Original Research Article

A study of maternal mortality in a teritiary care hospital in North Coastal Andhra

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International Archives of Integrated Medicine, Vol. 6, Issue 3, March, 2019.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 18-02-2019 **Accepted on:** 22-02-2019
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: K.V.S.M. Sandhya Devi, Rayapudi Divya Hanuma Charani, Dadi Mohana Lakshmi Smruthi. A study of maternal mortality in a teritiary care hospital in North Coastal Andhra. IAIM, 2019; 6(3): 8-12.

Abstract

Background: Pregnancy, although being considered a physiological state, carries risk of morbidity and at times death. Maternal mortality is an indicator for health care provided to the women. The major causes of maternal mortality are preventable through regular antenatal check-ups, early diagnosis and management of complications.
Aim: The aim of this study was to focus on incidence of various causes of maternal mortality, and about avoidable factors that can prevent maternal deaths.
Materials and methods: A hospital record based study of maternal deaths over a period of 2 years from January 2017 to December 2018 was done. The information regarding demographic profile and reproductive parameters were collected and results were analyzed.
Results: MMR over a period of 2 years (2017 and 2018) was 962 per 100000 live births. Most maternal deaths occurred in the age group 20-24years. Majority were multi parous and unbooked cases. Hypertension, hemorrhage, sepsis are major direct causes. Febrile illness, respiratory disorders, cardiovascular disorders, anemia being indirect causes.
Conclusion: Majority of maternal deaths were preventable by proper antenatal care, early detection of high risk pregnancies and their timely referral to tertiary care centre.

Key words

Hemorrhage, Hypertensive disorders, Maternal mortality, Sepsis, Anemia.

Introduction

Maternal mortality is an indicator of the quality of obstetric care in a community directly reflecting the utilization of health care services available [1]. Maternal mortality is defined as the death of a 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 accidental or incidental causes [2]. Maternal mortality is defined internationally as maternal death rate per 1,00,000 live births. There are about 880 maternal deaths every day across the world. Most of these occur in low resource settings and can be prevented. Seeing this, countries have united to reduce the global maternal mortality ratio to <70 / 1,00,000 live births between 2016 and 2030 as a part of the Sustainable Development Agenda [3].

In 2012 MMR (maternal mortality ratio) of India was 130, which is much above the objective of 109 as per the MDG [4]. The fifth millennium development goal (MDG) initially articulated on target: "to reduce maternal mortality ratio (MMR) by three quarters by 2015 [5]. Low status of the women in the society coupled with low literacy rates also leads to underutilization of available health services. A respectable number of maternal deaths can be averted by skilled care before, during and after child birth [6].

This study was conducted at the Department of Obstetrics and Gynecology, King George Hospital, Visakhapatnam which is the referral center for neighboring districts, with an aim to analyze the causes, risk factors associated with maternal mortality and avoidable factors that can prevent maternal death.

Materials and methods

This was a retrospective study of 134 cases of maternal deaths over a period of 2 years from January 2017 to December 2018. Maternal deaths of all cases admitted at the time of pregnancy, delivery or during puerperium were included in study. The data was collected from hospital records. The medical records sheets of all identified women were reviewed regarding age, parity, residence, antenatal booking status and cause of maternal death. Permission of the institutional ethical committee was obtained before recording data on proforma with the assurance of its confidentiality. Causes of death were identified as direct cause and indirect cause.

Results

During the study period January 2017 to December 2018, there were a total of 13,917 live births and 134 maternal deaths. The MMR in the study period was 962 per 1,00,000 live births. The epidemiological characteristics of maternal death are shown in **Table - 1**. Direct causes were as per **Table – 2** and indirect causes were as per **Table – 3**.

Table - 1: Demographic characteristics of maternal deaths.

