

Maternal Mortality Rate in the University Hospital

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Abstract

Objective: The aim of this study is to evaluate the maternal mortality rate in our university hospital.

Methods: This study was designed prospectively for October 2001 to December 2005 in Dicle University School of Medicine Department of Obstetrics and Gynecology. The patients data were recorded when the mothers died related to pregnancy in our clinic and the other clinics. The patients age, gestational age, causes of mortality, dying clinics and therapies were determined. The general condition of patients was evaluated when they arrived in our hospital. The type of medications, surgical treatments, and causes of maternal mortality were evaluated.

Results: For four years and three months period, 88 mothers were died due to their pregnancy complications. Approximately 8000 deliveries occurred during this period, and maternal mortality rate (MMR) was found as 1100 in 100.000. Average maternal age was 30.46±7.13 (18-47), gravida 4.73±3.71 (1-20), parity 3.84±3.62 (0-18). 49 (56.68%) mothers died in our clinic and the others died in different clinics. 80 (90.90%) patients were uneducated, and only one patient graduated from university and died from intracranial hemorrhage, and 7 mothers were lower educated. The most causes of mortality were postoperative and postpartum hemorrhage, intracranial hemorrhage, sepsis, hepatic failure, pulmonary embolism and disseminated intravascular coagulation.

Conclusion: Maternal mortality rate is the primary health problem in our hospital, and this situation reflects to high mortality rate in our region. Many causes can contribute for these high results; such as lower socio-economic situation, insufficient antenatal care, high parity, religion and traditional factors and illiterate women.

Keywords: Maternal mortality rate.

Üniversite hastanemizde maternal mortalite oranı

Amaç: Bu çalışmanın amacı üniversite hastanemizin maternal mortalite oranını belirlemektir.

Yöntem: Bu çalışma Ekim 2001 ile Aralık 2005 yılları arasında Dicle Üniversitesi Tıp Fakültesi Kadın Hastalıkları ve Doğum Anabilim Dalında prospektif olarak yapıldı. Hasta bilgileri kliniğimizde ve diğer kliniklerde gebelik nedeniyle ölen kadınların kayıt edilmesi ile oluşturuldu. Hastaların yaşları, gebelik yaşları, mortalite nedenleri, öldüğü klinikler ve tedavileri değerlendirildi. Hastalar kliniğimize vardığında genel durumları değerlendirildi. Medikal tedavi şekilleri, cerrahi tedavileri ve maternal mortalite nedenleri irdelendi.

Bulgular: Dört yıl ve üç aylık sürede 88 anne gebelik komplikasyonları nedeniyle öldü. Bu dönem içinde yaklaşık 8000 doğum oldu ve maternal mortalite oranı (MMR) 1100/100.000 olarak bulundu. Ortalama maternal yaş 30.46±7.13 (18-47), gravida 4.73±3.71 (1-20), parite 3.84±3.62 (0-18) olarak bulundu. Annelerin 49'u (%56.68) kliniğimizde, diğerleri diğer servislerde öldü. Hastaların 80'i (%90.90) okuryazar değildi ve sadece bir kadın üniversite mezunu, diğer 7'si ise düşük eğitim düzeyine sahiptiler. Maternal mortalitenin en sık nedenleri postoperatif ve postpartum kanama, intrakranial kanama, sepsis, karaciğer yetmezliği, pulmoner embolizm ve disemine intravasküler koagülasyon idi.

Sonuç: Maternal mortalite hastanemizin primer problemidir ve bu durum bölgemizde mortalitenin yüksek olduğunu yansıtmaktadır. Bu yüksek orana düşük sosyoekonomik durum, yetersiz antenatal bakım, yüksek parite, dinsel ve geleneksel nedenler ve cahillik gibi pek çok neden katkıda bulunmaktadır.

Anahtar Sözcükler: Maternal mortalite oranı.

Introduction

Each year more than 500.000 women die during pregnancy worldwide. The vast majority of these deaths occur in developing countries. According to the World Health Organization, 55% of maternal deaths occur in Asia, 40% occur in Africa, and only 1% occur in developed countries. The contrast between countries is stark. Maternal mortality rates in sub-Saharan Africa more than 2.5 times those in Asia, which are in turn more than 20 times those in developed countries. Effective interventions to reduce maternal deaths exist, but they are not available to people living in the poorest parts of the world. The World health report 2005 provides a powerful analysis of the global scandal of mothers' and children's ill-health. Every year, over half a million women die from pregnancy-related causes and over 10 million children die under five years of age. These deaths are largely preventable. The report correctly identifies the causes as lying primarily in failures within health systems to provide appropriate frameworks and resources to deliver the technical interventions, and in broader social and cultural factors. The high rates of maternal mortality throughout much of the developing world are the result of serious neglect of women's reproductive health, particularly for the poorest women, as well as ineffective interventions.^{1,3}

