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Impact of Low Iron Foods on Woman during Pregnancy – Leads to Low-Birth Weight Babies in Tadepalli Mandal, Guntur Dist, Andhra Pradesh.

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ABSTRACT

Iron deficiency anemia is extremely common, particularly in the developing world, reaching a state of global epidemic. Iron deficiency during pregnancy is one of the leading causes of anemia in infants. Many women go through the entire pregnancy without attaining the minimum required intake of iron, which leads to their low levels of HB%. This review aims to determine the impact of maternal iron deficiency and iron deficiency anemia on infants, like low birth weight, premature birth. And mothers unable to give the milk to their babies. An Anganwadi based cross sectional study was carried out among 20 pregnant women and lactation 10 of Kunchanapalli and 50 pregnant woman and 35 lactating woman from low income group of Kolanukonda, Tadepalli Mandal, Andhra Pradesh, attending the antenatal clinic for a period of six months to find out the impact of anemia. It was found that percentage of low birth weight and premature birth were decreased, also HB% levels increased after proper creation of awareness among pregnant and lactating woman regarding iron rich foods and its importance during pregnancy.

Keywords: Pregnant woman, lactating mothers, infants, iron, HB%, low birth weight, premature birth.

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INTRODUCTION

Anemia in pregnancy is one of the leading causes responsible for maternal and perinatal morbidity and mortality. WHO has estimated that prevalence of anemia among pregnant women is 14 % in developed and 51 % in developing countries. 65 -75% of population in India is affected with anemia. In India, anemia is directly or indirectly responsible for 40 per cent of maternal deaths. There is 8 to 10 fold increase in MMR when the HB falls below 5 g/dl. Early detection and effective management of anemia in pregnancy can contribute substantially to reduction in maternal mortality. Maternal anemia is associated with poor intrauterine growth and increased risk of preterm births and low birth weight rates.

In a study of the Indian Council of Medical Research (ICMR) in 1998, prevalence of anemia in 4181 pregnant rural women of 11 States was estimated and it was demonstrated that 87.6 per cent women had haemoglobin (HB) <10.9 g/dl. Further, ICMR in 19929 reported that in 6 States supplementation of iron-folate tablets to control anemia (women with haemoglobin < 7.0 g/dl were excluded) had 62 per cent women as responders (anemic-those responding to haematinic therapy by showing rise in haemoglobin). Even after consuming 90 tablets, 37.8 per cent women had haemoglobin less than 10.0 g/dl and 19.4 per cent had less than 9.0 g/dl. During 1986-1991 haemoglobin estimations in rural pregnant women in Varanasi showed 94.5, 95.3 and 95.9 per cent prevalence of anemia in I, II and III trimesters10.ICMR district nutrition survey 1999-2000 also reported prevalence of anemia as 84.2 per cent with 13.1 per cent with severe anemia in pregnancy11. Haemoglobin in all these studies was estimated by Cyanmethaemoglobin method12. Contrary to the above studies, the NFHS-2 (National Family Health Survey, 1998-1999) data13 using hemocue system reported prevalence of anemia as 49.7 per cent in pregnant women; 56.4 per cent in breastfeeding non pregnant; and 50.4 per cent among non-pregnant non breastfeeding women. Hemocue system estimates higher levels of haemoglobin14-16, thus is difficult to compare with the earlier studies8-11. The Hemocue method is costlier, but operationally easier, more portable and requires less training; hence it can be optimally used in the field work. Anemia in infancy affects up to 80% of children in Benin (McLean et al. 2009); studies have shown a relation between the mother's haemoglobin concentration during pregnancy and the infant's haemoglobin level from birth to 12 months of age (de Pee et al. 2002; Miller et al. 2003). Moreover, iron-deficiency anemia is more frequent in infants born to anemic mothers than in infants born to non-anemic mothers in Jordan, Indonesia and Niger (Preziosi et al.1997; Kilbride et al. 1999; de Pee et al. 2002).

Anemia during pregnancy, defined by haemoglobin (HB) concentration lower than 11 g ⁄ dl, is a leading public health concern in poor and developing countries (WHO 2001), where 30–60% of pregnant women are anemic (Kalenga et al. 2003; McLean et al. 2009). In 5–10% of cases, anemia during pregnancy is severe and associated with adverse effects on pregnancy outcomes (Stoltzfus 2003; Shobeiri et al. 2006). The main causes of anemia involve micronutrient deficiencies, infections, inherited disorders, etc. (Tolentino & Friedman 2007).

Anemia in pregnancy is a major health problem it has an important relation to various states of maternal morbidity and also maternal mortality hence it was interesting to investigate the relationship between health, diet and birth weight of babies. The present study was conducted to study the nutritional status of pregnant and lactating women of low income group and their baby's weight. Since maternal nutritional anemic problems and birth weight are critical health problems in rural areas, Assessment of HB levels of pregnant women and lactating mothers are important to identify the anemic problems and to design appropriate nutritional interventions. This study was to identify the HB levels of pregnant and lactating women and birth weight of new born babies in Tadepalli Mandal a rural area in Andhra Pradesh.

