

A STUDY OF MATERNAL MORTALITY

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ABSTRACT

Objective To study the maternal mortality and complications of sepsis leading to maternal death in a tertiary care hospital.

Study design Descriptive study.

Place & Duration of study Baqai Medical University Hospital Gadap Karachi, from January 2005 to September 2009.

Patients and Methods This retrospective study was carried out on 30 mothers who died over a period of five years due to various causes. They were referred to Baqai Medical University Hospital from peripheral areas in moribund state. Case summaries of all the maternal deaths were reviewed from death register and studied for the causes of maternal mortality. Patients' age, parity, antenatal booking status and the level of care providers at rural/urban setting along with distance from the hospital, were noted. Causes of maternal mortality were selected for the study.

Results The frequency of maternal mortality was (3/1000) live births. The age range was between 30-35 years and parity between 4 - 5. All were un booked cases and received no treatment during antenatal period. Out of 30 cases 20 (66.6%) were due to sepsis, 5 (16.6%) due to postpartum haemorrhage (PPH), 3 (10%) due to eclampsia and 2 (6.6%) due to ruptured uterus. Out of 20 cases of sepsis, in 12(60%) it was due to induced abortion followed by 4(20%) due to prolong labour and repeated vaginal examination.

Conclusions The main causes of maternal mortality include sepsis followed by haemorrhage and obstructed labour. All these causes were preventable if proper antenatal care and referral to the hospital were provided.

Key words Maternal mortality, Puerperal sepsis, Postpartum hemorrhage, Eclampsia.

INTRODUCTION:

Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy from a cause related to or aggravated by pregnancy or its management but not from accidental or incidental cause.¹ Eighty percent of these deaths are preventable as they depend strongly on quality of care provided.² Approximately 50,000 to one million women die each year worldwide, as a consequence of pregnancy related

complications. According to WHO 55 % of maternal death occur in Asia, 40 % occur in Africa and only 1 % occur in developed countries.³ Puerperal Sepsis is the second most common cause of maternal mortality in the developing world.⁴ The incidence is higher among un booked patients. Predisposing factors include anaemia in pregnancy, prolonged labour, frequent vaginal examination, premature rupture of membranes and use of un sterilized/unwashed instruments during delivery. The obstetric care provided to women in Pakistan though improved over the decade but still a significant number of expectant mothers do not receive any guidance. The social sector development is also less than ideal. It is important to conduct frequent studies on the subject so as to develop policies and strategies to address lacunae in the obstetric care. This study was conducted to analyze

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mortality pattern of pregnant women seeking treatment at a university hospital in a rural setting.

METHODOLOGY:

The study was conducted in Unit II department of Obstetrics & Gynaecology, Fatima Hospital Baqai Medical University Karachi (BMU), from January 2006 to September 2009. A total number of 5400 deliveries were conducted during the study period. Maternal death records were studied and data was collected. Age, parity, booking status, socio economic status, complications during pregnancy and labour, hospital/clinic where delivery was conducted, any trial of labour, prolonged rupture of membranes, multiple vaginal examinations, time of arrival in emergency room and cause of death were noted.

Record from mortality register was studied. Factors noted were place of delivery - home/private clinic/hospital, hygienic conditions, prolonged rupture of membranes, repeated vaginal examination during labour, instrumental person who conducted the delivery, septicaemia, endotoxic shock, peritonitis, abscess formation etc.

RESULTS:

The mean age of the woman was 30 + 5.5 years and parity was 4 - 5. Seventy percent of deaths occurred within first week of delivery and 30% died within 40 days after delivery. All cases were unbooked, undernourished and anaemic. Distance from hospital was between 10-70 km. All deliveries were conducted by untrained personnel. There were 30 mortalities within the study period out of which 20(66.6%) were due to sepsis, 5(16.6%) due to postpartum haemorrhage, 3(10%) due to eclampsia and 2(6.6%) due to ruptured uterus.

