RESEARCH ARTICLE

A SIX YEAR RETROSPECTIVE STUDY OF MATERNAL MORTALITY AT A TERTIARY TEACHING INSTITUTE IN UTTAR PRADESH

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ABSTRACT
Background: A high maternal mortality ratio is a serious public health issue in India. The lack of monitoring of pregnant mothers contributes to maternal deaths.
Aims & Objectives: This To study the incidence of maternal mortality and the causes of maternal mortality at a tertiary care (teaching) institute over a period of 6 years from January 2006 – December 2010.
Materials and Methods: A retrospective analysis of maternal deaths from hospital records.
Results: As per present study, MMR was 1180 per 100,000 live births. Haemorrhage (53%) was the leading cause of death. Anaemia was a contributory factor in almost all cases (63%) & most of the deaths were associated with intrauterine fetal deaths (71%).
Conclusion: MMR of the institute was very high, because most patients were referred cases with no antenatal care.
Key Words: Antenatal; Hemorrhage; Maternity; Maternal Mortality

Introduction

Maternal mortality is defined as the death of any woman, while being pregnant, or within 42 days of termination of pregnancy, irrespective of the duration or site of pregnancy, from any cause related to or aggravated by pregnancy, but not from incidental or accidental causes. The major causes of maternal mortality are sepsis, haemorrhage, hypertensive disorders, obstructed labor & abortions. In developing country like India, in the patriarchal society, the social position of a vast majority of women is not up to the mark. This creates a dreadful public health problem, i.e., high Maternal Mortality ratio (MMR). A high ratio is seen due to the social factors preventing right social position of women. Maternal Mortality ratio (MMR) is very high in India. Even in 2010 India had MMR of 200/100,000 live birth.[1]

India has the largest number of maternal deaths in the world and accounts for 22% of all maternal deaths.[2] Comparing India with the only other country that approaches its population in magnitude, the MMR in China is 45, with a lifetime risk of maternal death being just 1 in 1300.[3] Evaluation of Janani Suraksha Yojna (JSY) has suggested that the program is having a significant impact on perinatal and neonatal health.[4]

Maternal mortality is an indicator of the quality of obstetric care in a community, directly reflecting the utilization of health care services available. The purpose of this study was to analyse causes of maternal deaths, and to identify preventable factors, leading to maternal mortality in our six year old setup. Family planning, birth control measures and safe abortions, along with efforts to bolster maternal health services, are effective in reducing the ratio of maternal mortality.[5]

Materials and Methods

A retrospective analysis of maternal deaths in a tertiary institute from January 20006 to Dec 2010 was done – with special emphasis on age, parity, antenatal care, place of referrals, mode of delivery, operative intervention, admission-death interval & cause of death. Results were analyzed by using percentage and proportion.

Results

A total of 4,554 women were registered as delivered in this study period & there were 4187 live births. There were 49 maternal deaths over this time, which gives a maternal mortality rate of 11.8 per 1000 live births. The major cause of death was haemorrhage (53%). Intrauterine death was associated in 71 % of cases. Admission is shown in Table 1.

Only 4 patients were antenatally registered. Out of these, 47% remained undelivered, while 5 delivered by caesarean section, & 1 delivered vaginally at our hospital. Admission - death interval and the causes of death is depicted in table 2.

Table-1: Distribution of the women by age, parity, pregnancy status at the time of admission and delivery centres

Characteristics		No. of Women
Age in Years	15 - 20	5 (10%)
	21-25	16 (33%)
	26-30	17 (35%)
	31-35	9 (18%)
	36 - 40	2 (4%)
Parity	Primi	12 (25%)
	Multi	37 (75%)
Status of patient on admission	Antepartum	23 (47%)
	Post-partum	21 (43%)
	Post-abortal	3 (6%)
	Ectopic	2 (4%)
Delivery centres	Direct admission	11 (23%)
	Dai handled	12 (25%)
	Private hospital	15 (31%)
	Peripheral health centre	4 (8%)
	District hospital	7 (14%)

Table-2: Distribution of the women by parameters related to death

Parameters		No. of Patients
Admission – Death interval	< 24 hour	28
	24 hour – 7 day	18
	> 7 day	3
Cause of Death	haemorrhage	26
	Heart failure	8
	Sepsis	7
	Cardiac arrest	5
	Hepatic failure	2
	Respiratory failure	1
Contributory Factors	Hepatitis	2
	Anaemia	31
	IUFD	35
	Eclampsia	6
	Burns	1

Discussion

During the period of study, our hospital had 4554 confinements and 2886 vaginal deliveries. The total live births were 4187. There were 1668 caesarean sections, giving a ratio of 36.6%. There were 49 maternal mortality cases, giving a MMR of 1180 per 100000 live births. During the study period of 15 years, the MMR ranged between 459/100,000 to 1832/1,000,000 live births. National average of MMR is 212/100,000 births.[6]

Hemorrhage was the leading cause of death. Intrauterine fetal death (IUFD) was associated in 71% of cases. A recent systematic review of causes of maternal mortality, and its geographical distribution, has shown that the Indian subcontinent has a significantly higher maternal mortality attributable to sepsis, infection & hemorrhage.[7] Anaemia was contributory in 63% cases. The current national MMR is estimated to be 254 per 100,000 live births.[8] Similar studies from tertiary care institution reported MMR between 213 and 879, per 1 lakh live births.[9,10]

Majority of deaths occurred in age group 20-30 yr (68%). This is concomitant with the prevailing custom of early marriage in rural area. Kaur and Kaur revealed 51.8% deaths in 20-30 yr group.[11] Taneja showed 78% deaths in this age group while Agarwal[7] noticed 77% deaths.[12] In present study, 75% of deaths were in multiparous, which is similar to that reported by other studies, like that by Thomas and Mhasker.[13,14] Too many & too close pregnancies together adversely affect the mother's health, and have its roots in the social status of the woman.

In the present study, maximum deaths occurred nearly equally in antenatal (47%) & post-partum period (43%). Purandare et al, differs and show 73.33% deaths in post-partum period.[15] In this study, 11 were direct admissions, and all others were referred from various set ups (to ours, which is a teaching hospital & a tertiary referral centre). Admissions of moribund cases referred from periphery have inflated mortality rate, like other teaching institutions of India.

Only 4 patients were booked. Data from Safdarjang Hospital in New Delhi revealed 89% of cases as unbooked in a study between 2003-2004.[16] This is although an old statistics, but comparable to this study, because our institute is just six year old. We had a high caesarean section ratio of 36.6%, which may be due to many factors, such as high risk obstetric referrals, since ours is a teaching hospital.

28 women died within one day of admission. 18 women died within 7 days of admission – with varying reasons like haemorrhage, sepsis, heart failure & PIH – as underlying causes. 3 patients died after 7 days.

Conclusion

Maternal mortality, even today, is a preventable tragedy. By giving antenatal care, and by setting up a system of audit, we can prevent loss of more lives. The safe motherhood intervention under NRHM, called Janani Suraksha Yojna (JSY), could provide the vital link, connecting women in need of obstetric services, with a centre offering the same.

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