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Original research article

Study on Maternal Outcome in a Government Tertiary Care Hospital, Adilabad, Telangana

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Abstract

Pregnancy is a time of unparalleled joy and expectations. Pregnancy and childbirth have a huge impact on the physical, mental, emotional, and socioeconomic health of women and their families . Pregnancy-related health outcomes are influenced by a woman's health and other factors like race, ethnicity, age, and income. Most pregnancies have a healthy outcome but for others pregnancy can be times of intense fear. This study is done to estimate the proportions of different maternal outcomes and to identify the factors associated with different outcomes in Government Tertiary Care Hospital, Adilabad, Telangana . This is a cross sectional study done at hospital of Rajiv Gandhi institute of Medical Sciences , Adilabad in 2018 year . 1272 Antenatal mothers who came for delivery in RIMS were included in this study. Objectives of this study was to estimate the proportions of different maternal outcomes and to identify the factors associated with different outcomes .Among the three maternal deaths two were because of hemorrhage and one death is due to eclampsia .Majority ICU admissions due to Pre eclampsia, Eclampsia, hemorrhage .This study showed relatively high mortality and morbidity as majority cases were referred very late in critical condition and there used be no time to give appropriate care.Mothers who died had no prior ANC visits, were from rural area and due to either Eclampsia or hemorrhage and all of them had severe anemia. Early identification of high risk cases at community level and early referral, easy transport, continued skill base training to health care professionals will solve the problem to some extent.

Key words : Maternal Outcome , Antenatal mothers , Maternal Morbidities

Introduction

There is a reduction in maternal mortality, still India is contributing more than one fourth of maternal deaths annually. Maternal morbidity is also equally important. Current maternal mortality rate is 130/1lakh which is far higher than millennium development goal 2020. Majority causes of maternal mortality and morbidity are preventable. Pregnancy is a time of unparalleled joy and expectations. Pregnancy and childbirth have a huge impact on the

physical, mental, emotional, and socioeconomic health of women and their families [1]. Pregnancy-related health outcomes are influenced by a woman's health and other factors like race, ethnicity, age, and income. Most pregnancies have a healthy outcome but for others pregnancy can be times of intense fear and uncertainity [2]. In these instances both mother and child need specialized care to ensure good health. These pregnancies are at high risk for developing problems and having poor outcomes, resulting in 70-80% of mortality and morbidity (illness) related to pregnancy for the mother and or the child [3]. High risk pregnancy is broadly defined as a pregnancy in which there is or will and increased risk of morbidity or mortality for mother, fetus and neonate. There are many maternal (mother) health conditions affecting pregnancy having profound effect on maternal, perinatal outcome like hypertension, anemia, heart diseases, diabetes, renal diseases, liver disease, lung diseases, thyroid diseases, autoimmune disease, neurological problems and genetic disorders [4-6]. Obstetricians have long searched for methods of ante-partum fetal evaluation that would be Non-invasive & accurate and yields results that were immediately available. Incidence of high risk pregnancies varies from Region to region & country to country, socioeconomic status, Environmental factors and Literacy. It is higher in urban slums and rural areas and among illiterate mothers. Incidence is also high in tertiary care centres [7]. Prevalence of high risk pregnancy is 5-40%. Around 25% mothers & neonates are at risk. However incidence of high risk pregnancy & neonate in India is double and this could be lowered to near 10 % by adequate MCH care. Those cases with added risk factors are prone to develop morbidity & mortality both in the mother & her unborn child. Intensive antenatal care is provided for them by the obstetric specialist at the hospitals. Intensive care provides [8]. More repeated clinical check-ups than routine check-ups, Antenatal hospital ward admission & care, Intensive maternal and fetal monitoring, Bed rest & treatment, Institutional delivery. Hypertensive disorder is one of the major reasons for perinatal and maternal mortality and morbidity in both developing and developed countries. Pre-eclampsia is a multisystem disorder that complicates about 3-8% pregnancies. The incidence is high in developing countries due to hypoproteinemia, malnutrition, anemia and poor antenatal care. 10-15% of maternal deaths are directly associated with pre-eclampsia and eclampsia. [9] The risk of pre-eclampsia is two to five times more in women with previous history. Based on ethnicity, the incidence of preeclampsia ranges from 3% to 7% in nulliparas [10] and 1% to 3% in multiparous. [11] Pre-eclampsia is a specific, pregnancy-related hypertensive disorder with reduced organ perfusion associated with vasospasm and activation of the coagulation cascade affecting multiple systems. The nervous system is commonly affected and is a cause of significant morbidity and mortality in antenatal women. [12] The major complication to the fetus results from decreased placental perfusion leading to decreased blood supply of oxygen and nutrients necessary for fetal growth and wellbeing. In pregnancy, and especially in developing countries, one of the most encountered problems is the maternal anemia. The prevalence of anemia during pregnancy period has been reported between 35 – 100% in various studies.[13] There are various opinions on the maternal and perinatal effects of anemia. World Health Organization (WHO) stated that the 20% of the maternal mortalities have been influenced by anemia.[14] When the maternal changes during the pregnancy have been observed, maternal cardiac output is seen to increase by 50% to provide the necessary placental blood flow to support fetal development. For this, plasma volume needs to be increased. This increase in plasma volume arises as the dilutional anemia of the pregnancy.[15-16]This anemia especially arises during the early pregnancy and continues until term. The association of maternal anemia during pregnancy with fetal intrauterine growth restriction and low birth weight, and maternal preeclampsia and eclampsia has been proposed. This study is done to estimate the proportions of different maternal outcomes and to identify the factors associated with different outcomes in Government Tertiary Care Hospital, Adilabad, Telangana .

