



Research Article

ASSESSMENT OF MAJOR COMPLICATIONS IN PREGNANCY: A SINGLE CENTER STUDY**Ruksar.S*, Manjula.P**

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ABSTRACT:

Pregnancy complications in our country are common in spite of a lot of progress made in antenatal care of pregnant women in the recent times. The complications range from simple anemia to ectopic pregnancy. We conducted an observational study in a government maternity hospital where majority of the patients came from rural and impoverished background. The study was done for a period of 6 months during which we had interacted with the patients. The analysis of the results indicated that most of the complications were linked to poverty, ignorance, early pregnancy and non compliance of the medication. Complications could have been easily prevented if the patients had access to healthy, nutritious food and appropriate counseling. Low birth weight newborns were born to the women who were severely anemic. The study showed a strong link between pregnancy complications, low birth weight of newborns and prevalence of anemia in pregnant women.

Keywords: Anemia, BMI (body mass index), Complications in pregnancy, Early pregnancy, Gestational hypertension, Hemoglobin percentage, Preeclampsia

INTRODUCTION:

Pregnancy is a sequence of events that begins with fertilization, proceeds to implantation, embryonic development, and fetal development, and normally ends with birth about 38 weeks later, or 40 weeks after the last menstrual period.[1] Pregnancy complications are the problems that occur only during pregnancy which may be mild, moderate and severe sometimes affecting the foetus with regard to its development and growth. Getting early and regular prenatal care can help decrease the risk for problems by enabling health care providers to diagnose, treat, or manage conditions before they become serious. Some common complications of pregnancy include Anemia with different degrees and various types,

platelet disorders, gestational hypertension, gestational Diabetes mellitus, preeclampsia, preterm labor, and pregnancy loss.[2] Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status. Iron deficiency is thought to be the most common cause of anemia globally, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all cause anaemia.[3] It is a global public health problem affecting both developing and developed countries with major consequences on human health as well as social and economic development. It occurs at all stages of the life cycle but is more prevalent in pregnant women and young children[4]. Although the prevalence of anemia is estimated at 9% in countries with high development, in countries with low

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development the prevalence is 43%. Children and women of reproductive age are most at risk, with global anemia prevalence estimates of 47% in children younger than 5 years, 42% in pregnant women, and 30% in non pregnant women aged 15–49 years and with Africa and Asia accounting for more than 85% of the absolute anemia burden in high risk groups[5] Anemia during pregnancy is a major cause of morbidity and mortality of pregnant women in developing countries and has both maternal and fetal consequences. Anemia during pregnancy is considered severe when hemoglobin concentration is less than 7.0 g/dL, moderate when hemoglobin falls between 7.0 and 9.9 g/dL, and mild when hemoglobin concentration is from 10.0 to 11 g/dL[6] Nutritional, genetic, and infectious diseases are contributing factors for anemia. However, iron deficiency is the cause of 75% of anemia cases.[7] Low maternal hemoglobin levels are associated with increased risk of preterm delivery, Low Birth Weight (LBW) babies, and intrauterine growth retardation (IUGR). The ACOG recommends 27 milligrams of iron daily (found in most prenatal vitamins) to reduce the risk for iron-deficiency anemia. Some women may need extra iron through iron supplements.[8] Hypertension during pregnancy affects approximately 10–16% of pregnancies and are leading causes of maternal, fetal and neonatal morbidity and mortality worldwide.[9] Gestational hypertension is defined as an increased systolic blood pressure (SBP) >140 mmHg and diastolic blood pressure (DBP) >90 mmHg. PIH refers to one of four conditions: a) pre-existing hypertension, b) gestational hypertension and preeclampsia (PE), c) pre-existing hypertension plus superimposed gestational hypertension with proteinuria and d) unclassifiable hypertension. PIH is a major cause of maternal, fetal and newborn morbidity and mortality. Women with PIH are at a greater risk of abruptio placentae, cerebrovascular events, organ failure and disseminated intravascular coagulation. Fetuses of these mothers are at greater risk of intrauterine growth retardation, prematurity and intrauterine death. [10] Gestational hypertension can lead to a serious condition

