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SEVERITY OF ANEMIA IN THE LAST TRIMESTER OF PREGNANCY IN A TERTIARY HOSPITAL IN ANDHRA PRADESH

Physiology

Dr. Pernenkil Srinivasa Rao — Assistant Professor, Department of Physiology

A. Naga Bindhusri* — House Surgeon *Corresponding Author

Dr D Anusha — Assistant Professor, Department of Physiology Dr Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation, Chinnautupalli, Gannavaram, Andhra Pradesh. 521286

Dr Vijayalakshmi Udipi Badikillaya — Professor , Department of Biochemistry NRI Academy of Medical Sciences, Mangalagiri Road, Chinakakani, Guntur, Andhra Pradesh 522503

ABSTRACT

Background: Anaemia in pregnancy is a burning health problem in India. There is an increased risk of low birth weight, maternal mortality and morbidity in anemic pregnancies.

Objective: To estimate severity of anaemia in the last trimester of pregnancy.

Methods: A cross-sectional study among pregnant women, in their last trimester. Only booked cases at DrPSIMS&RFHospital were enrolled in the study. LablifeH3Dautomated analyzer was used for estimation of haemoglobin, MCV&MCH.

Results: The study revealed that 73.54 % of pregnant women in their last trimester were anaemic and their mean Hb was 10.46 ± 1.55 g/dl, mean MCV was 72.22 ± 9.21 fl and their mean MCH was 26.15 ± 3.4pg. Among them, 63.23% had mild anaemia, 10.32% had moderate anaemic & none had severe anaemia. In Mild anaemia, the mean Hb was 9.97 ± 0.56 g/dl while in moderate anaemia, the mean Hb was 8.07 ± 0.4 g/dl.

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KEYWORDS

Anaemia; Pregnancy; Mean Corpuscular Volume (MCV); Mean Corpuscular Haemoglobin (MCH)

INTRODUCTION:

Anemia is the most common nutritional deficiency disorder in the world. WHO has estimated that prevalence of anemia in developed and developing countries in pregnant women is 14 per cent in developed and 51 per cent in developing countries and 65-75 per cent in India.[1] The WHO has suggested that anaemia is of 'moderate' public health importance, when its prevalence is between 20% to39.9% and 'severe' if it occurs in 40% or more. Anaemia among pregnant women includes increased risk of morbidity, low birth weight, and maternal mortality. Margaret Balfour was credited as the first to draw the attention of anaemia in pregnancy in India. [2] The total iron requirements over pregnancy in a 55-kg woman is1040 mg. Most of this iron is required during the third trimester, at which time daily iron needs increase from prepregnancy requirements of about 1–1.5 mg/day to ≤6 mg/day. [3] In India anaemia is directly or indirectly responsible for 40 percent of maternal deaths and also 8 to 10 fold increase in Maternal Mortality Rate when the Hb falls below 5 g/dl.[4] Vitamin B12 deficiency: Pernicious anaemia caused by lack of intrinsic factor resulting in lack of absorption of vitamin B12 is rare during pregnancy as it usually causes infertility. Acquired vitamin B12 deficiency causing megaloblastic anaemia is also uncommon, as the daily requirement of vitamin B12 is only 3.0 µg during pregnancy which is easily met with a normal diet.[5]

Hence, knowing the prevalence of anemia in the third trimester of pregnancy would be more meaningful.

Objectives:

1. Estimate the prevalence of anemia in the third trimester of pregnancy .
2. Classify the type and severity of anemia
3. Compare the prevalence of anemia with other parts of India

MATERIALAND METHODS:

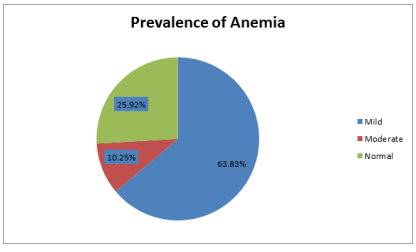
A hospital based study of 156 pregnant women in the 3rd trimester of pregnancy (27 to 40weeks) who had registered in Obstetrics and Gynaecology department of Dr Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation hospital, Chinnautupalli, Gannavaram, Andhrapradesh were included . The blood indices of hemoglobin , MCV, MCH, MCHC were obtained by Lablife H3D Premier automated hematology analyzer. Women with bleeding disorders and twin pregnancies were excluded from the study. Grading of anemia was by WHO criteria. Degree of Anaemia - mild (9-11 gm %), moderate (7-9 gms %), severe (4-7 gm %) and very severe (< 4gm %). The mean and standard deviations of the blood indices of the third trimester were calculated from the data obtained from the records. The study was approved by Institutional Ethical Committee

Results: In the 3rdtrimester of pregnancy 63.83 %(9.97±0.57) had mild anemia, and 10.25% (8.08±0.41) had moderate anemia. There were no cases of severe anemia. The anemia was microcytic hypochromic.