Material and methods

This is a cross sectional study done at hospital of Rajiv Gandhi institute of Medical Sciences , Adilabad in 2018 year . 1272 Antenatal mothers who came for delivery in RIMS and gave consent for participation in the study were included in this study.

Objectives:

- To estimate the proportions of different maternal outcomes
- To identify the factors associated with different outcomes

Study area: Rajiv Gandhi institute of Medical Sciences (RIMS),Adilabad.
Study population: Antenatal mothers who came to RIMS
Study design: cross – sectional study
Study period: 2 months (1st September – 31st October 2018)
Study sample: 1272 Antenatal mothers
Inclusion criteria: all the antenatal mothers who came for delivery in RIMS and gave consent for participation in the study
Study tool : pre structured questionnaire

Methodology: Data was collected from all the antenatal mothers who were admitted in labour room and the outcome observed and noted from the same patients from labour room and post natal ward. Emergency events noted from emergency room
Statistical analysis: data was entered in excel and analysed using spss version 20
Ethical Approval: Approval from institutional ethical committee

Results

Table 1: Characteristics of Antenatal Mothers

Age group	**Frequency**	**Percentage %**
≤ 20	219	17.2
21-25	794	62.4
26-30	230	18.1
≥31	29	2.3
Residence	**Frequency**	**Percentage %**
Rural	1007	79.2
Urban	265	20.8
ANC Visits	**Frequency**	**Percentage %**
Nil	142	11.2
<3	599	47.1
≥3	531	41.7

Table 1 shows maximum ANC patients were in age group 21-25 years. 79.2 percent patients were from rural areas. 11.1 patients did not have any ANC visit.

Table 2 : Gravida status and co-morbid conditions

Gravid	Frequency	Percentage %
Primi	590	46.4
G 2	516	40.5
G 3	117	9.2
G 4 and above	49	3.8
Co-morbid conditions	**Frequency**	**Percentage %**
Hemoglobin ≤ 7	496	39
Pre eclampsia	368	29
Eclampsia	149	11.7

Table 2 shows Gravida status and co-morbid conditions in ANC patients .

Table 3 : Different Maternal outcomes

Outcomes	Frequency	Percentage %
Live Births	1246	98
Twins	8	0.3
IUD	18	1.4
Still births	1	0.07
Maternal deaths	3	0.2
Total	1272	100

Table 3 shows maternal outcomes. 98 percent had live births. 1.4 percent had intrauterine death. 3 maternal deaths were reported. 1 still birth was there.