called preeclampsia, also referred to as toxemia.[11] pre-eclampsia is a multi system disorder of unknown etiology characterized by development of hypertension to the extent of 140/90mm Hg or more with proteinuria after 20th week in a normotensive and non proteinuric pregnant women.[13] Gestational diabetes mellitus (GDM) affects between 2% and 5% of pregnant women.[14] Gestational diabetes is a condition in which a woman without diabetes develops high blood sugar levels during pregnancy. The two subtypes of gestational diabetes under this classification system are: Type A1: abnormal oral glucose tolerance test (OGTT), but normal blood glucose levels during fasting and two hours after meals; diet modification is sufficient to control glucose levels, Type A2: abnormal OGTT compounded by abnormal glucose levels during fasting and/or after meals; additional therapy with insulin or other medications is required Diabetes which existed prior to pregnancy is also split up into several subtypes under this system. [15]

METHODS AND MATERIALS:

It is an observational study, conducted at **Government Maternity Hospital**, located in Hanamkonda city of Telangana state. A total of 188 cases were collected during the study period of 6 months. Pregnant women who came to the hospital for regular antenatal checkup with various complications in different trimesters were included in the study. Exclusion criteria included pregnant women diagnosed with various types of chronic cancers and pregnant women with abortion history. Data collected includes demographics of the patients, investigational date of every visit, history of the patient from old records including surgical history and type of complication.

RESULTS:

Out of the total number of 188 subjects who were enrolled in the study 29% subjects hailed from urban area where as 71% came from rural areas in and around Warangal. Among the total number of pregnant women in the study majority i.e. 80.85% were in the age group of 20-25 years which is actually

the right age for conception. The female body is anatomically and physiologically at its best for conception and pregnancy in this age group whereas 10.63% are within 26-30 years. As the age is advancing the conception

rate is reduced. In our study we found that pregnant women who are falling in the advanced group (30- 40) are those who waited for the birth of male baby.