Type of Anemia	Hemoglobin gms/100ml	MCV (fl)	MCH (pg)	MCHC %
Normal	12.52 ±1.05	79.54 ±10.9	28.22 ± 2.82	35.02 ± 2.81
Mild	9.77 ± 5.57	70.5 ± 6.04	25.83 ± 2.83	35.37 ± 3.7
moderate	8.08 ± 0.41	63.53 ± 8.01	22.71 ± 4.79	31.76 ± 5

1. Table showing the blood indices of pregnant women in third trimester of pregnancy.

(Abbreviations: MCV Mean Corpuscular Volume, MCH Mean Corpuscular Hemoglobin, Mean Corpuscular Hemoglobin Concentration. fl Femtolitres, pg Picograms.)



2. Chart showing the prevalence of mild and moderate anemia in the pregnant population in the third trimester

DISCUSSION

A prevalence (64%) of anemia was observed among pregnant women in rural population of Kolar district of Karnataka with a mean

hemoglobin level of 10.3 ± 1.53 g%, ranging from 5 to 15 g% by Suryanarayana et al. [6] VivekiRJ et al observed (82.9%) of anaemia (Haemoglobin < 11.0gm/dl) among 228 pregnant women in Belgaum Karnataka . Majority (50.4%) had moderate degree of anaemia (Haemoglobin - 7.0 to 10.0 gm/dl) and 7.0% had severe anaemia (Haemoglobin - < 7.0 gm/dl) [7]The prevalence of anemia was 59.4 percent, 67.8 percent and 77.4 percent among pregnant women in the 1st, 2nd and 3rd trimester respectively, showing no significant relationship between anemia and duration of pregnancy in rural areas of West Bengal by Bisoi S et al.[8] The prevalence of anaemia was 50.1% with (63.5%) mild anaemia, 35.0% moderate anaemia and 1.5% with severe anaemia in Udupi District Karnataka as observed by Noronha JA .[9]Singh P et al observed an overall prevalence of anaemia among the pregnant women to be 58.3% in Barielly district of Uttar Pradesh [10] Our findings were lower to that of the studies in the rural areas of Delhi (96.5%) [11] In a study on pregnant and lactating women by K.N. Agarwal,D.K. Agarwal, A. Sharma, K. Prasad, M.C. Kalita,N et al it was found that 84 % pregnant and 92.2 % lactating women were anaemic with severe anaemia in 9.2 and 7.3 per cent respectively[12]Virender P. Gautam, et al in their study on pregnant women found that prevalence of severe anaemia was significantly higher in those with age >25 years, educated till high school or less, nuclear family, no history of abortions and birth interval of >36 months[13]Worm infestation: Prevalence of amoebiasis and giardiasis is around 40%. Increased iron loss due to hookworm infestations, schistosomiasis, chronic malaria, excessive sweating and blood loss from the gut due to haemorrhoids are important causes of anaemia in pregnancy [14] Data from surveys carried out by Indian Council of Medical Research [15] and National Nutritional Monitoring Bureau [16] showed that there has not been any decline in cases of anaemia in pregnancy. Nynke R noted that out of the 150 anaemic women, 23% were iron deficient with no evidence of folate and vitamin B12 deficiency, 32% were deficient in iron and one or more of the other micronutrients; 26% were not iron deficient but had evidence of one of the other micronutrient deficiencies. [17]

CONCLUSION:

Anaemia continues to be a major public health problem in rural areas in India even though nationwide programmes for tackling anaemia in women have been functioning for a long time. The main operational constraints identified were: inefficient and irregular supply of supplements; procurement and distribution of supplements; low accessibility and utilization of antenatal care by pregnant women; inadequate training and motivation of frontline health workers; inadequate counselling of mothers and low compliance by the intended beneficiaries with the supplementation regimen. Poverty, ignorance, non availability and/or failure to utilize available medical facilities also play an important role in maternal anaemia.[18] Screening for anaemia, treatment of anaemic women, and availability of food fortification (wheat flour with iron and folic acid), milk sugar and salt with iron to build long term iron stores remains the key to reduce anaemia. Even cooking in cast iron utensils improves iron content in diet [19]

Limitations of the study:

Serum folate level and serum iron profile were not done due to financial constraints.

