

**PREVALENCE AND ASSOCIATED RISK FACTORS OF ANAEMIA IN PREGNANCY IN A TERTIARY CARE RURAL HOSPITAL**V. Sridevi<sup>1</sup>, S. Viswanathan<sup>2</sup>, Lavanya Kumari<sup>3</sup>**HOW TO CITE THIS ARTICLE:**

V. Sridevi, S. Viswanathan, Lavanya Kumari. "Prevalence and Associated Risk Factors of Anaemia in Pregnancy in a Tertiary Care Rural Hospital". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 64, August 10; Page: 11209-11214, DOI: 10.14260/jemds/2015/1614

**ABSTRACT:** Anaemia is a global public health problem particularly in developing countries. A major contributory factor to maternal and fetal mortality and morbidity. **AIM AND OBJECTIVES:** To find the prevalence and severity of anaemia and evaluate the multiple causal factors among pregnant women. **MATERIALS AND METHODS:** A cross sectional study was conducted in pregnant women attending outpatient department of Obstetrics and Gynaecology from July 1<sup>st</sup> 2013 to June 30<sup>th</sup> 2015 Rajah Muthiah Medical College and Hospital, a tertiary care rural hospital in Chidambaram. A pre-designed Performa was utilized to obtain relevant information about demographic and patients' obstetric characteristics. They were screened for anaemia using cyanmethemoglobin method during their first antenatal visit. **RESULTS:** The prevalence of anaemia was found to be (1202/1434) 83.8% of which mild 27.2%, moderate 60.3% and severe was 12.5% (According to WHO criteria based on Hb level). Majority were between 20-25yrs of age (878)61.2% in third trimester (956)66.7% were unbooked (912)63.5%, illiterate (677)47.3% and belonged to low socioeconomic class (1092)76.1%. Multiparity (928)64.7%, pregnancy spacing interval less than 1yr (388)41.8%, poor nutrition (672)46.8% were the most common risk factors. **CONCLUSION:** In our study, the prevalence rate is still very high in spite of the various preventive strategies as awareness is less among the population. Major factors responsible were multiparity, illiteracy, poverty, late antenatal booking, inadequate spacing between pregnancies. Adequate antenatal care and proper education helps to increase the awareness.

**KEYWORDS:** Anaemia, Pregnancy, Prevalence, Cause, Awareness.

**INTRODUCTION:** Anaemia refers to a condition in which haemoglobin content of blood is lower than normal for a person's age, gender and environment, resulting in decreased oxygen carrying capacity of blood.<sup>[1,2]</sup> WHO defines Anaemia in pregnancy when Hb is less than 11gm/dl and hematocrit less than 33%.<sup>[3]</sup> In India Hb less than 10.5gm/dl is considered anaemic. WHO criteria for degree of anaemia is classified as mild-9-11gm/dl, moderate 7.1-9gm/dl and severe <7gm/dl.<sup>[2]</sup>

Anaemia is a global public health problem. Around 1/3 of the world's population are anaemic.<sup>[4]</sup> WHO prevalence in developed countries is 14%, developing countries is 51% and in India is 65-75%.<sup>[1]</sup> Large variations within the country higher in Assam, Bihar, Orissa and lower in Kerala, Manipur.<sup>[5]</sup>

Anaemia is common in reproductive age group particularly in pregnancy as demand increases, increase blood loss at delivery, infection at antenatal and postnatal period and early advent of next pregnancy.<sup>[6]</sup>

Iron deficiency anaemia is the most prevalent type due to nutritional deficiency all over the world. It occurs due to low dietary intake poor bioavailability and chronic blood loss.<sup>[7,8]</sup> It is paradoxical but true that the cause of anaemia known in majority of cases and treatment with iron is one of the cheapest therapy.

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Anaemia is still a major killer in obstetrics. India contribute to 80% maternal death due to anaemia in South East Asia.<sup>[9]</sup> In India it causes 20% maternal death directly and 20% indirectly from cardiac failure, haemorrhage, infection and pre eclampsia. Although mild anaemia is not associated with adverse pregnancy outcome, severe maternal anaemia carries significant risk of haemorrhage and infection.<sup>[10]</sup> Relative risk of maternal mortality with moderate anaemia was 1.35 and severe anaemia was 3.51.<sup>[11]</sup> It is also associated with preterm, low birth weight babies, small for gestational age, low apgar scores and high perinatal mortality.<sup>[12]</sup>

**METHODOLOGY:** A cross sectional study was conducted in pregnant women for a period of one year from July 1st 2013 to June 30th 2015 at the Obstetrics and Gynaecology outpatient department, Rajah Muthiah Medical College and Hospital, a tertiary care rural hospital in Chidambaram. The patients selected after explaining the study design, a written consent was obtained.

A through history and full details regarding age, literacy, socio economic status, parity. The past, family and diet history was enquired. The symptoms and other complications associated with anaemia were noted. Physical systemic and obstetric examinations were done. Complete haemogram peripheral smear, stool for ova and cyst and urine examination done.

Multiple pregnancy and history of chronic diseases were excluded from the study.

**RESULTS:** Total of 1434 was screened for anaemia, 1202(83.8%) were found anaemic. 328(27.2%) had mild, 724(60.3%) had moderate and 150(12.5%) had severe anaemia (According to WHO).

