Research Article

Study of risk factors in maternal mortality in Nehru Hospital, B.R.D Medical College, Gorakhpur

Authors

Dr Shalini Singh¹, Dr Shashi Shekhar², Dr Archana Bundela³

¹Assistant Professor, Department of Community Medicine, B.R.D. Medical College, Gorakhpur, U.P, India
²Junior Resident, Department of Community Medicine, B.R.D. Medical College, Gorakhpur, U.P, India
³Assistant Professor, Department of Pathology, B.R.D. Medical College, Gorakhpur, U.P, India

Abstract

Objectives: To find out risk factors in maternal mortality over a period of one year in Nehru Hospital, B.R.D. Medical College, Gorakhpur.

Study Design: An observational descriptive study.

Study Settings: Obstetrics and Gynaecology Department, Nehru Hospital, B.R.D. Medical College, Gorakhpur.

Study Period: June 2008 to May 2009.

Results: A total of 60 maternal deaths were analysed during the present study period. Parity specific maternal mortality was highest in the grand multiparous women. Mothers with unawareness of danger signals as well as no ANC visits were associated with high maternal mortality.

Conclusion: Early recognition of the danger signs and risk factors with prompt and adequate management or referral should be emphasized.

Keywords: Maternal mortality, risk factors, parity, danger signal.

Introduction

According to W.H.O, maternal death is defined as ‘the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy from any cause related to or aggravated by the pregnancy or its management but not by accidental or incidental cause’.¹

Pregnancy is not a disease and pregnancy related mortality is almost always preventable yet more than half a million women die each year due to pregnancy related complications.

The direct and indirect causes of maternal mortality are only the tip of the iceberg. The underlying causes in developing countries particularly in India are:

1. Extreme ages at child birth
2. Multiparity
3. Too close pregnancies
4. Large family size
5. Teenage pregnancies
6. Malnutrition
7. Poverty
8. Illiteracy
9. Ignorance and prejudices
10. Lack of maternity services
11. Delivery by untrained dais
12. Poor environmental sanitation

http://jmscr.igmpublication.org/home/ ISSN (e)-2347-176x  ISSN (p) 2455-0450
DOI: https://dx.doi.org/10.18535/jmscr/v8i6.11
13. Poor communication
Multiple factors keep these pregnant women away from the available resources, like their familial taboos, cultural ethos, superstitions, attitude of health personnel towards delivery of health services and existence of barriers linked to health services organisations and to quality of care.
Realising this fact, this study was planned to access the risk factors in maternal mortality over a period of one year in Nehru Hospital, B.R.D. Medical College, Gorakhpur.

Material and Methods
This was an observational descriptive type study of 60 cases of maternal mortality over a period of one year from June 2008 to May 2009.

| Working definitions of life threatening obstetric complications used | Additional features |
|------------------------------------------------|------------------|
| **Complication** | **Essential features** | **Additional features** |
| **1. Obstetric haemorrhage** | | |
| a. Abortion-related haemorrhage | Gestation of fetus <24 weeks | At least one of the following: Blood loss of more than 500 ml Clinical sign of shock (pulse>100 /min and systolic blood pressure<100 mmHg) |
| b. Ruptured ectopic pregnancy | Pregnancy outside the uterine cavity with haemoperitonium, | |
| c. Antepartum haemorrhage | Gestation of fetus ≥ 24 weeks Clinically observed vaginal bleeding | A. Placenta Previa B. Abruptio Placentae |
| d. Primary postpartum haemorrhage | Genital tract bleeding within 24 hours of delivery Gestation of fetus ≥ 24 weeks | At least one of the following: Perceived blood loss of more than 10 ml Clinical sign of shock |
| e. Secondary postpartum haemorrhage | Generalized fits in a patient without previous history of epilepsy Clinical sign of shock Temperature ≥ 37.5°C Odorous vaginal discharge | At least one of the following: Labour >12 hours Uterine tetany Abnormal pelvis Bandl’s ring Uterine rupture Haematuria Caput or moulding |
| **2. Eclampsia** | | |
| | | |
| **3. Obstructed labour** | Rupture of uterus during labour with confirmation at laparotomy | Gestation less than 24 weeks Temperature ≥ 37.5°C |
Modified Prasad B G Classification was adopted for determining socio-economic class.

