A COMPARATIVE STUDY OF MATERNAL MORTALITY AND MORBIDITY IN A TEACHING HOSPITAL OF NORTHERN INDIA

By

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SUMMARY

The study of morbidity and mortality pattern and their inter-relationship, not only exposes the existing maternal health status and the responsible risk factors but also helps to reorganise and strengthen our health care delivery system.

There were 129 maternal deaths in Safdarjang Hospital, New Delhi with maternal mortality rate of 6.5/1000 birthe during 1983 and 1984.

The death rate is high for mothers with <19 years (7.34/1000 births) or 30 years (13.1/1000 births), which is 1.5 and 3 times the death occuring in the age group 20-29 years. Nulliparous (8.1/1000 births) or Multiparous (> 3) (10.8/1000 births), rural (10.74/1000 births), and unregistered women (13.6/1000 births).

The predominant causes of mortality in our population are Toxaemia (12.40%), Sepsis (17.82%), anaemit (19.37%) and Liver disorders (29.93%).

The toxaemia is seen to be occuring more frequently among nulliparous women with relatively very high mortality rate. 40% of these 129 mothers who died gave birth to live foetuses, and an equal number of still births, which reconfirms that perinatal mortality and the child's future is directly influenced by maternal mortality. The health for all by 2000 A.D. can only be a dream come true if maternal deaths are reducing to a negligible limit.

Introduction

The review of maternal mortality and morbidity is the known index of Perinatal Care available in the community.

The comparative analysis is vital not to identify the high risk factors but also to suggest the stratagies in relation to prevention and better care in future.

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This work has been presented to share the knowledge and experiencs of a North Indian Hospital.

Subjects and Method

The study consists of 129 maternal deaths occurring during 1983 and 1984 at Safdarjung Hospital, New Delhi.

This is one of the biggest referral hospitals in Northern India with 250 maternity beds catering to mainly rural and urban

slum population of Delhi and its neighbourhood within a radius of 300-400 KM.

All women requiring hospital care are admitted irrespective of the vacancy of beds or registration status.

In almost all the cases, no autopsy was performed because of various social factors.

The morbidity pattern has been evaluated on the basis of 2000 consequentive birth taking place at this hospital during the period of October and February, 1983 and May-July, 1984.

Observations

The maternal mortality rate for the two year period i.e. 1983 and 84 in relation to various Parameters i.e. Age, Parity, Registration Habitat revealed that the highest MMR was observed in women over the age of 30 yrs—13.1 per 1000 births; in multiparae. Para two and above it was 10.8 per 1000. In unregistered women 13.6 per 1000 as compared to 0.54 per 1000 in registered cases and 10.7 per 1000 amongst rural women as compared to 4.96 per 1000 in urban women.

The comparative analysis shows high incidence of morbid conditions like toxaemia (5.85%) and anaemias (4.7%) in our population group with relatively high mortality rate among rural and unregistered patients.

The morbidity and mortality due to toxaemia was high among young multiparous patients whereas deaths occurred more frequently among multiparous women suffering from antepartum and postpartum haemorrhagic conditions (Table I).

Discussion

Health for all by 2000 A.D. Alma Ata declaration of world health assembly cannot be achieved until the maternal mortality is reduced to a negligible limit. No society can be proclaimed to be healthy, unless mother is healthy because she is the backbone of the society. Accordingly, India has set the goal of Maternal mortality rate less than 2/1000 deliveries by 2000 A.D. (Health Statistics, 1984).

Though in India, the crude death rate has declined remarkably from 47/1000 population per year since the begining of this century to 13/1000 population in 1984 (Health Statistics, 1984). Maternal mortality rate is still raging high at 753/100,000 births. Maternal mortality rate (hospital)—16.7/1000 births. Maternal mortality rate (city)—3.87/1000 births (Rao, 1982). Whereas in developed countries, it is about 0.010 (population report, Jan. 27, 1984). The complications of pregnancy accounts for 2% as compared to 10-30% in developing countries. The overall maternal mortality rate is 6.5 in 1983-84 for Safdarjang Hospital, New Delhi. Age, parity and birth interval are all, interrelated, young primiparas (11.0), elderly nulli and multiparous are at higher risk. MMR is high among rural (10.74), multiparous (10.8), unregistered (13.6) and elderly women (13.1). Thus, childbearing at 20-29 years of age and limiting the family to two children can significantly reduce the maternal mortality and morbidity.

The three main direct causes of death, sepsis (17.82%), Toxaemia (12.40%) and haemorrhage (12%) are still unacceptably high in our population as well as in various other countries (Rao, 1982, Chang Chi *et al*, 1980, Verne *et al*, 1982).