Majority were between 20-25 years of age 878(61.2%) illiterate 677(47.3%) belonging to lower socio economic status 1092(76.1%) with BMI<19 in 672(46.8%)

The prevalence was high in multiparous 928 (64.7%) in third trimester 956(66.7%) with pregnancy interval less than one year 388(41.8%) who were unbooked 912(63.5%)

Variable	No. of Patients (n)=1434	Percentage
Mild	328	27.2%
Moderate	724	60.3%
Severe	150	12.5%

**Table 1: Distribution of patients according to severity**

Variables	No. of Patients	Percentage
<b>AGE(Years)</b>		
<20years	160	11.2%
20-25 years	878	61.2%
25-30 years	224	15.6%
>30 years	172	12%
<b>Level of education</b>		
Illiterate	677	47.3%
Below 10th standard	627	43.7%
10th standard to below graduation	86	6%
Graduation	44	3%

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<b>Socio Economic Status</b>		
Lower class	1092	76.1%
Middle class	322	22.5%
Higher class	20	1.4%
<b>BMI</b>		
<19	672	46.8%
19-26	602	42%
>26	160	11.2%

Table 2: Demographic data of patients

<b>Variables</b>	<b>No. of Patients</b>	<b>Percentage</b>
<b>Gestational Age</b>		
1st trimester	120	8.3%
2nd trimester	358	25%
3rd trimester	956	66.7%
<b>Birth Spacing(Year)</b>		
<1 year	388	41.8%
1-2 year	356	38.4%
>2 year	184	19.8%
<b>Parity</b>		
Primigravida	506	35.3%
Multigravida	928	64.7%
<b>Antenatal Check Up</b>		
Booked	522	36.5%
Unbooked	912	63.5%

Table 3: Obstetric characteristics

**DISCUSSION:** The present study demonstrated the prevalence of anaemia as 83.8% which is similar to the prevalence in a study in Pondicherry.<sup>[13]</sup> Higher prevalence was also found in a study by Srivastava et al (2005) i.e., 87.4%.<sup>[14]</sup>

It was observed that in the present study the prevalence was higher in younger age 20-25 years and with BMI<19 which indicates the nutritional status of the girl child is poor and little attention is paid to correction of anaemia in pre pregnancy state which was shown by Agarwal et al(2008).<sup>[15]</sup>

In our study 64.7% multipara were found anaemic as comparable to other studies by Hytten et al(1970),<sup>[16]</sup> Singh et al(1998)<sup>[17]</sup> and Raghuram et al(2012).<sup>[18]</sup> This could be due to increased blood loss at subsequent pregnancies and spacing of pregnancy <1year 41.8% as shown by V.P Gautam et al(2002),<sup>[19]</sup> Agarwal et al(2008),<sup>[15]</sup> Shidhaye et al(2012).<sup>[20]</sup>

Other earlier studies conducted by Singh et al(1998),<sup>[17]</sup> Jaued et al(2001),<sup>[21]</sup> V P Gautam et al(2005),<sup>[19]</sup> Lokare et al(2012),<sup>[22]</sup> showed significant association between anaemia and socioeconomic status as also shown in our study that 76.1% belonged to lower socio economic status.

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Majority of women were illiterate 47.3% as shown by other researchers Thangaleela et al(1994),<sup>[23]</sup> V P Gautam et al (2002),<sup>[19]</sup> Jin L et al(2012)<sup>[24]</sup> that there is a negative relationship between educational level and anaemia as educational level decreases, the incidence of anaemia increases.

Another important association made from our study found that 66.7% were in third trimester which correlated with a study in south India i.e., 70%.<sup>[25]</sup>

Worried about the high prevalence of anaemia in our country five major survey's, National Family Health Survey (NFHS) 2 and 3,<sup>[26,27]</sup> District Level Household Survey 2 (DLHS),<sup>[28]</sup> Indian Council of Medical Research(ICMR) Micronutrient Survey,<sup>[7]</sup> Micronutrient Survey conducted by National Nutrition Monitoring Bureau (NNMB)<sup>[8]</sup> were undertaken to estimate prevalence. Surveys showed more than 70% pregnant women were anaemic. In view of high prevalence of anaemia and serious adverse consequences in both mother and baby, management of anaemia in pregnancy was accorded a very high priority both in obstetrics and public health practices.

**PROGRAMMES FOR PREVENTION:** India was the first developing country to take up a national programme to prevent anaemia among pregnant women. The National Anaemia Prophylaxis Programme of iron and folic acid was implemented in 1972, which made the pregnant women to receive 60mg elemental iron and 500microgm folic acid.

Two decades later The National Anaemia Control Programme was implemented which made pregnant women who were anaemic receive 100mg elemental iron and 500microgm folic acid 2 tablets for 100 days.<sup>[29]</sup>

The Tenth Five Year Plan Strategy for combating anaemia.<sup>[30]</sup> These include, 1) Fortification of common food items like salt to improve dietary intake and haemoglobin status. 2) Screening of all pregnant women 3) Oral Iron Folate prophylactic therapy for all non anaemic pregnant women. 4) Oral Iron Folate medication throughout pregnancy for women with Hb 8-11gm/dl. 5) Parenteral iron therapy for women with Hb 5-8gm/dl, if no systemic or obstetric complications. 6) Hospital admission and intensive personalized care for women with Hb less than 5gm/dl. 7) Screening and effective management of Obstetrics and systemic complications in all anaemic pregnant women. 8) Improvement in health care delivery systems and health education to the community to promote utilization of available care.

**CONCLUSION:** Anaemia in pregnancy is still an important preventable cause of maternal and perinatal mortality and morbidity. Poverty, multi parity, late antenatal booking, illiteracy and inadequate spacing between pregnancies were the major responsible factors. Anaemia is still one of the most frequent complications related to pregnancy. In our study the prevalence is still very high inspite of the various preventive strategies as awareness is less. Adequate antenatal care and proper education helps to increase the awareness.

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