Greater access to family planning can help reduce the maternal mortality rate by reducing the number of pregnancies. In addition to contraception, women need access to a broad range of services. The primary means of preventing maternal deaths is to provide rapid access to emergency obstetrical care, including treatment of hemorrhages, infections, hypertension, and obstructed labor. It is also important to ensure that a midwife, or doctor is present at every delivery.⁴ In developing countries only about half of deliveries are attended by professional health staff. Skilled attendants must be supported by the right environment. Life-saving interventions

such as antibiotics, surgery, and transportation to medical centers are unavailable to many women, especially in rural areas. These women may lack the money for health care and transport, or they may simply lack their husbands' permission to seek care.⁵

The following risk factors can increase maternal mortality rate:

- Poor or lack of antenatal care
- Illiteracy among pregnant women
- High parity
- Delay in referral from peripheral units
- Lack of family planning programmes
- Anemia
- Harmful traditional medical beliefs and practices
- Inadequate facilities to deal with obstetric emergencies
- Deteriorating economies
- Gender violence
- Pregnant women age >40, parity >5
- Civil war.⁶

Methods

This study was performed during four years and three months period, and pointed out to maternal mortality rate (MMR) in our hospital. We prospectively recorded the data related to maternal mortality in our clinic and the other clinics in our hospital between October 2001 and December 2005 in Diyarbakir. The data of women who died out of our clinic were collected as possible as from the patient relatives, clinic doctors and patient record files. The characteristics of patients who died during their pregnancy, such as maternal age, gravida, parity, abortion and live child, gestational age, direct and indirect causes of death, dying clinics, the first crucial medical and surgical interventions and following approach, mean elapsed time, general condition during arrived, pregnancy complications and maternal mortality were evaluated. The first diag-

nosis of patients and causes of mortality were evaluated with clinical and laboratory results. The autopsy was not performed in all dying women, because of their families refused.

Results

For four years and three months period, 88 mothers were died due to their pregnancy complications. During this period, approximately 8000 deliveries were occurred, and maternal mortality rate (MMR) was found as 1100 in 100.000 in our hospital. Average maternal age was 30.46 ± 7.13 (18-47), gravida 4.73 ± 3.71 (1-20), parity 3.84 ± 3.62 (0-18). 49 (56.68%) mothers died in our clinic and the others in different clinics. 80 (90.90%) patients were uneducated, and only one patient graduated from university and died from intracranial hemorrhage, and 7 mothers were lower educated. The most diagnosis of patients were eclampsia 26 (29.54%), preeclampsia 18 (20.45%), postoperative hemorrhage 10 (11.36%), IUMF 7 (7.95%), postpartum hemorrhage 6 (6.81%) and the others 21 (23.86), respectively (Table 1).

Table 1. The first diagnosis of the patients who died from complicated pregnancy.

The patient's diagnosis	n=88	%
Eclampsia	26	29.54
Preeclampsia	18	20.45
Postoperative hemorrhage	10	11.36
Postpartum hemorrhage	8	9.09
Intrauterine mort fetus (IUMF)	7	7.95
Maternal infection or sepsis	7	7.95
Pulmonary embolism pulmonary embolism or failure	4	4.54
Maternal trauma	3	3.40
Plasenta dekolmanı	3	3.40
Bilateral ovarian mass (lenfoma)	1	1.13
Neurofibromatozis	1	

The maternal mortality of 83 (94.13%) patients was complicated with direct and 5 (5.68%) patients (trauma 3, lymphoma 1 and neurofibromatosis 1) with indirect causes. The main cause (over half of patients) of maternal death was complicated with hypertensive disorders (preeclampsia and eclampsia).

The most causes of mortality were postoperative and postpartum hemorrhage, intracranial hemorrhage, sepsis, hepatic failure, pul-

Table 2. The causes of maternal mortality.