Table 4 : Different Maternal Morbidities

Morbidity	Frequency	Percentage %
ICU Admissions	120	9.4
Blood transfusions ≥3	336	26.4

Table 4 shows 120 patients needed ICU admission. And 336 patients needed blood transfusuion.

Discussion

Maternal health is the indicator of overall community health.Various studies in India showed wide variation in maternal mortality ranges from 47 per Lakh to 625 per lakh. All the maternal deaths and majority of maternal morbidities were due to underlying hypertensive disorders and anemia. Findings of this study consistent with study done by Jain, Jadhav, Onakewhor and Murthy .Among the three maternal deaths two were because of hemorrhage and one death is due to eclampsia .Majority ICU admissions due to Pre eclampsia, Eclampsia, hemorrhage.High-risk pregnancies always ruled the obstetric status. Even in the modem era of hi-tech equipment & intensive facilities we intend to get high number of high risk pregnancies due to lack of awareness, education, and low socio-economic status on our country & even in my region. In our study we duly confined to detect the high risk pregnancies and managed the pregnancies well to get the best neonatal outcome.

Advanced maternal age is been found to be an independent risk factor for pre-eclampsia, in this study majority of the cases were in the age group 21-25. The parity also has a similar pattern reported in existing literatures with preeclampsia which is common among the primigravida. Hernandez et al. found that the risk of pre-eclampsia was 4.1% in the first pregnancy and 1.7% in later pregnancies overall. The risk for multiparous women without a history of pre-eclampsia was around 1%. [17]

Lone FW et al studied 626 pregnant women and found that preterm birth risk was 4 times, low birth weight risk was 1.9 times, low APGAR score was 1.8 times and intrauterine fetal death was 3.7 times more common in anemic pregnant women compared to non anemics.[18]

Patra S et al reported the maternal and perinatal outcomes of 130 severely anemic pregnant women who had 5 gr/dl or lower hemoglobin. The hemoglobin levels were acquired at the 3 rd trimester and 81 % of their population were multiparas. Pregnancy intervals for multiparas was found to be 16. 5-/+ 0.5 months, and following outcomes were reported: preterm birth rate 69.2%, preeclampsia 17%, eclampsia 4%, placental ablation 3%, fetal distress 23%, low birth weight 24.6 % and neonatal death rate 35%.[19] They concluded that especially in multiparas when the pregnancy intervals were short and nutritional support was insufficient, pregnancy complications associated with maternal anemia were more commonly encountered.

It has not yet been clarified at what hemoglobin level anemia in pregnancy starts to affect maternal and fetal outcome, and how seriously outcome is affected [20]. Very few prospective studies concerning maternal and fetal outcome after severe anemia in pregnancy have been performed, and even fewer in low-income countries.The increased incidence of perinatal morbidity and mortality seen in pregnancies complicated by preeclampsia, is due to the need for premature delivery and utero-placental insufficiency resulting in compromised blood supply to the fetus but presence of severe anemia contribute to adverse outcome of severe preeclampsia .Hypertensive disorders of pregnancy and their complications rank as one of the major cause of maternal mortality and morbidity in the world. Amongst them, preeclampsia is emerging as one of the most common complication of pregnancy. Pre-eclampsia is a multi-system disorder of unknown aetiology, unique to pregnancy, with onset after 20 weeks of gestation. Although, the exact aetiology of preeclampsia is not yet known, many factors such as low education, prim parity, family history of hypertension, obesity, younger and advanced maternal age and malnourishment are proven as its risk factors and evidence suggests that various other factors like severe anemia could also be a risk factor for development of preeclampsia and that cannot be ignored.

Anemia during pregnancy is a major public health problem especially in developing countries which itself increases the maternal mortality, in addition it further adds to the maternal and perinatal morbidity associated with preeclampsia, being a risk factor. It affects 41.8% women globally. In India overall prevalence of anemia is 65-70% and it contributes to 40 % maternal deaths.[21]

Although preeclampsia is not a preventable disease but by putting light on the modifiable risk factors which play a role in its aetiology and which are amenable to get treated, the incidence of preeclampsia can be decreased. Thus identification of reversible factors such as anemia in pregnancy which is a treatable condition will be of great help for policy making and clinical purpose such as prioritization of interventions so that more intensive observation and improvement of risk management strategies can be done.Our study showed relatively high

mortality and morbidity as majority cases were referred very late in critical condition and there used be no time to give appropriate care.