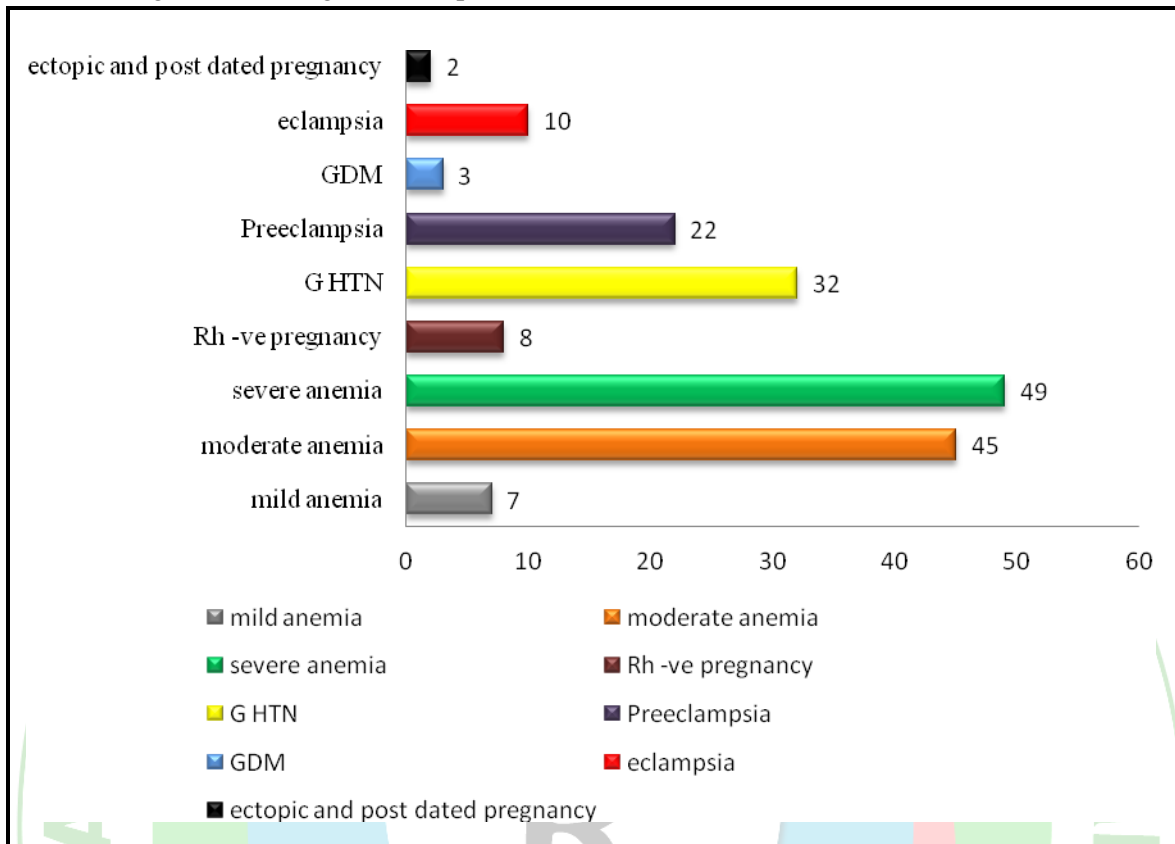


Figure 1: Frequency of mild to severe complications in pregnancy

Considering the complications in the present study it is observed that number of pregnant women with anemia of various degrees is high whereas number of pregnancies with preeclampsia, gestational hypertension and gestational diabetes are comparatively less. In present study the prevalence of anemia is

high due to the lack of awareness regarding the importance of medication adherence, dietary requirements and hemoglobin checkups on regular basis. Here comes the pharmacist role to explain about the condition and to provide counseling about above points to pregnant women.

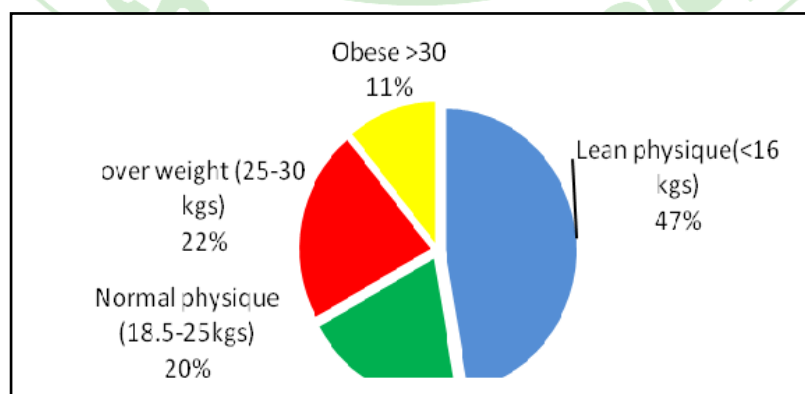


Figure 2: The pattern of BMI in pregnant women

As seen in figure 2, the pregnant women with low BMI (<16 kg) i.e. lean physique are more in number, which reflects on the nutritional status of the pregnant women.

The pattern of birth weight of newborn is closely related to the degree of anemia. Severe the anemia, lower is the birth weight of newborn. Most subjects in our study were followed up to their full term of pregnancy. When birth weights of newborns of our subjects were compared, it was found that

nearly 64% newborn were the range of 1.5 to 2.0 kgs body weight. This seemed to me a direct consequence of anemia to mother during her pregnancy.

Among all the complications observed in the present study, majorly seen complication is anemia of different degrees followed by preeclampsia, gestational hypertension and gestational diabetes Mellitus. There are very few number of pregnant women with gestational diabetes mellitus.

