Maternal Mortality in Rajavithi Hospital 1984-1998 : Analysis of the Causes of Death

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Abstract

From January 1st, 1985 to December 31st, 1998 there were 49 maternal deaths. The completed data of 45 cases were reviewed to evaluate the causes of death including direct, indirect and non maternal death. The mean maternal mortality ratio was 19.18 per 100,000 live births. The leading causes of death were hemorrhage, infection, pregnancy induced hypertension and amnionic fluid embolism. The maternal mortality ratio can be reduced because the most common cause of death was hemorrhage which is preventable.

Key word : Maternal Mortality, Rajavithi Hospital

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J Med Assoc Thai 2001; 84: 763-767

Maternal mortality, a tragic event to the family and the country, remains a public health problem in developing countries. Rajavithi Hospital is a general government hospital and has about 12,000 deliveries per year. There are 36 Obstetric and Gynecological staff members and 36 Obstetric and Gynecological residents working in the department of Obstetrics and Gynecology. Pulpinyo et al(1) reported the first maternal mortality of 81.3 per 100,000 live births in Rajavithi Hospital from 1973 to 1977. The purpose of this study was to analyse the incidence, causes and preventability of maternal mortality in Rajavithi Hospital.

MATERIAL AND METHOD

Between 1984 and 1998 a total of 49 cases of maternal death were registered in the Department of Obstetrics and Gynecology, Rajavithi Hospital. Detailed information of all cases was recorded in the Obstetric monthly report and maternal mortality conference. Maternal mortality is defined as the death of a woman while pregnant or within 42 days of the

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Table 1. Maternal mortality in Rajavithi Hospital 1984-1998.

Year	Total live births	Deaths	Rate per 100,000 live births
1984	20,700	2	9.66
1985	20,717	5	24.13
1986	18,702	4	21.38
1987	16,740	5	29.87
1988	16,685	0	0
1989	16,848	6	35.61
1990	17,897	2	11.18
1991	17,933	4	22.31
1992	17,995	2	11.11
1993	15,520	4	25.77
1994	16,217	2	12.33
1995	16,813	2	11.90
1996	15,507	4	25.79
1997	14,653	3	20.47
1998	12,606	4	31.73
	255,533	49	19.18

termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes(2). Maternal deaths are classified as direct, indirect and non-maternal deaths. Direct maternal deaths include those resulting from obstetrical complications of pregnancy, labor or, from interventions, omissions, incorrect treatment or a chain of events resulting from any of these factors. Indirect maternal deaths include those resulting from previously existing disease or a disease that developed during pregnancy labor or the puerperium and which was not directly due to obstetrical causes, but which was aggravated by maternal physiologic adaptation to pregnancy. Non maternal death includes those resulting from accidental causes in no way related to the pregnancy. The rate is computed per 100,000 live births(3). Maternal mortality ratio (MMR) was calculated as the proportion of the maternal deaths to the total number of observed live births during the study period(4).

RESULTS

During the study period, there were a total of 255,521 deliveries and the mean maternal mortality for all causes was 19.18 / 100,000 live births. The annual maternal deaths are shown in Table 1. Table 2 shows the obstetrical characteristics of the patient's maternal age, parity, gestational age at delivery, the delivery route, and no antenatal care. Direct, indirect and non-maternal deaths are shown in Table 3 and 4 respectively. Four data of patients (8.16 %) were lost, one in 1985, 1986, 1987 and 1993, respectively. So there were 45 completed data of death cases for analysis. The autopsy rate in our study was 13 out of 45 (28.89%).

DISCUSSION

The latest national maternal mortality ratio (MMR) in 1995-1996 was 44.1 per 100,000 live births(4) compared to 18.56 per 100,000 live births in Rajavithi Hospital during the same period. The number of total live-births each year in our hospital decreased from 20,700 in 1984 to 12,606 in 1998 but the maternal mortality ratio increased from 9.66/ 100,000 live births in 1984 to 31.73/100,000 live births in 1998. However, there was a wide range of MMR from 0 to 35.61/100,000 live births and its mean was 19.18/100,000 live births.

Table 2. Obstetrical characteristics and delivery routes 1984-1998.

Data	No of deaths	Per cent
1. Primigravida	13	28.89
2. Maternal age (mean ± SD) yr	31.42 ± 7.45	-
3. Gestational age at delivery (mean ± SD) weeks	34.12 ± 6.96	-
4. Delivery route		
4.1 Normal delivery	22	48.89
4.2 Forceps extraction	3	6.67
4.3 Vacuum extraction	0	0
4.4 Cesarean section	9	20.00
4.5 Maternal death before delivery	6	13.33
4.6 Abortion	5	11.11
5. No antenatal care	16	35.56

Table 3. Direct maternal deaths, by cause of death 1984-1998.

Causes of death	No of deaths	Rate per 100,000 live births
1. Pregnancy induced hypertension (PIH)	7	2.74
2. Hemorrhage	14	5.48
3. Infection	8	3.13
3.1. Septic abortion	4	1.57
3.2. Puerperal infection	3	1.17
3.3. Chorioamnionitis	1	0.39
4. Amniotic fluid embolism	4	1.57
5. Anesthetic complication	1	0.39
6. Adult respiratory distress syndrome (ARDS)	1	0.39
Total	35	13.70

Table 4. Indirect maternal deaths and non maternal death by causes of death 1984-1998.

