

Maternal Mortality in Aurangabad District

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Summary: A study was planned and carried out in Aurangabad district of Maharashtra State, from 1.4.1987 to 31.3.1990. The study area included whole of the district excluding the Municipal Corporation of Aurangabad. The estimated conventional maternal mortality rate was 7.29/1000 live births. About 50% deaths occurred outside the hospital. Private Matador or Tempo was the commonest vehicle used for transporting the deceased women, followed by private jeep. The most frequent underlying cause of death was viral hepatitis followed by puerperal sepsis. The risk of dying, calculated as odds ratio was highest for viral hepatitis followed by pregnancy at extremes of reproductive age groups.

Introduction

The Maternal and Child Health services is one of the important components of Primary Health Care. It is observed that the maternal component is usually neglected in MCH (Rosenfield & Maine et al 1985). Reliable data about the indicators of maternal health including conventional maternal mortality rate, are not available. All the information available is obtained from hospital studies. In fact, in India, only one field study has been carried out by World Health Organisation in Anantapur District, Andhra Pradesh (Bhatia J C 1986). The present study, therefore, was planned and carried out in Aurangabad district of Maharashtra state, India from 1.4.1987 to 31.3.1990 to study maternal mortality. The study area included whole of the district, excluding Municipal Corporation of Aurangabad.

Material and Methods

There were 8 administrative blocks and 40 Primary Health Centres and 248 Sub-Centres functioning in the district. The study was carried out with the help of health personnel in these 40 Primary Health Centres. There were 260 female health workers and 225 male health workers, supervised by 74 medical officers. All these health personnel were trained. The registered pregnant women were followed upto 6 weeks after delivery or abortion. On the last working day of every month all female and male health workers submitted their reports to concerned Primary Health Centres. The medical officers from all the Primary Health Centres submitted their report to District Health Office. The monthly information regarding number of maternal deaths with details like name of the

woman, date and place of death, probable cause of death and presence of risk factor was collected. All efforts were made to register maternal deaths during study period. The information about maternal deaths was collected from following sources; Grampanchayats, State Health Intelligence and Vital Statistics Bureau, Health Workers from PHC's, Rural Hospitals, Medical College Hospital (Record Section, Forensic Medicine Department) and Aurangabad Corporation. From all the sources except Aurangabad corporation and Forensic Medicine department, monthly reports were collected. Reports from Grampanchayats were collected monthly from Block Development Officers in the form of abstract of the formats being submitted through Civil Registration System. Health personnel also scrutinised frequently the Death Registers in Grampanchayats for Maternal deaths. Information was also collected from State Health Intelligence and Vital Statistics Bureau, Pune, but with a time lag of about one year. Rural Hospitals Medical College were visited almost every month for obtaining information. The collection of information from Medical College had a time lag of about 2 to 3 months. Forensic Medicine Department, Medical College Aurangabad and Municipal Corporation, Aurangabad were visited yearly for collecting information. The information from reports of Integrated Child Development Scheme and Private Practitioners although studied, revealed no maternal deaths. The information pertaining to the denominator i.e. live births was collected from Block Development Officers. The information was collected in the form of abstract of reporting formats under Civil Registration System. All the deaths from study area were investigated by Officers qualified and experienced in Public Health. A modified and pretested version of format which was

used in Anantapur District of Andhra Pradesh by World Health Organisation, was used in the study. The format had two parts. Part one consisted information in general, pertaining to village, house, family health services, the woman including her obstetric history, her husband and details of services received during last pregnancy. Part two consisted the detailed information about the maternal death. The first part was common for cases as well as for controls. Controls were selected from nearby houses where a woman delivered a baby any time between one month prior to and one month after the delivery or death of deceased women. The detailed investigations were carried out only after 6 weeks of death.

Result and Discussion

A total of 1,18,962 live births were registered in the study period through Civil Registration System. A total of 464 maternal deaths were registered in the study period giving conventional maternal mortality rate as 3.91 per 1000 live births. There was definite increase in surveillance in these three years, hence the statistic was 3.02, 3.42, 4.99 per 1000 live births respectively. The last year statistics were more accurate. Further break-up of last year's figures according to usual place of residence of the deceased, revealed that the conventional maternal mortality rate for Aurangabad Corporation was 2.55 and for study area it

was 7.29 per 1000 live births. Yearwise births and maternal deaths are given in Table I. The statistics matches the WHO study in Andhra Pradesh (Bhatia, 1986). Among 464 deceased women, 344 were resident of study area. About 86% maternal deaths from study area were traceable while carrying out investigations. In 296 deaths detailed investigations were carried out. About 2/3 deaths were post-natal.