Table I: Effect of pregnancy complication on birth weight of newborns

Birth Weight Of Newborn	No Of Newborns	Complication In The Mother
<1.5 kgs	100	Severe anemia
1.5-2 kgs	18	Pre eclampsia
2-3 kgs	32	Gestational HTN
3-4 kgs	5	GDM

The birth weight of the new born is proportionate to the hemoglobin percentage in mother. Pregnant women with low hemoglobin led to low birth weight of the newborn, which is clearly seen in table 1. where the pregnant women had preeclampsia condition the birth weight of the new born was found to be low i.e. in the

range of 1.5 to 2 kgs. It was seen in our study that the death rate in the new infants born to mothers with preeclampsia condition was very high i.e. nearly 56%. This indicates that the pregnant women not well taken care of their condition resulting in such high infant mortality.

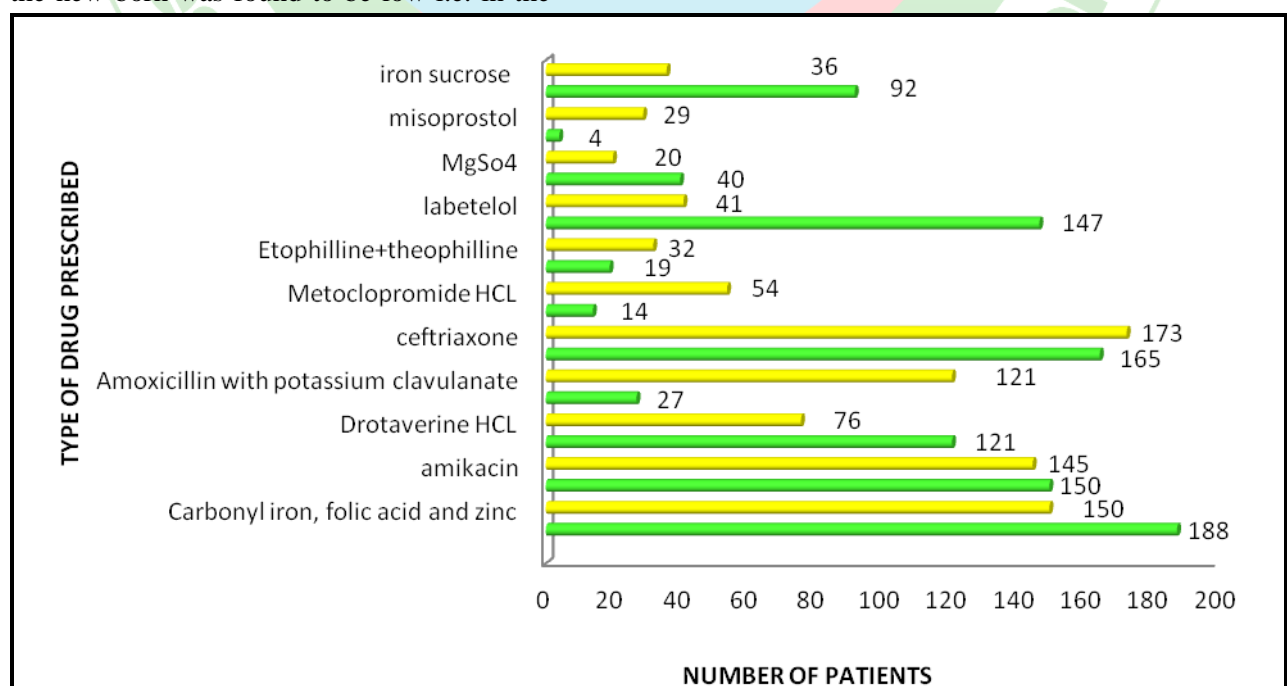


Figure 3: Pharmacotherapy in pregnant women at study centre.