There is significantly high morbidity and mortality among Primigravidas with Eclampsia. The MMR is very high in rural, unregistered Primigravidas. Deaths due to haemorrhages however shows no

TABLE III

Outcome of Pregnancies Among 129 Maternal Deaths Occurred During 2 Year Period (1983 & 1984)

Condition (129) (%)	Rural	Urban	Booked	Unbooked	Parity P_0	P_1	P_2+	Age ⩽ 19	20-29	⩾ 30+
Toxaemia (16) (12.40)	6 (37.5)	10 (62.5)	—	16 (100)	12 (75)	2 (12.5)	2 (12.5)	3 (18.8)	11 (68.7)	2 (12.5)
Anaemia (25) (19.37)	12 (48)	13 (52)	—	25 (100)	10 (40)	5 (20)	10 (40)	2 (8.0)	17 (68.0)	6 (24.0)
Jaundice (27) (20.93)	10 (37.0)	17 (63.0)	—	27 (100)	7 (25.9)	5 (18.5)	15 (55.6)	4 (14.8)	15 (55.5)	8 (29.7)
Puerperal Sepsis (23) (17.82)	13 (56.5)	10 (43.5)	—	23 (100)	8 (34.8)	6 (26.0)	9 (39.2)	1 (4.3)	18 (78.3)	4 (17.4)
PPH (7) (5.42)	2 (28.6)	5 (71.4)	—	7 (100)	1 (14.3)	1 (14.3)	5 (71.4)	—	5 (71.4)	2 (28.6)
Rupture (3) Uterus (2.32)	2 (66.7)	1 (33.3)	1 (33.3)	2 (66.7)	—	1 (33.3)	2 (66.7)	—	1 (33.3)	2 (66.7)
APH (6) (4.65)	1 (16.7)	5 (83.3)	2 (33.3)	4 (66.7)	1 (16.7)	—	5 (83.3)	—	5 (83.3)	1 (16.7)
Pulmonary (6) Embolism (4.65)	1 (16.7)	5 (83.3)	1 (16.7)	5 (83.3)	3 (50.0)	—	3 (50.0)	—	5 (83.3)	1 (16.7)
Others (16) (12.40)	7 (43.7)	9 (56.3)	3 (18.7)	13 (81.3)	9 (56.3)	1 (6.2)	6 (37.5)	—	12 (75.0)	4 (25.0)

definite relationship. Though the majority of the acute morbid conditions are from urban areas such as Toxaemia, Antepartum haemorrhage, the mortality rate is high for rural population in such high risk cases.

In other words, acute antenatal emergency cases like eclampsia or antepartum haemorrhage with poor antenatal care cannot cover such a long distance and whosoever is so referred, reaches at a terminal stage as seen by high mortality rate. It cannot be commented with certainity, that incidence of such high risk cases in rural population are less than urban population. Incidences of mortality in eclampsia is around 40% in rural area (Mukherjee *et al*, 1982). Most of the deaths go unreported which is a major problem as only 9.9% cases are reported in developing countries (Barnes, T. E. C.)

Three deaths occurred because of ruptured uterus, one spontaneous rupture, other because of manual removal of placenta and only one death in previous caesarean section. The detail of the caesarean section death is given in Table II.

TABLE II

II LSCS Deaths Out of Total 129 *Maternal Deaths Occurred in* 1983-84 (2 *Years*)

Placenta Previa	2
Pueperal sepsis	2
Pulembolism	2
Corticalvain thrombosis	1
Mandelson's syndrome	1
Atonic PPH	2
Eclampsia	1

Deaths due to jaundice (20.93%) and anaemia (19.37%) are still the leading causes of death. Poor nutrition, and Infections, constitute important contributory factors. Congestive cardiac failure, haemorrhagic complications all contribute to it (Rao, 1982). The rural community

TABLE I

Distribution of Death in Relation to Age, Registration, Parity and Residence

Outcome (baby)	Toxaemea (16) %	APH (5) %	Jaundice (21) %	Anaemia (22) %	PPH (7) %	Puerperal %	Others (16) %	Unknown (26) %
Live born	7 (43.7)	1 (20)	8 (38.0)	6 (27.3)	5 (71.4)	9 (56.29)	7 (43.7)	
Still born	5 (31.4)	2 (40)	7 (33.4)	6 (27.3)	2 (28.6)	5 (31.20)	3 (18.8)	
Abortions	0	0	2 (9.6)	5 (22.7)	0	2 (12.50)	4 (25)	
Undelivered	4 (25)	2 (40)	4 (19.0)	5 (22.7)	0	0	2 (12.5)	

work in some of these areas has shown that inadequate antenatal care, illiteracy, untrained TBA's poor communication and transport, and Superstitions all contributed, to further increase maternal risks. It has been observed that many of the mothers who died gave birth to live babies. It further necessitates active management to reduce maternal mortality so as not only to improve maternal health but care of newborn and its well being.

Therefore, great emphasis has to be laid on reorganising whole maternal and perinatal health care delivery system in our community. Further research to strengthen, the existing research facilities, so as to provide proper antenatal, intranatal, postnatal and interconceptional care by means of community education, retraining of all the TBA's and other primary level health worker along with the induction of latest technological development is a must to improve maternal and child health care.

Early detection and the referral of high risk cases to better centres of healh care and active management of all such cases has to be strengthened. To quote "Risk Strategy is a managerial tool for the organisation of health care. Its purpose is to provide better services for all, but with special attention to those who need them most" (WHO Forum 2/3): 4-13-422.

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