MATERIAL AND METHODS

Study on population: Pregnant and lactating women from low socio-economic group attending the antenatal clinic in two villages i.e. Kolanukonda and Kunchenapalli of Tadepalli mandal were selected.

size: 50 pregnant women, 35 lactating from Kolanukonda, 20 pregnant woman and 10 lactating mothers from Kunchanapalli were selected

Settings: Anganwadi centers of Tadepalli mandal, Guntur Dist, Andhra Pradesh.

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Study period: The study was carried out for a period of six months.

Study design: Anganwadi based cross sectional study.

Methodology:

All pregnant and lactating women belonging to low income group and attending the antenatal clinics and Anganwadi centers were screened for HB level testing. It was possible to screen pregnant women, lactating mothers for anemic condition and premature babies for developmental delay due to the lack of proper diet by the pregnant women. Height, and weight were measured as per standard guidelines laid down by World Health Organization (WHO) Nutritive value of the diet consumed by the pregnant women was calculated by a Day's sample study and it was compared with the standard recommended allowances given by ICMR. Hematological and other investigations were carried out for the target group.

RESULTS AND DISCUSSION

An Anganwadi based cross sectional study was carried out at the antenatal clinic among 50 pregnant women 50 lactating mothers and 50 premature babies belonging to low income group.

Though they are surviving in the developing state still some people are getting marriage below 18 years and becoming mothers with improper diet and lack of knowledge towards maternal health. Here 46 percent in kunchanapalli and 48 percent in kolanukonda are victims of low birth weight and premature birth babies

Table: 1 Shows age of the pregnant women.

S No	Name of the Village	Age	No	%
1	Kunchanapalli	<20yrs	23	46
		>20yrs	27	54
2	Kolanukonda	<20yrs	24	48
		>20yrs	26	52

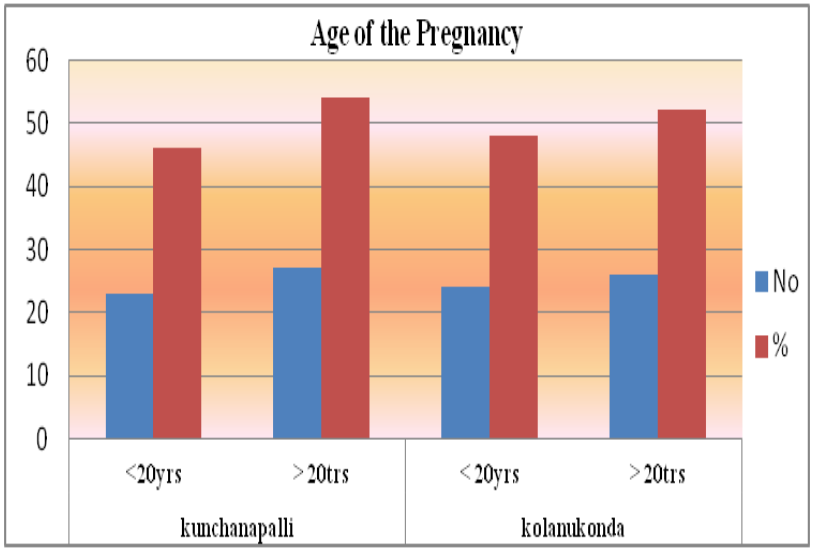

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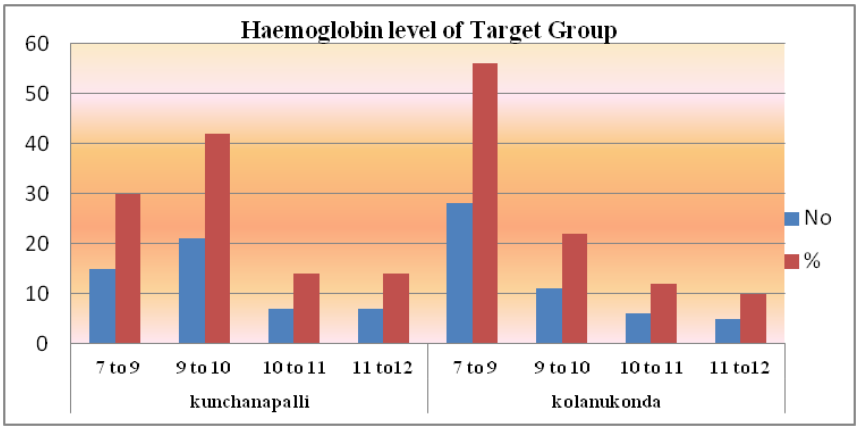
Table – 2 shows Hb% of the pregnant women in both the villages

S No	Name of the Village	HB%	No	%
1	Kunchanapalli	7 - 9	15	30
		9 - 10	21	42
		10 - 11	7	14
		11 – 12	7	14
2	Kolanukonda	7 - 9	28	56
		9 - 10	11	22
		10 - 11	6	12
		11 – 12	5	10