Iron folic acid with ferrous ascorbate+ B-complex+ calcium carbonate is the most commonly prescribed drug among all other medications. These drugs are essentially prescribed to improve the hemoglobin percentage in blood. Folic acid is prescribed right from the first trimester of pregnancy. To get blood iron up to a healthy level quickly, pregnant women are put on ferrous sulfate tablets or an over-the-counter iron supplement. It is needed to take the supplement for several months or longer to build up body's iron stores. Vitamin C which helps in quick absorption of iron, it is many times added to the prescription. Although the above table lists out many drugs. All these drugs are safe to be used in pregnancy. The drugs in the above list are prescribed for specific reason.

DISCUSSION:

In our study we observed that for many pregnant women, conception age is between 20-25 years (80.85%). Where the pregnancy was for first time, the age was appropriate. But in some women, by this age it was third pregnancy and in such patients early marriage and early pregnancy could have been a cause for difficult or complicated pregnancy. However pregnant women are very few in number, it was not so in our study.

In our study we observed that there is more frequency of anemia in pregnancy when compared to the other complications, similar results were seen in study conducted by Hanmanta V Wadgave et.al. [16] The reason for this can be unawareness among general population and various government schemes for promoting maternal health in rural areas. However our study shows that major factor for high prevalence of anemia in pregnancy is due to low dietary intake of iron and folate which can be easily corrected and adverse health consequence to both mother and fetus can be easily prevented. Anemia in pregnancy accounts for one fifth of maternal deaths and is a major factor responsible for low birth weight. India became the first developing country to take up a National Nutritional Anemia Prophylaxis Program

(NNAP) to prevent anemia among pregnant women.

When prevalence of anemia in each trimester was studied it was found that (52.11%) in third trimester 23.75% followed by second trimester 64.37%. and 11.87% in first trimester in the present Study are same as the study conducted by K.Kameswara Rao et.al.[17] During pregnancy, body changes in many ways as the fetus grows the need for more nutrients through blood increases in order to meet these demands, the total amount of the fluid portion (plasma) of blood expands by about half, and the number of red blood cells (RBCs) increases by about 25 percent. As a result, more iron and vitamins are needed than the usual to make hemoglobin for RBCs. Extra iron is to help fetus grow and develop normally and also to support the placenta formation. To build up iron stores and to help body recover from blood loss during delivery. In order to meet the increasing demand of iron during pregnancy, regular medication adherence and taking balanced diet is necessarily required. Obesity in pregnancy increases the risk of gestational hypertension and preeclampsia (K.Kameswara Rao et.al 2014). The risk of preeclampsia typically doubled with each 5–7 kg/m² increase in pre pregnancy BMI (Tara E et.al 2000[18]) The presence of chronic hypertension, diabetes mellitus and other elements of the dysmetabolic syndrome are known risk factors for preeclampsia. Our study has very few obese women.

In the present study the pattern of birth weight of newborn was closely related to the degree of complication during pregnancy. The average weight of newborns of severely anemic pregnant women was between 1.8- 2 kgs. This observation was also noted in the study conducted by Jaleel R et.al 2001 who observed low birth weight in new born in the women with severe anemia[19]. There is a significant relationship between the low hemoglobin levels in mother and reduced fetal growth.

CONCLUSION:

The present study demonstrates that the majority of the pregnant women hailing from rural areas have anemia as a major complication in pregnancy. The anemia was severe (Hb % <7 gm %) in majority of the patients (64%). Therefore the risk of low birth weight of newborn existed. Efforts should be geared towards the early detection and treatment of anemia before delivery to avoid various maternal and fetal complications. In order to prevent the risk, the pregnant women were put on the iron supplementation to overcome anemia, have a good intrauterine growth of fetus. Many women did not adhere to medication due to which the anemia condition continued till the end of gestation resulting in low birth weight of new born.

The burden of anemia in pregnant population is high in rural region of Warangal, which carries significant risk to mother and fetus. Hence preventive measures need to be implemented at community level like Public awareness regarding pre-pregnancy care, explaining about hemoglobin status where mothers have to be counseled about dietary requirements, and impact of anemia on growing fetus. Such awareness will go a long way in reducing this unnecessary burden on our nation's health care system.