| Modified B.G.P classification to the year 2008 | Socio economic class status |
|-----------------------------------------------|-----------------------------|
| Rs. 3056 and above                            | I                           |
| Rs. 1528 - 3055                               | II                          |
| Rs. 917 - 1529                                | III                         |
| Rs. 458 – 916                                | IV                          |
| Below Rs. 458                                 | V                           |

The following signs and symptoms were taken as danger signs:
1. Bleeding per vagina
2. Blurring of vision
3. Convulsions
4. Loss of foetal movements
5. Severe headache

Females having awareness of two or more danger signals were considered in “Yes” category and females having awareness of less than two danger signals were considered in “No” category.

Results
During the study a total of 60 maternal deaths were analysed.

As evident from Table-I marriage at younger age (<18 years) contributed to 56.67% maternal deaths and marriage after 18 years of age contributed 43.33% deaths. Among all maternal deaths, majority 31.67% were grand multipara (≥P5) followed by primigravida (21.66%) mothers.

The most common socio economic status of died mothers being class V (per capita monthly income below Rs.458) followed by class IV (per capita monthly income 458 – 918).

Poor condition of antenatal visits was seen in died mothers. Majority 26 (43.33%) had no ANC visits. Only 13.33% of died mothers were aware about danger signals or warning signs.

Table – I Age at marriage

| Age at marriage | Frequency | Percentage |
|-----------------|-----------|------------|
| < 18 years      | 34        | 56.67      |
| ≥ 18 years      | 26        | 43.33      |
| Total           | 60        | 100.00     |

Table – II Parity Status

| Parity       | Frequency | Percentage |
|--------------|-----------|------------|
| Primigravida | 13        | 21.66      |
| P1 / P2      | 8         | 13.33      |
| P3           | 10        | 16.67      |
| P4           | 10        | 16.67      |
| ≥ P5         | 19        | 31.67      |
| Total        | 60        | 100.00     |

Table – III Socio Economic status

| S.No. | Socio economic status (per capita monthly income) | Frequency | Percentage |
|-------|--------------------------------------------------|-----------|------------|
| I     | Rs. 3056 and above                               | 0         | 0          |
| II    | Rs. 1529 – 3055                                  | 0         | 0          |
| III   | Rs. 917 – 1529                                   | 8         | 13.33      |
| IV    | Rs. 458 – 916                                    | 17        | 28.33      |
| V     | Rs. < 458                                        | 35        | 58.34      |
| Total | 60                                                | 100.00    |

Table – IV ANC Visits

| No. of ANC visits | Frequency | Percentage |
|-------------------|-----------|------------|
| Nil               | 26        | 43.33      |
| 1 – 2             | 24        | 40.00      |
| ≥ 3               | 10        | 16.67      |
| Total             | 60        | 100.00     |

Table – V Awareness of danger signals

| Awareness of danger signals | Frequency | Percentage |
|-----------------------------|-----------|------------|
| Yes                         | 8         | 13.33      |
| No                          | 52        | 86.67      |
| Total                       | 60        | 100.00     |
Discussion
Our study was a descriptive observational study of 60 maternal deaths over a period of one year at the Department of Obstetrics and Gynaecology, Nehru Hospital, B.R.D. Medical College, Gorakhpur. On total, the maternal mortality was higher (56.67%) in women who were married before 18 years as compared to 43.33% in women married after 18 years. This is in conformity with the opinion of population council (1997) that early sex and pregnancy are unhealthful for girls in every way, lengthening the span of years over which they have children, increasing the risks of infections and raising the chances of having unwanted pregnancies and increasing the likelihood that they will have unsafe abortions.