The causes	n=88	%
Uterine hemorrhage (prepartum, postpartum and postoperative)	20	22.72
Intracranial hemorrhage	18	20.45
Pulmonary embolism and edema	10	11.36
Maternal sepsis	9	10.22
Hepatic failure	7	7.95
Disseminated intravascular coagulation (DIC)	5	5.68
Eclampsia complicated multi organs system failure	4	4.54
Disseminated intravascular coagulation + acute renal failure	3	3.40
Eclampsia + HELLP syndrome	3	3.40
Acute renal failure	1	1.13
Anesthetic intoxication	1	
Cerebral embolism	1	
Jugular vein catheter complication (hemorrhage)	1	
Meningoencephalitis	1	
Eclampsia complicated hepatic rupture	1	
Lymphoma +spontaneous bowel perforation and sepsis	1	
Postoperative (after cesarean section) bowel necrosis	1	
Multiple organs injuries (traffic accident)	1	

*AD: anlamlı değil ($p < 0.05$ istatistiksel olarak anlamlı kabul edilmiştir).

monary embolism and disseminated intravascular coagulation (Table 2). 43 patients who delivered in our clinic average gestational age was found 29.88 ± 6.08 , and the other patients delivered before referring to our hospital. 60 (68.18%) patients were in bad condition, 15 (17.04%) moderate when they arrived in our hospital, and 23 (26.13%) patients were died in the first 24 hours. Average gestational age was 29.88 ± 6.08 in undelivered patients, and the other patients delivered before arriving. Twenty three (26.13%) patients died in the first 24 hours, and because of shock arterial blood pressure could not be measured in 10 patients. 43 patients who delivered in our clinic, cesarean section were performed in 14 and others delivered vaginally. Total cesarean section was performed in 41 (46.59%) patients, vaginal delivery 21 (23.86%), undelivered 15 (17.45%), no data 10 (11.36%) and septic abortion in 1 (1.13%) patient, respectively.

Total abdominal hysterectomy had been performed in five patients before referring to our hospital, and totally, hysterectomy was performed in 12 (13.63%) patients due to hemorrhage; after vaginal delivery 5, after cesarean section 4, and cesarean hysterectomy (PORRO's operation) 3 patients, respectively. Bilateral hypogastric arteries were ligated in 4 patients during hysterectomy.

Discussion

Over 500.000 women die each year worldwide because of the complications of pregnancy and childbirth. Most of these deaths occur among young, poor mothers in developing countries in Asia and Africa. A woman living in eastern, middle or western Africa is 75 to 100 times more likely to die when she becomes pregnant than a woman who lives in western Europe. And the other hand, women in the most disadvantaged groups of society are nearly 20 times more likely to die from causes related to pregnancy and childbirth than women in

the two highest social classes.^{6,7} Maternal mortality ratios vary from country to country, are high in the developing countries and lower in the developed countries. The causes and risk factors of maternal deaths are many and variable. With the exception of developed countries, variability of national maternal mortality estimates is large even within subregions. Most of the estimates from developing countries come from surveys, and the inherent methodology entails certain study characteristics that are consistently different from estimates derived from vital registration, the established method in developed countries (e.g. sampling method, information on non-respondents or completeness of records, definition of maternal death).⁶

The maternal mortality rate (MMR) is still unknown in our region, so we could not receive any data about MMR in the official records in our city, because of not having vital registration system. Due to lack of data records in the hospitals and lower health care, the real MMR is unknown. Maternal mortality is the primary health problem in our hospital, and this situation reflects to high mortality rate in our region. Approximately two mothers have died in each month in our hospital. Bozkurt et al.⁹ were found the maternal mortality rate 143.4/100 000 in their study, but this result is too different from our findings.

Many causes can contribute for these high results; such as deteriorating of socio-economic situations, lower income, absence of health assurance, poor and lack of antenatal care, high parity, religion and traditional factors, illiterate and lack of family planning. Unfortunately, this study is indicated that most of causes of maternal mortality are preventable by basic health care, such as preeclampsia, eclampsia, hypertension, hemorrhage and infection, but most of women who died have not benefited from health care during antenatal period. Lack of antenatal care, none hygienic conditions, delay in referral from peripheral units, inadequate

facilities to deal with obstetric emergencies and insufficient interventions are primary causes of increasing maternal mortality rate.

Despite of the higher maternal mortality rate does not reflect the real maternal mortality rate in our hospital, city or the region, however we think that maternal mortality rate in our region is still too higher. Our hospital is a tertiary center; many complicated patients have been referring to us. This situation can cause our higher rate, additionally; many mothers have been dying outside of our hospital, in primary and secondary centers, at home and on the way even during transferring. We think that all of mothers have not been recorded in our database, when they died except of our clinic, because we had not been informed for all of died mothers, and their data were collected by our special efforts from different clinics.

Conclusion

The maternal mortality rate in our region is exactly unknown, however it is still a major tragedy. Therefore, we want to point out this serious problem as the mothers should not be dying from preventable causes.

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