REFERENCES:

1. *A text book of principles of anatomy and physiology by Gerard Tortora, chapter: reproductive system page no. 1133 year: 2012.*
2. *A textbook of obstetrics including perinatology and contraception by D.C.Dutta, chapter 19: medical and surgical illness complicating pregnancy. page no. 262 year 2004*
3. *website: <http://www.who.int/topics/anaemia/en/> by WHO.*
4. *WHO/CDC, Worldwide Prevalence of Anemia 1993–2005 WHO Global Database on Anemia, WHO Press, Geneva, Switzerland, 2008.*
5. *Y. Balarajan, U. Ramakrishnan, E. Özaltın, A. H. Shankar, and S. V. Subramanian, "Anaemia in low-income and middle-income countries," The Lancet, vol. 378, no. 9809, pp. 2123–2135, 2011.*
6. *A. Meseret, B. Enawgaw, A. Gelaw, T. Kena, M. Seid, and Y. Olkeba, "Prevalence of anemia and associated risk factors among pregnant women attending antenatal care in Azezo Health Center, Gondar town, Northwest Ethiopia," Journal of Interdisciplinary Histopathology, vol. 1, no. 3, pp. 137–144, 2013.*
7. *F. W. Lone, R. N. Qureshi, and F. Emanuel, "Maternal anaemia and its impact on perinatal outcome," Tropical Medicine & International Health, vol. 9, no. 4, pp. 486–490, 2004.*
8. *Hassan, S. S., Romero, R., Vidyadhari, D., Fusey, S., Baxter, J. K., Khandelwal, M., et al.*
9. *K Jagadish Kumar, N Asha, D Srinivasa Murthy, MS Sujatha, and VG Manjumath. Maternal Anemia in Various Trimesters and its Effect on Newborn Weight and Maturity: An Observational Study. Int J Prev Med. 2013 Feb; 4(2): 193–199.*
10. *Waterstone M, Bewley S, Wolfe C: Incidence and predictors of severe obstetric morbidity: case-control study. BMJ 2001, 322:1089-1093.*
11. *Pregnancy-Induced hypertension. Kintiraki E, Papakatsika S, Kotronis G, Goulis DG¹, Kotsis V² 2008.*
12. *website: <http://americanpregnancy.org/pregnancy-complications/pregnancy-induced-hypertension>.*
13. *A textbook of obstetrics including perinatology and contraception by D.C.Dutta. chapter: 17 hypertensive disorders in pregnancy page no. 221*
14. *Gestational Diabetes Mellitus Amanda "Bird" Hoffert Gilmartin, Serdar H Ural, MD, and John T Repke, MD 2008*
15. *"Gestational Diabetes". NIDDK. September 2014. Archived from the original on 16 August 2016. Retrieved 31 July 2016.*
16. *Hanmanta V Wadgave. Burden of anemia among the pregnant women in rural Area. health line ISSN 2229-337X Volume 2 Issue 2 July-December 2011.*
17. *Bhargavi Vemulapalli,¹ K.Kameswara Rao. Prevalence of anemia among pregnant women of rural community in Vizianagram, north coastal Andhra Pradesh, India. Asian Journal of Medical Science, Volume-5(2014) 21-25.*
18. *Tara E, O'Brien, Joel G. Ray, and Wee-Shian Chan. Maternal Body Mass Index and the Risk of Preeclampsia: A Systematic Overview. Lippincott Williams & Wilkins, Inc. May 2003, Vol. 14 No. 3.*
19. *K Jagadish Kumar, N Asha, D Srinivasa Murthy, MS Sujatha, and VG Manjumath. Maternal Anemia in Various Trimesters and its Effect on Newborn Weight and Maturity: An Observational Study. Int J Prev Med. 2013 Feb; 4(2): 193–199.*