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Prevalence of Anemia in Pregnant Women in Tertiary Care Centre

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Abstract: *Anemia is directly or indirectly responsible for 40% of maternal deaths in India. There is 8 to 10 fold increase in Maternal Mortality Rate when the Hb falls below 5g/dl. Early detection and effective management of anemia in pregnancy can contribute substantially to reduction in maternal mortality. The present study was conducted to know the prevalence of anemia in pregnant women attending the labor ward with labor pains at Government Maternity Hospital, Tirupati, Chittoor (D.t), A.P. The hospital caters predominantly to rural population of Chittoor & Nellore districts. Hb was estimated by sahlis method and PCV was also done in 1000 women in labor. The prevalence of anemia was 99% and 76.5% were having moderate anemia 6.5% were having severe anemia. 97.96% of primigravidae were found to be anemic. 7.4% of primigravidae were severely anemic. 95.24% of graduate/post graduate women were found to be anemic. The high prevalence of anemia in spite of National Anemia Control Programme (NACP) is worrisome and requires change of strategies like fortification of flour, oil or salt with iron and other micronutrient at least in areas where the prevalence of anemia is very high.*

Keywords: *Anemia in pregnancy, Prevalence, Hb, Andhra Pradesh, India*

I. Introduction

WHO estimates that over one third of the world's population suffers from anemia[1]. Anemia is a major public health problem, particularly among females of reproductive age in developing country settings. India continues to be one of the countries with the highest prevalence of anemia[2] contributing to 80% of the maternal deaths in South Asia[3]. According to National Family Health Survey 1998/1999 prevalence of anemia among all women in Indian sample is 52%. Prevalence is higher among pregnant women and preschool children. Inadequate dietary Iron, folate & B_{12} and poor bioavailability of dietary iron from the fibre, phytate rich Indian diets are the major factors responsible for high prevalence of anemia.

Anemia in pregnancy takes heavy toll in the form of abortion, premature birth, intrauterine growth retardation, high infant mortality. Intrauterine growth retardation and low birth weight inevitably lead to poor growth in infancy, childhood and adolescence and contribute to low adult height. Parental height and maternal weight are determinants of intrauterine growth and birth weight. Thus maternal anemia contributes to intergenerational cycle of poor growth in the offspring. Maternal morbidity rates are higher in women with Hb below 8gm/dl[4]. They are more susceptible to infections and recovery may be prolonged. When Hb is <5gm/dl or PCV<14 a blood loss of 200ml in the third stage of labor produces shock and death. Anemia directly causes 20% of maternal deaths in India and indirectly accounts for another 20% of maternal deaths[5].

The National Nutritional Anemia Prophylaxis (NNAPP) was initiated in 1970 with the aim to reduce the prevalence of anemia to 25%. Subsequent evaluation has shown no change in the situation[6]. Since 1992 the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100mg and 200mg, respectively under Child Survival and Safe Motherhood (CSSM) Programme[7]. ICDS and the Mid-day Meal Programme have been operational since many years and even with other newer initiatives e.g. Kishori Swasthya Yojna, Matru Suraksha Abhiyan, IMA'S Anemia free India and 'Anemia Chale Jao' etc have made a little dent on the problem[8].

So, anemia especially anemia in pregnancy is a big concern and needs prioritization and special inputs. In this perspective, the present study was conducted in Government Maternity Hospital, a Tertiary care Hospital, Tirupati, Chittoor (D.t), Andhra Pradesh, India, with objectives to estimate the magnitude of problem and to explore socio-demographic and other correlates of anemia among pregnant women.

II. Material & Methods

This study was conducted from January 2014 to November 2014 at Government Maternity Hospital, Tirupati, Chittoor (D.t), Andhra Pradesh, India. The district constitutes both urban and rural background. The study population predominantly was from rural community. There are both government and nongovernment hospitals in the district. This is one of the MCH hospital in the district under control of Director of Medical Education and it serves a large number of patients from adjoining districts of Kadapa, Nellore & Ananthapur. All women attending the labor ward with labor pains were included in the study.

2.1 Sample size: 1000 pregnant women in labor.
2.2 Study method: The study was conducted after obtaining detailed history and examination. Hemoglobin (Hb) estimation was done by Sahlis method & PCV was also estimated. Anemia was classified as per the WHO & ICMR guidelines of severity grading i.e. Normal (>11gm/dl), Mild degree (10-10.9gm/dl), Moderate degree (7-9.9gm/dl), Severe anemia (<7gm/dl), Very severe (<4gm/dl).