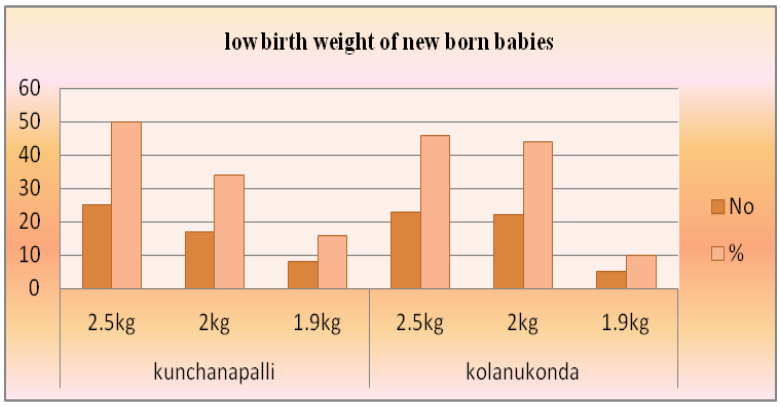


In kunchenapalli 72% are found to be in risk because they have 6gm to 9gm which is a cause for premature births, in kolanukonda 78% are found to be in risk, because they have 6gm to 9gm which is again a cause for prematurity.

Depleted iron stores without anaemia early in pregnancy carries increased risk of lower birthweight even when supplemented daily with moderate iron.(Ribot B, Aranda N, Viteri F, Hernández-Martínez C, Canals J, Arija V. Hum Reprod. 2012 May; 27(5):1260-6. Epub 2012 Feb 21).

Table-3 shows low birth weight of babies because of anemic condition of pregnant women

S No	Name of the Village	Low Birth Weight	No	%
1	Kunchanapalli	2.5 Kg	25	50
		2 Kg	17	34
		1.9 Kg	8	16
2	Kolanukonda	2.5 Kg	23	46
		2 Kg	22	44
		1.9 Kg	5	10

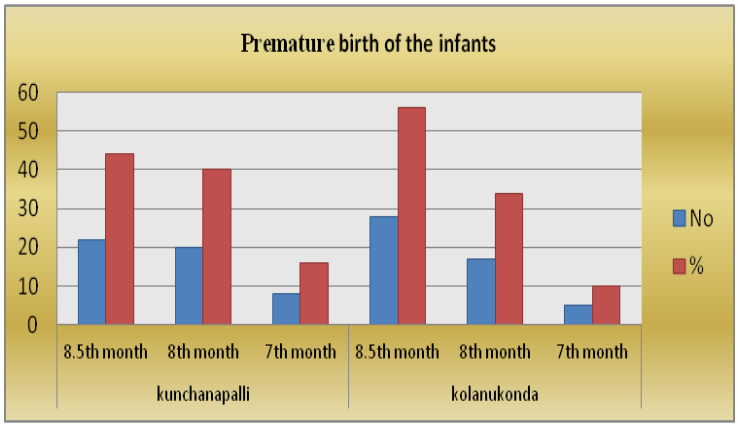


In Kunchanapalli, 46% in kolanukonda the new born babies have birth weight 2.5kg and 34% in kunchanapalli 44% in kolanukonda are identified with the birth weight of 2kg and 16% in kunchanapalli and 10% in kolanukonda are found to be high risk babies because of the anemia during pregnancy.

A study conducted by Imran and et.al 2011 on Effect of maternal anemia on birth weight, with a sample of one hundred subjects divided into two groups each containing 50 subjects on the basis of consecutive non probability sampling were included in the study. Group-A included 50 anemic pregnant women and Group-B 50 non-anemic pregnant women. Information was collected by direct interviewing method through a precoded structured questionnaire. The HB level and birth weights were taken from the labour room record. It is found that the mean age of the mothers in anemic group was found to be older than the non-anemic group, i.e., (29.44 versus 27.98), though the difference was statistically non-significant. The number of low birth weight infants (64%) was statistically very highly significantly more ($p<0.001$) in the anemic group of mothers than the non-anemic group (10%).So it is concluded that the results of this study show an association of maternal anemia in pregnancy with increased risk of LBW babies.

Table-4 Shows details of premature babies

S No	Name of the Village	Premature Birth	No	%
1	Kunchanapalli	8.5th Month	22	40
		8th month	20	40
		7th Month	8	16
2	Kolanukonda	8.5th Month	28	56
		8th month	17	34
		7th Month	5	10



CONCLUSION

The incidence of low birth weight babies was significantly more in mothers who were anemic during pregnancy. Preterm deliveries occurred more frequently in mothers who were anemic during pregnancy. The proportion of children who were of low birth weight was marginally higher in mothers who had anemia. So the pregnant women should be educated regarding diet during pregnancy, because Today's newborn babies are tomorrow's citizens of India.

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