Conclusion

Mothers who died had no prior ANC visits, were from rural area and due to either eclampsia or hemorrhage and all of them had severe anemia .Early identification of high risk cases at community level and early referral, easy transport, continued skill base training to health care professionals will solve the problem to some extent. Anemia and preeclampsia per se causes increased perinatal and maternal morbidity and mortality. Identification of a high risk pregnancy would be the first stepping stone for a better outcome, the present study also concludes the same. The study reiterates the importance of early identification of high risk antenatal mothers towards a better motherhood experience and healthy child.

References

1. Bai NS, Mathews E, Nair PM, et al. Perinatal mortality rate in south Indian population. J Ind Med Assoc 1991; 89:97-8.
2. Grohman WA, stamilo DM. Methods of clinical prediction. J ObstetGynaecol 2006; 194:888-94.
3. Shankar J, Seetharaman S. Maternal mortality- 10 years review adecade of safe mother hood (bellary). J ObstetGynaecol 2001; 51:108.
4. Chaterjee A, Mukhopadhyaya G. From safe motherhood to reproductive child health. In: Principles and practice of obstetrics and gynaecology for post graduates. New Delhi 2003; 7.
5. Banerjee B, Hazra S. Sociodemographic determinants of pregnancy wastage. J ObstetGynaecol 2004; 54:355- 60.
6. Signore C, Freeman RK, Spong CY. Antenatal testing– a reevaluation: Executive summary of a eunicekennedyshriver
7. Gosden CM ,Wright MO , Paterson WG, et al. Clinical details, cytogenic studies,and cellular physiology of a 69, XXX fetus, with comments on the biological effect of triploidy in man. J Med Genetics 1976; 13:371-380.
8. Gogate S. Methods of fetal tissue sampling and prenatal diagnosis. In : Pai HR, Edn. Manual.
9. Carty DM, Delles C, Dominiczak AF. Preeclampsia and future maternal health. J Hypertension 2010; 28:134955.
10. Sibai B, Dekker G, Kupferminc M. Preeclampsia. Lancet 2005; 365:785-99.
11. Uzan J, Carbonnel M, Piconne O, Asmar R, Ayoubi JM. Pre-eclampsia: Pathophysiology, diagnosis and management. Vasc Health Risk Manag 2011; 7:467-74.
12. Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. Am J ObstetGynecol 2000; 183:S1-22.
13. World Health Organization. The prevalence of anemia in women: a tabulation of available information. 2nd ed. Geneva, Switzerland; 1992.
14. Abor Zahr C and Rayston E. Maternal mortality: a global fact book. WHO. Geneva, Switzerland; 1991.
15. Hytten F, Paintin DB. Increase in plasma volume during normal pregnancy. J ObstetGynaecol 1963; 70: 402-27.
16. Steer PJ. Maternal hemoglobin concentration and birth weight. Am J Clin Nutr 2000; 71: 1285-7.
17. Hernández-Díaz S, Toh S, Cnattingius S. Risk of preeclampsia in first and subsequent pregnancies: Prospective cohort study. BMJ 2009; 338:2255.
18. Lone FW, Qureshi RN, Emmanuel F. Maternal anaemia and its impact on perinatal

outcome in a tertiary care hospital in Pakistan. East Mediterr Health J 2004; 10: 801-7.
19. Patra S, Pasrija S, Trivedi S, Puri M. Maternal and perinatal outcome in patients with severe anemia in pregnancy. Int J GynaecolObstet 2005; 91: 164-5.
20. Rooney C. Antenatal care and maternal health: how effective is it? Geneva: World Health Organization, WHO/MSM/92.4, 1992.
21. Gupta G. A case control study to evaluate correlation of anemia with severe preeclampsia. Int J Reprod Contracept ObstetGynecol 2018;7:2773-7.