III. Observations and Results

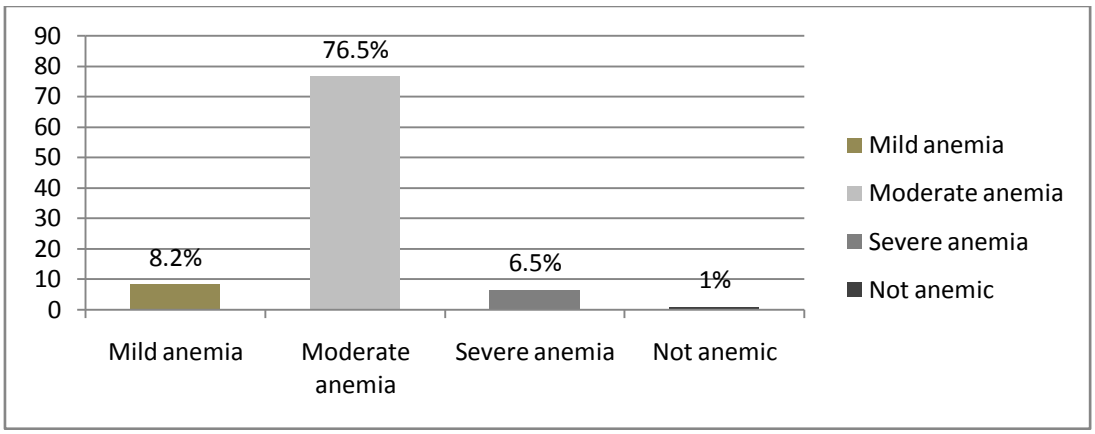

Fig-1: Prevalence of anemia

Only 10 (1%) subjects were within the normal range of hemoglobin (≥11gm/dl). 990 (99%) were anemic. Among 990, 160 (16%) were mild anemic, 765 (76.5%) were moderate anemic & 65 (6.5%) were severe anemic

Association of Various Demographic Factors with Anemia in Pregnant Women

Total study population--1000									
	Total Number of patients	Mild anemia		Moderate anemia		Severe anemia		Not anemic	
Age in years	Number	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
15-20	231	27	11.68%	189	81.8%	14	6%	1	0.43%
21-25	610	104	17%	456	74.75%	50	8.1%	0	0
26-30	147	28	19%	109	74.1%	1	0.6%	9	6.12%
≥30	12	1	8.3%	1l	91.6%	Nil	0	0	0
Gravidity									
Primigravida	441	70	15.8%	329	74.6%	33	7.4%	9	2.04%
Gravida-2	402	55	13.6%	322	80.3%	24	5.9%	1	0.2%
Gravida-3	121	35	28.9%	78	64.4%	8	6.6%	0	0
Gravida-4 or more	36	Nil	0%	36	100%	Nil	0%	0	0
Residence									
Urban	226	53	23.77%	159	70.08%	13	5.75%	1	0.4%
Rural	774	128	16.51%	594	76.78	52	6.71%	Nil	0
Education									
Professional / Honors	Nil	Nil	0	Nil	0	Nil	0	Nil	0
Graduate/ Post Graduate	105	27	25.7%	60	57.1%	13	12.3%	5	4.76%
Intermediate /Post high school	160	36	22.5%	109	68.12%	13	8.1%	2	1.25%
High School	349	43	12.3%	280	80.2%	23	6.59%	3	0.85%
Middle School	127	34	26.7%	88	69.2%	5	3.93%	Nil	0
Primary School	163	11	6.7%	148	90.79%	4	2.45%	Nil	0
Illiterate	96	9	9.3%	80	83.33%	7	7.29%	Nil	0