Causes of death	No of deaths	Rate per 100,000 live births
1. Indirect maternal death	6	2.34
1.1 Cardiac disease	3	1.17
1.1.1 Congestive heart failure	2	0.78
1.1.2 Rheumatic heart disease	1	0.39
1.2 Idiopathic thrombocytopenic purpura (ITP)	1	0.39
1.3 Hepatic disease	2	0.78
1.3.1 Acute fatty liver	1	0.39
1.3.2 Hepatocellular jaundice	1	0.39
2. Non-maternal death	4	1.56
2.1 Acquired immunodeficiency syndrome (AIDS)	2	0.78
2.2 Deep neck abscess	1	0.39
2.3 Hemoptysis with respiratory failure	1	0.39
Total	10	3.90

Although MMR improved from 81.3/100,000 live births between 1973 and 1977[1] to 19.18/100,000 live births between 1984 and 1998, this may be due to the progressive reduction of the total live births per year because the total number of staff and residents remained the same in both periods of study. However, the number of labor room LR nurses from 1984 to 1998 was less than that between 1973 and 1977.

Most maternal deaths were direct maternal deaths (13.70 per 100,000 live births). The leading causes of death were hemorrhage, infection, pregnancy induced hypertension (PIH) and amnionic fluid embolism. Several previous studies from developing countries such as Pakistan, Turkey and Thailand have shown that hemorrhage accounted for 15.76- 47.5 per cent of maternal mortality[4-9]. The hemorrhagic cause of maternal mortality in our study was 31.1 per cent. Thirteen out of 14 patients who died of hemorrhage were due to postpartum hemorrhage and one was from incomplete abortion. Postpartum hemorrhage is the most common in high parity women and difficult to predict in advance, when it does occur the bleeding can be very extensive in a short period of time[10,11]. Mortality and morbidity from postpartum hemorrhage are largely preventable. The most common cause of postpartum hemorrhage was uterine atony[12]. In this hospital, low risk and high risk mothers were delivered by nurses and doctors, respectively. However, the episiotomy wounds were repaired by doctors. We usually analysed the problems of maternal mortality

in case conferences after each event to solve the cause. Over the last 5 years, inadequate manpower especially LR nurses was a constraint factor in solving these problems. However, we used nurse aids to attend the postpartum parturients until the doctors came for the episiotomy repair and encouraged the resident's training to episiotomy repair as soon as possible.

Fifty per cent of mothers who died from infection were all from illegally induced abortions. However, most of the deaths occurred in the early years of our study. This was due to the reduction of criminal abortion, better education especially in family planning, and improvement of aseptic abortion techniques together with the increased use of broad-spectrum antibiotics(9). The incidence of amnionic fluid embolism was 1.57/100,000 live births. However, because of the grave prognosis, prompt diagnosis and rapid management must be instituted promptly to prevent deaths from this cause (13). The main causes of death in cases of PIH were respiratory failure, pulmonary edema, acute hemolysis, subcapsular hematoma and eclampsia. Delay in arriving at the hospital happened to most of these patients. The reason for such a delay possibly came from the lack of education, and inadequate antenatal care. Most of the deaths from PIH could have been prevented, because absent and inadequate antenatal care were the most serious and most frequently avoidable factors(7,13).

There were two deaths from AIDS caused by pulmonary tuberculosis and pneumocystis carinei pneumonia. The prevalence of Human Immunodeficiency Virus (HIV) in pregnant women has increased steadily in Rajavithi Hospital from 1.0 per cent in 1991 to 2.1 per cent in 1996(14). As it is AIDS could be an important cause of maternal death in the near future.

The only case of ARDS in direct maternal death was from molar pregnancy. The patient developed ARDS due to pulmonary emboli from molar tissue during suction curettage. The cause of death in the case of deep neck abscess was from postoperative sepsis. We agreed that this maternal death could have been prevented if more intensive care, delineated surgery and broad spectrum antibiotic had been used.

The autopsy rate in this study was 28.89 per cent. We had some deaths from uncertain ncertained diagnosis. There were various reasons for the low rate of autopsy, for example, the family desired not to disturb the body or from the physician feared being accuse of negligence after the result of the autopsy. Hemorrhage, a preventable death was the leading cause of maternal mortality in Rajavithi Hospital, and therefore improvement in obstetric care especially intrapartum care, providing health education and ensuring regular antenatal care should be the management of choice for reducing maternal mortality in the future.

ACKNOWLEDGEMENT

The authors wish to thank Professor Yongyoth Herabutya, Department of Obstetrics and Gynecology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University for his valuable critical review and helpful discussion.

(Received for publication on February 7, 2000)

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การตายของมารดาในโรงพยาบาลราชวิถี ระหว่างปี พ.ศ. 2527–2541

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ได้ศึกษาการตายของมารดาในโรงพยาบาลราชวิถี ระหว่างปี พ.ศ. 2527–2541 ในด้านสาเหตุการตาย ซึ่งแบ่งเป็นสาเหตุการตายโดยตรง สาเหตุการตายโดยอ้อม และสาเหตุการตาย (non maternal death) พบว่ามีมารดาเสียชีวิตทั้งหมด 49 ราย แต่สามารถหาข้อมูลได้ครบถ้วน 45 ราย อัตราตายเฉลี่ยมารดา เท่ากับ 19.18 ต่อการคลอดทารกมีชีวิต ทั้งหมด 100,000 ราย สาเหตุการตายที่พบมากที่สุด 4 อันดับแรก ได้แก่ การตกเลือด การติดเชื้อ ความดันโลหิตสูงในระหว่างตั้งครรภ์ และภาวะ Amnionic fluid embolism อัตราตายของมารดาน่าจะลดลงได้เนื่องจากการตกเลือด ซึ่งเป็นสาเหตุการตายที่พบมากที่สุดนั้นสามารถป้องกันได้

คำสำคัญ : การตายของมารดา, โรงพยาบาลราชวิถี

เอกชัย โควาวิสารัช, บุญชู สถิรลีลา
จดหมายเหตุทางแพทย์ ฯ 2544; 84: 763–767

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