REFERENCES:

1. DeMayer EM, Tegman A.(1998). Prevalence of anemia in the World. World Health Organ Qlty; 38: 302-16.
2. Reddaiah VP, P. Prasanna Raj, Ramchandran K et al.(1989). Supplementary Iron Dose in Pregnancy. Anaemia Prophylaxis. Indian J Ped; 56(1): 109-114.
3. Bothwell TH(2000). Iron requirements in pregnancy and strategies to meet them. Am J Clin Nutr Jul 1: 72(1): 257S–264S.
4. Kalaivani K. (2009) .Prevalence & consequences of anaemia in pregnancy. Indian J Med Res. Nov 1;130(5):627-33.
5. Scott JM, Weir DG.(1998).The role of folic acid/folate in pregnancy: prevention is better than cure. Recent advances in obstetrics and gynaecology.;20:1-20.
6. Suryanarayana R, Santhuram AN, Chandrappa M, Shivajirao P, Rangappa SS. (2016). Prevalence of anemia among pregnant women in rural population of Kolar district. Int J Med Sci Public Health.
7. Viveki RG, Halappanavar AB, Viveki PR, Halki SB, Maled VS, Deshpande PS. (2012).Prevalence of anaemia and its epidemiological determinants in pregnant women. Al Ameen J Med Sci.;5(3):216-3.
8. Bisoi S, Haldar D, Majumdar TK, Bhattacharya N, Sarkar GN, Ray SK.(2011). Correlates of anaemia among pregnant women in a rural area of West Bengal. Journal of Family Welfare2011. Jun 1;57(1):72-8.
9. Noronha JA, Bhaduri A, Bhat HV.(2008). Prevalence of anaemia among pregnant women: a community-based study in Udupi district. Health and Population: Perspectives and Issues.;31(1):31-40.)
10. Singh P, Chaudhary V.(2014) Prevalence of anaemia and its socio demographic determinants among pregnant women in Bareilly district, Uttar Pradesh. Indian Journal of Community Health. Dec 31;26(6):348-52.
11. Gautam VP, Bansal Y, Taneja DK, Saha R.(2002). The prevalence of anaemia amongst pregnant women and its socio-demographic associates in a rural area of Delhi. Ind J Com Med.; 27(4):157-60
12. Agarwal KN, Agarwal DK, Sharma A, Sharma K, Prasad K, Kalita MC. et al. (2006).Prevalence of anemia in pregnant and lactating women in India Indian J Med Res.; 124: 173-184
13. Virender P. Gautam, Yogesh Bansal, D.K. Taneja, Renuka Saha.(2002) Prevalence of Anemia Amongst Pregnant Women and its Socio-Demographic Associates in a Rural Area of Delhi . Indian Journal of CommunityMedicine .; 27: 4- 12
14. Abel R, Rajaratnam J, Sampathkumar V.(1999) Anaemia in pregnancy . Impact of iron Deworming and IEC, RUSH Dept.Tamil Nadu CMC Vellore,.
15. ICMR: Evaluation of National Nutrition Anaemia Prophylaxis Program. (1989); ICMR, New Delhi, India.
16. National Nutrition Monitoring Bureau (NNMB). (2003). Prevalence of micronutrient deficiencies. Hyderabad: National Institute of Nutrition, (Indian Council of Medical Research), ICMR.Tech Rep No.22.S,.
17. Nynke R van den Broek and Elizabeth A Letsky , (1998) Etiology of anemia in pregnancy in south Malawi DC, July 6–7,.
18. Rao S P, S Srikant. (2013).Prevalence of Anemia in the First Trimester of Pregnancy in Rural Population of Krishna District in Andhra Pradesh. Sch. J. App. Med. Sci.,; 1(5):570-574
19. Agarwal KN. (2001).Iron and brain: neurotransmitter receptors and magnetic response spectroscopy. Br J Nutr; 85 (Suppl 2) : S147-50.