KS. Obstetrical pulmonary embolism mortality, United States, 1970-85. Am J Public Health 1990; 80:720.
6. Toglia MR, Weg JG. Venous thromboembolism during pregnancy. N Engl J Med 1996; 335:108.
7. Pagel C, Lewycka S, Colbourn T, et al. Estimation of potential effects of improved community-based drug provision, to augment health-facility strengthening, on maternal mortality due to post-partum haemorrhage and sepsis in sub-Saharan Africa: an equity-effectiveness model. Lancet 2009; 374:1441.
8. Louie JK, Acosta M, Jamieson DJ, et al. Severe 2009 H1N1 influenza in pregnant and postpartum women in California. N Engl J Med 2010; 362:27
9. James AH, Jamison MG, Brancazio LR, Myers ER. Venous thromboembolism during pregnancy and the postpartum period: incidence, risk factors and mortality. Am J ObstetGynecol 2006; 194:1311.
10. Marik PE, Plante LA. Venous thromboembolic disease and pregnancy. N Engl J Med 2008; 359:2025
11. U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau.. Child Health USA 2008-2009, Rockville, Maryland 2009.
12. Mantel GD, Buchmann E, Rees H, Pattinson RC. Severe acute maternal morbidity: a pilot study of a definition for a near-miss. Br J ObstetGynaecol 1998; 105:985.
13. Wilson RE, Salihu HM. The paradox of obstetric “near misses”: converting maternal mortality into morbidity. Int J Fertil Women Med 2007; 52:121.
14. Say L, Pattinson RC, Gulmezoglu AM. WHO systematic review of maternal morbidity and mortality: the prevalence of severe acute maternal morbidity(near miss). Reprod Health 2004; 19:57.
15. Van Roosmalen J, Zwart J. Severe acute maternal morbidity in high-income countries. Best PractResClinObstetGynaecol 2009; 23:297.
16. Filippi V, Brugah R, Browne E, et al. Obstetric audit in resource-poor settings: lessons from a multi-country project auditing ‘near miss’ obstetrical emergencies. Health Policy Plan 2004; 19:57.
17. Geller SE, Rosenberg D, Cox SM, Kilpatrick S. Defining a conceptual framework for near-miss maternal morbidity . J Am Med Women Assoc 2002; 57:135
18. Bashir A. A five year study of maternal mortality in Faisalabad city. Pak. Int. J. Gynaecol and Obstet 1995; 50:S93-S96
19. Jokhio AH, Winter HR, Cheng KK. An intervention involving traditional birth attendants and perinatal and maternal mortality in Pakistan. N Eng J Med.2005; 352:2091-9.