Characteristics	Classification	No of cases	%
Age	<20	8	5.9
	20-24	73	53.2
	25-29	36	26.8
	30-34	9	6.7
	>34	8	5.9
Parity	Multi	77	57.4
	Primi	57	42.5
Residence	Urban	71	52.9
	Rural	50	37.3
	Tribal	13	9.7
ANC-B/UB	Booked	7	5.2
	Unbooked	127	94.8

Discussion

Maternal mortality is a global health problem. According to estimates by the United Nations, at current levels of fertility and mortality, 1 in 190 women in India face the risk of maternal mortality compared with 1 in 170 in Pakistan and 1 in 1400 in Sri Lanka [7]. Recently UNICEF has estimated that approximately 80% of maternal death could be averted if women had access to essential maternity and basic health care services [8].

The maternal mortality ratio (MMR) in our study is 962 per 1,00,000 live births which is very much higher than national standards of MMR in India that is 178 per 1,00,000 live births [9]. Present study has comparatively higher MMR which could be due to the fact that our hospital is a tertiary care hospital and receives a lot of complicated referrals from four districts of north coastal Andhra with large tribal areas and also from Orissa.

Table – 2: Direct causes - 74(55.2%).

Cause	No of cases	Percentage
Hypertensive disorders	32	23.8
Hemorrhage	22	16.4
• Postpartum hemorrhage	15	
• Antepartum hemorrhage	3	
• Ruptured ectopic	1	
• Ruptured uterus	3	
Sepsis	16	11.9
Cerebral sinus venous thrombosis	2	1.4
Peripartum cardiomyopathy	1	0.7
Amniotic fluid embolism	1	0.7

Table – 3: Indirect causes - 58(44.8%).

Cause	Cases	Percentage
Febrile illness(total)		14.1
• Dengue	7	
• Malaria	4	
• Swine flu	1	
• Other febrile illness	7	
Anemia	3	2.2
Cardiovascular	6	4.4
Respiratory disorders	14	10.4
CNS disorders	7	5.2
Liver disorders	4	2.9
Others	5	3.7

Table - 3: Comparison of causes of maternal death by various authors.

Authors	Hemorrhage	Hypertensive disorder	Sepsis
Mootha S, et al.	28.9	47.9	23.4
Vidhyadhar B, et al.	21.5	10.5	7.8
Soni M, et al.	29.5	12.9	18.0
Sundari KPM, et al.	17.8	26.7	12.5

Most mothers died in the age group 20-24 years (53.2%). Majority of them were unbooked (94%) and multigravidae (57.4%). In present study demographic characteristics of maternal death were comparable to Pathak, et al. and Sashikala Mootha [12, 13]. In present study hypertensive disorders was the leading cause of maternal death followed by hemorrhage and sepsis (**Table - 3**) [13-16]. Even today large number of maternal deaths was due to classic triad of haemorrhage,

hypertensive disorders and sepsis. The indirect causes of maternal death were dengue and other febrile illness, heart disease, respiratory disorders and anemia.

Conclusion

A number of socio-demographic factors affect maternal mortality. It was observed that poor, illiterate, unbooked women coming from remote rural areas were more vulnerable to morbidity and mortality. Hypertensive disorders are the leading cause of maternal death followed by hemorrhage and sepsis. Febrile illness being the most common indirect cause. Death due to hypertensive disorders can be reduced by early identification of hypertensive disorders, birth, planning at higher centres, use of Magnesium sulphate and early termination of pregnancy and management at higher centres. Death due to haemorrhage can be reduced by SBA (Skilled Birth Assistant) training of all nursing staff in obstetric emergencies. Sepsis can be corrected by infection controlled plans and prompt use of antibiotics. Early correction of anemia and health education on importance of IFA tablets will reduce death due to anemia. Lastly most deaths could have been prevented with the help of regular antenatal care ,early detection of complications, prompt correction or early referral, quick efficient transport facilities, availability of blood and by promoting overall safe motherhood. Indirect causes can be prevented before or early stages. Indirect causes of maternal mortality can be assessed or corrected before or during early stages of pregnancy thus reducing their causes.

Acknowledgments

Authors would like to thank colleagues of Department of OBG and clerical staff of Medical Records Department for their support during study.

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