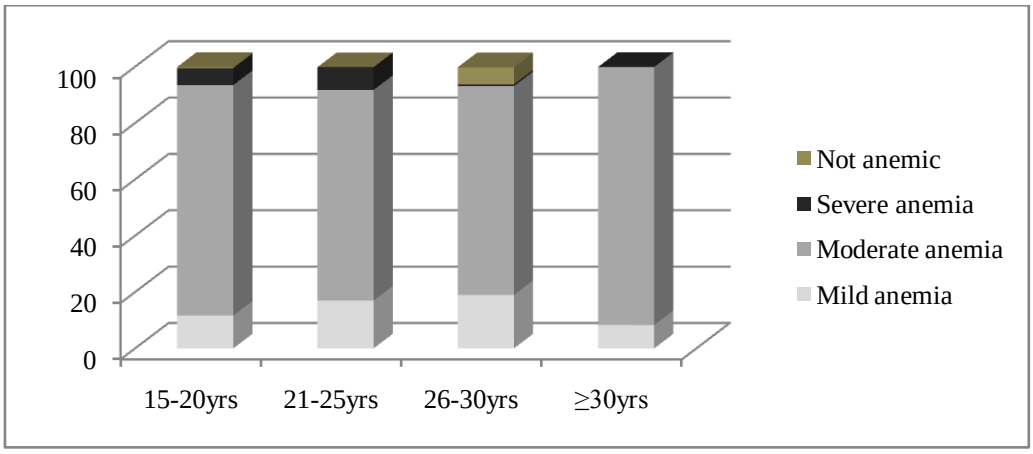

Fig-2: Age wise distribution of anemia

Anemia is more common among age group 21-25yrs with over all distribution of 610 (61%). Among 610, 17% were mild anemic, 74.75% were moderate anemic, 8.1% were severe anemic & none were not anemic.

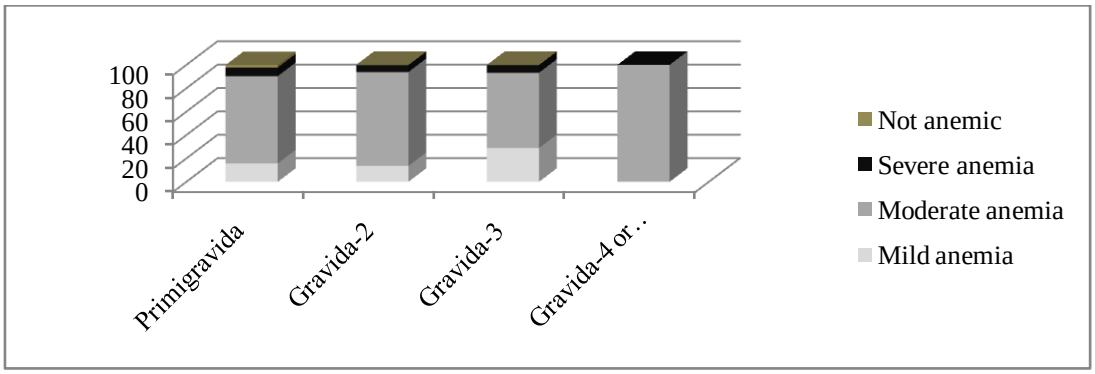

Fig-3: Distribution according to gravidity

97.96% of primigravida were anemic. Only 2.04% women among primigravida were normal without anemia. Incidence of severe anemia was also common (7.4%) in primigravida. Mild anemia is common in gravida-3 (28.9%). Moderate anemia is common in gravida-4(100%). All of gravid-3 & gravid-4 women were anemic.

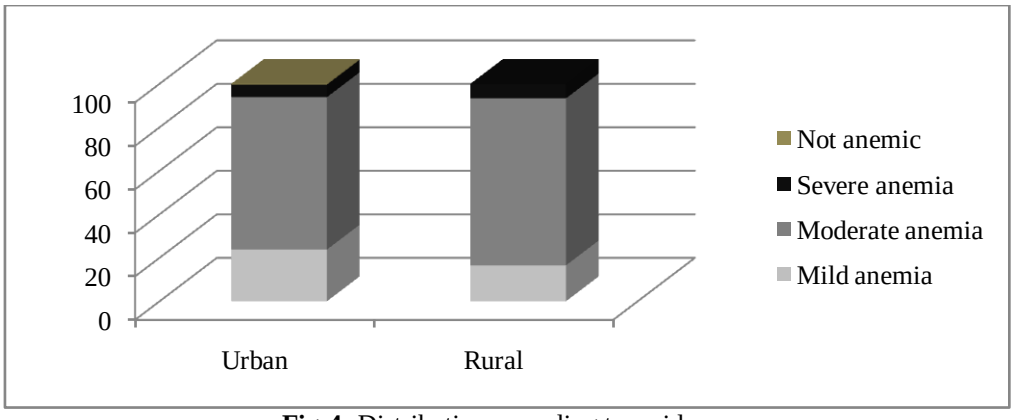

Fig-4: Distribution according to residence

99.6% of women from urban areas and 100% of women from rural areas were anemic. Overall prevalence of anemia was same in both urban and rural communities. Prevalence of moderate anemia is more compared to mild and severe anemia in both the communities.