Out of 20 deaths due to sepsis 12(60%) were due to induced abortion, most of them were first trimester abortion due to unplanned pregnancy, 4(20%) due to prolonged labour, repeated vaginal examination in septic condition by *Dai*. Two (10%) cases came in septicaemia in gasping condition. Two cases were brought dead in emergency on 14th day of delivery with history of high grade fever, unhealed, unstitched episiotomy (as told by their attendants). All the above patients were in such a bad shape that in spite of all efforts to save them, they could not survive and expired within few hours.

DISCUSSION:

Pregnancy is not a disease and pregnancy related morbidity and mortality are preventable. South Asian developing countries like Pakistan, India and Bangladesh have major share in maternal deaths worldwide. In Pakistan MMR is reported to be 327-1300/100,000 live

births.⁵ Women in rural areas do not receive antenatal care and majority of the deliveries take place at home which are attended by untrained personnel. The actual figures of MMR would be more than reported. In our country teenage marriages are common and high fertility rates, high levels of poverty and illiteracy as well as gender discrimination have compounded the situation. In fact, a poor woman is many times more likely to die during childbirth due to malnutrition and anaemia.⁶ The lifetime risk of a woman dying due to pregnancy related causes in developing countries is 1:40 as compared to 1:3600 in the developed world.⁷

Sepsis is among the preventable causes of maternal death. In a study of maternal mortality in a tertiary care hospital in Abbottabad to determine causes and preventable factors, the contribution of sepsis to maternal deaths was 19.2% and it was the third leading cause of death.⁸ According to Jafarey SN in Pakistan sepsis is the leading cause of death in both hospitals and the community.⁹ In our study mortality due to sepsis was 66.6% which is almost same as in the study conducted by Ashraf R and colleagues which is 57%.¹⁰ Our mortality due to sepsis was much higher as compared to Farooq N⁷ (13.8%), Jafarey SN⁹ (19.2%) and Ayhan A¹³ (33.3%). Other causes in community are not available therefore sepsis due to infection forces families to bring patient for medical advice.

In Europe and Western countries, sepsis continues to be a major contributor to maternal deaths. A review covering a period of 20 years in Norway, postpartum sepsis accounted for 4 of the 47 deaths and was the third leading cause of death.¹⁰ Puerperal sepsis is defined in the international classification of diseases as a 'temperature rise above 38^o C maintained over 24 hours or recurring during the period from the end of the first to the end of the tenth day after childbirth or abortion.¹¹ Alternatively, the United States Joint Commission on Maternal Welfare uses a standard definition for puerperal fever used for reporting puerperal morbidity as an oral temperature of 38^o C or more on any two of the first ten days postpartum.

In Brazil sepsis is the leading cause of transfer to Intensive Care Unit. In South Africa, sepsis is one of the main indications of emergency peripartum hysterectomy. Sepsis has been shown to have a very high fatality rate. A study on the incidence and case fatality rates in West Africa showed a case fatality rate of 33.3%.¹² In Turkey the most common cause of death is sepsis which is either due to septic abortion or puerperal sepsis.¹³

There are reports of toxic shock associated with rare infection of clostridium species diagnosed via

immunohistochemical assays for multiple bacteria. This infection was after medically induced abortion via laminaria, misoprostol and mifepristone. All patients had rapidly progressive illness with necrotizing endomyometritis.^{14,15} Sepsis following prenatal diagnosis (amniocentesis) can be devastating unless promptly diagnosed.¹⁶

All research reports revealed that sepsis is a preventable cause of death.¹⁷ Improving the number of booked patients, selection of high risk cases for hospital confinement, early referrals, training of birth attendants with some knowledge of female genital tract anatomy and hazards of unsafe practices, training them to understand the problems and refer the patients to properly equipped referral centres are key to success in reducing maternal mortality. By working aggressively towards prevention Pakistan can achieve the ambitious millennium development goals to reduce maternal mortality.

CONCLUSIONS:

Most maternal deaths are preventable. Improving antenatal care in slum areas, opening the satellite clinic attached to the tertiary care centre, providing aseptic measures, prevention of endogenous and exogenous source of infection by appropriate use of antibiotics and advances in investigative tools can decrease the incidence of puerperal sepsis and its fatal consequences.

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