The mean duration between delivery of baby/products of conception and death was 5.98 days. About 45% deaths occurred in Government hospitals and about 39% in home. Additional 10% women died while they were being shifted. About 5% deaths occurred in private hospitals and one death occurred on farm. Almost similar observations were made in Anantapur district in Andhra Pradesh (Bhatia, 1986). In those who expired outside the hospital, detailed reasons were asked. There were 147 deaths outside the hospital, the reasons in 144 cases were available. The reasons are grouped in five categories and are given in Table II. There were 183 reasons. The number of mean reasons per case was 1.27. Proper referral to a bigger institution was at least expected in 39.34% cases, but the system, it seems had failed in the referral function. Matador/tempo was the commonest vehicle used for shifting (36.67%) followed by Jeep (26.11%). Government vehicle was available only in 5% cases. It seems that in

Table I
Conventional Maternal Mortality Rate Aurangabad District: 1987-90

S.No	Year	Maternal Deaths		Live Births		C.M.M.R.	
		Corp.	Study area	Corp.	Study area	Corp	Study area
1	1987-88	36	75	15,513	21,264	2.32	3.53
2	1988-89	29	103	14,564	23,314	1.99	4.42
3	1989-90	55	166	21,524	22,783	2.56	7.29

Table II
Reasons for Deaths Outside the Hospital Aurangabad District: 1987-90

S.No.	Reason	Number	Percentage
1	Number / consulted health personnel Govt./Private or Institute. Govt./Private	72	39.34
2	Expired within short time before reaching the hospital	62	33.88
3	Not fully motivated for hospitalization	29	15.85
4	Difficulties in communication	13	7.1
5	Others	7	3.83
	Total	183	100

Table III
Leading Causes of Maternal Mortality
Aurangabad District: 1987-90

S.No	Cause of death	Number	Percentage
1	Viral hepatitis	74	24
2	Puerperal sepsis	46	15.5
3	Postpartum hemorrhage	37	12.5
4	Eclampsia	24	8.1
5	Retained placenta	14	4.7
6	Antepartum hemorrhage	12	4.1
7	Others	89	30.1
Total		296	100

ciated with some factors is given in Table IV. It reveals that viral hepatitis in pregnancy, pregnancy at extremes of reproductive age group, problem perceived by relatives, pregnancy associated with some disease have very high risk.

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Table IV
The Risk of Dying Associated With the Factors Aurangabad District: 1987-90

S.No.	Risk factor	Odds Ratio	[95%-C.L.]
1	Jaundice	52.89	[37.82-74.23]
2	Age below 20 yrs. or above 40 yrs	8.32	[4.42-15.67]
3	Some problems as perceived by respondent	7.77	[5.89-10.25]
4	Associated disease	6.75	[1.51-10.19]
5	Conventional risk factors	6.08	[4.26-8.68]
6	No Prophylaxis against nutritional anemia	4.21	[2.98-5.94]
7	Primi	3.96	[2.52-6.15]
8	No Immunization against tetanus	3.83	[2.70-5.96]
9	Still birth/abortion as an outcome of pregnancy	3.31	[2.35-4.67]
10	Not visiting PHC	2.6	[1.83-3.90]
11	Unregistered pregnancy	2.28	[1.59-3.26]
12	No home visits by health workers	2.18	[1.56-3.05]
13	Illiteracy in husbands	1.74	[1.26-2.46]
14	Working women	1.71	[1.22-2.39]
15	Unsatisfactory housing condition	1.59	[1.15-2.00]
16	Illiteracy in women	1.57	[1.06-2.29]

most of the villages, some private vehicle is usually available. The finding indicates that timely referral is possible but adequate awareness generation in community needs emphasis. The first 6 leading causes of death are given Table III. The leading position of viral hepatitis was surprising. There was definitely increase in incidence of hepatitis during that period in the region. Study of analysis of many hospital records supported major contribution of viral hepatitis towards maternal mortality (Pant & Mehendale, 1987, Pardeshi, 1987). In spite of presence of risk factor less than 18% pregnancies in general were recorded as high risk pregnancies. The risk approach needs some modification in this light. The risk of dying, calculated as odds ratio with 95% confidence limits (Kahn 1983) asso-

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