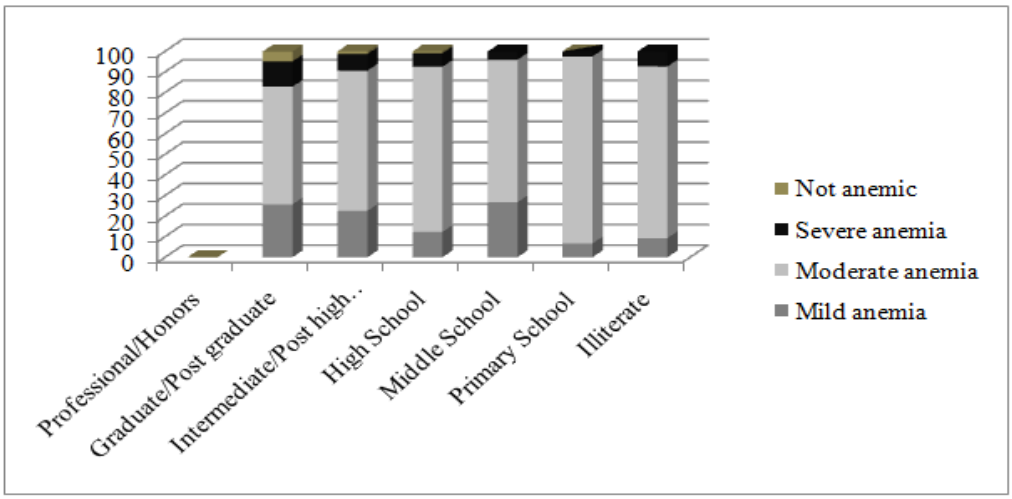

Fig-5: Distribution according to educational status

The distribution of anemia was common irrespective of educational status. Moderate anemia was seen even in educated women Mild and severe anemia was common in graduate/post graduate women. Whereas moderate anemia is common among high school educated women.

IV. Discussion

Anemia in pregnancy continues to be a health problem. The present study revealed a very high prevalence of anemia. The overall prevalence of anemia was 99% among women in labor attending the labor ward at Government Maternity Hospital, Tirupati, Chittoor (D.t). Srivastava et al (2005)[9] study showed 87.4% prevalence and Bhargavi et al(2014)[10] study showed 100% prevalence but this study was done on rural community only . Majority of the study group has moderate degree of anemia 76.5% followed by mild degree 16% and severe degree anemia 6.5%. Only 1% of the women were not anemic.

It has been observed in the present study that the prevalence of anemia was high 100% among younger age group of pregnant women i.e. 21-25 years which indicates that the nutritional status in child hood & adolescence is poor and little attention is paid to the correction of anemia in the pre-pregnancy period. Very little is done to improve the nutrition of the young girl, the growing adolescent & the married women. Higher prevalence (57.72%) was observed in women below 21yrs by Judith A. Noronha et al (2008)[11].

In the present study among primigravida only 2.04% were without anemia and 97.96% were anemic. This is quite contrary to other studies S.Bisoi et al (2011)[12], Swami H.M. et al [13]. This may be due to poor nutritional status of girl especially in adolescent period.

In the present study it was found that both urban and rural women are at risk of anemia and at similar probabilities of being anemic. This may be due to great diversity in the extent and depth of poverty within the urban sector resulting in insufficient diet and increased exposure to infectious diseases and this can be compared with ME Bentley et al study[14].

34.9% of women with literacy up to high school & 9.6% illiterate were found to be anemic in the present study compared to 45.1% women with literacy 10th std. to below graduation & 3% illiterate women of Judith A. Noronha et al study (2008)[11].

V. Conclusion

The present study has shown a very high prevalence of anemia (99%) The prevalence was high even in primigracvidae(97.96%). Anemia was seen even in women who were educated. The distribution of anemia was almost equal in urban and rural population.

Anemia continues to be a major health problem with the existing health care . Over night favourable changes in socio-cultural factors like illiteracy, early marriages, poverty reduction & improvement of standard of living etc. is not possible. Therefore, public health education/information on reproductive health, monitoring the compliance of women with ante-natal care services, and strengthening of their health care seeking behaviour are important measures to be undertaken at the community level. Regular screening for anemia in adolescent girls and providing iron supplementation from school days are required. Also health system should focus on various factors that contribute to the occurrence of anemia and include them as an important indicator in the national health care policy. Strategies like fortification of flour, oil or salt with iron and other micronutrients and routine mass administration of Albendazole are recommended.

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