In the present study maximum (31.67%) deaths were in grand multipara (≥G5) followed by 21.66% deaths of primigravida. Shamshad Begum et al also found maximum (69%) deaths in grand multipara (≥G5). Swain S et al (1992) revealed that grand multigravida status in 34.13% was the main risk factor for referral.

According to socio economic status majority (58.34%) of died mothers belong to socio economic class V. Almost similar observation was made by Verma Ashok. 28.33% mothers belong to socio economic class IV and 13.33% mothers belong to socio economic class III. A study by Abuzahr C in Geneva concluded that there is a relation between maternal mortality and socio economic factors such as income per capita, gross domestics product and education level.

Overall, only 16.67% females took at least 3 or more ANC visits during pregnancy which is very low in comparison to NFHS-III showing 51% coverage with three antenatal check-ups. Igberase GO et al (2006) observed most of the deaths (89.5%) in unbooked women for antenatal care. The percentage mortality for unbooked was 10 times that for booked patients. Unbooked status was a risk factor for maternal mortality as this was statistically significant (p<0.0001).

Only 13.33% women of died mothers were found to be aware of the danger signals during pregnancy, delivery and puerperium. Mojoko F et al (2005) in Zimbabwe suggested that the pregnant women should be informed of the danger signs of the main complications likely to occur.

Conclusion & Recommendations
It was observed that there were many possible factors, either alone or in combination responsible for maternal mortality. The causative factors were largely preventable.

The risk factors in maternal mortality found in this study were:
1. Early marriage
2. Multiparity
3. Poor socio economic status
4. Unregistered status or no antenatal visits
5. Unawareness of danger signals

Child marriages seem contributory especially in rural areas. Community participation of educated group is needed to make the society realize the bad impact of early marriages on mother’s health and human development.

Opportunities to launch vocations oriented education and family planning are quite useful approaches in the direction of socio economic progress which in turn lead to improvement in health status of mothers.

Training of local dais, village health guides and families to adopt safe delivery practices and to identify the earliest warning symptoms during pregnancy, delivery and puerperium must be done. Information, Education and Communication (IEC) by all possible means including utilization of folk media should be used to educate mothers and families about danger signals of pregnancy, delivery and puerperium as pregnant women are ill equipped to make appropriate choices especially when they are in danger.

References
1. W.H.O, maternal mortality ratio (per thousand live births). Available at:
2. Shamshad Begum, Aziz-un-Nisa, Iqbal Begum. Analysis of maternal mortality in a tertiary care hospital to determine causes and preventable factors. *J Ayub Med Coll Abottabad*. 2003; 15(2).

3. Swain S, Prakash A. Utilization of referral services by high risk pregnant populations in rural Varanasi. *Indian J Matern Child Health*. 1992 Jul-Sep; 3 (3): 74-6.

4. Verma Ashok, Minhas Santosh, Sood Anupa. A study on Maternal Mortality. *J Obstet Gynecol India*. May/June 2008; Vol. 58, No.3.

5. Abuzahr C. Antepartum and postpartum hemorrhage. In: Murray CJL, Lopez AD (eds). *Health Dimensions of sex and Reproduction: the Global Burden of Sexually Transmitted Diseases Maternal Conditions, Perinatal disorders*. Geneva: WHO, 1998.

6. Igberase GO, Ebeigbe PN. Eclampsia: Ten years of experience in a rural tertiary hospital in the Niger delta, Nigeria. *J Obstet Gynaecol*. 2006 Jul; 26 (5): 414-7.

7. Mojoko F. Assessing antenatal care in rural Zimbabwe, PhD thesis, Uppsala University, Uppsala, 2005 <http://urn.kb.se/resolve?urn=urn:nbn:se:uv:diva-6018>.