

ORIGINAL ARTICLE

PREVALENCE OF ANAEMIA IN THIRD TRIMESTER OF PREGNANCY

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Background: Anaemia, especially iron deficiency anaemia is most common during pregnancy especially in low socioeconomic groups. This study aimed to see prevalence of anaemia during third trimester in women. **Methods:** This study was carried out at the Civil Hospital Karachi, from Nov 2012 to Oct 2013. CBC reports of pregnant and non-pregnant women, and questionnaire to evaluate the variables were used. Third trimester pregnant women aged 18–45 years and gravid up to 14 and non pregnant women aged 18–45 were included and factors like chronic liver or kidney disease, habits of *pan*, *gutka*, cigarette, recent surgery, menstrual problems, use of anti-malarials or antibiotics, habit of pure vegetarian diet, presence of any genetic blood disease, any infection that might lead to anaemia were evaluated. Women aged less than 18 and greater than 45 were excluded. One hundred and three booked pregnant women in third trimester and 103 comparable non-pregnant women participated in the study. By comparing routine CBC of non-pregnant women with pregnant women in 3rd trimester prevalence of anaemia during pregnancy was evaluated. **Results:** Prevalence of anaemia in 3rd trimester of pregnancy was 62.1% compare to non-pregnant women, i.e., 24.3% (ratio≈3:1). **Conclusion:** Anaemia in 3rd trimester of pregnancy is more prevalent in low socioeconomic group.

Keywords: anaemia, pregnancy, third trimester, low socioeconomic group

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INTRODUCTION

Anaemia is defined by the World Health Organization (WHO) as haemoglobin concentration below 11 gm/dl for pregnant women and 12 gm/dl for non pregnant women. Haemoglobin levels of more than half of the pregnant women of the world was indicative of anemia.¹ Anaemia is associated with increased rates of maternal and perinatal mortality, premature delivery, low birth weight, and other adverse outcomes. It is still a major health problem in many developing countries. Very high prevalence of anaemia during third trimester of pregnancy leading to maternal and foetal complications was noted, antenatal care should therefore be considered.^{2,3} Low socioeconomic status, grand multiparity, chronic liver disease, pica habit, malaria, worm infestation and inadequate child spacing are predisposing factors.^{4,5}

The objective of this study was to determine the prevalence of anaemia in booked pregnant women in 3rd trimester of pregnancy in low socioeconomic group.

SUBJECTS AND METHOD

It was a comparative study. We collected data from two groups of women aged between 18 and 45 years. One group included 103 women of gravida up to 14 who were in their 3rd trimester of pregnancy, from Obs/Gyn units and OPD of Civil Hospital Karachi. The other group included 103 women that were non-pregnant whose CBC was done for different purposes at Civil Hospital Karachi. Informed consent was obtained from patients or their relatives. Information from patient's complete blood count reports was recorded and

duplicate copies of patients' CBC reports were obtained. Their blood pressures were recorded.

A questionnaire was designed including all main causes of anaemia that might lead a pregnant lady to anaemia including their nutrition (number of meals and type of food taken), any sort of ongoing or chronic bleeding disorder or chronic haematuria, haematecazia, haematemasis, any history of prolonged NSAIDS use or anti-malarial medications taken, any chronic pathology of gastrointestinal tract, liver or kidney, blood diseases needing transfusion, anaemia before pregnancy, menstrual disorder before pregnancy, history of recent surgery, and addiction for *pan* and *gutka*. Their CBC reports were noted regarding haemoglobin, RBC count, and peripheral film remarks.

Data were also collected from 103 non-pregnant women for comparison with the pregnant group. The data were analysed using SPSS-16.

RESULTS

Out of 103 pregnant women in 3rd trimester of pregnancy 64 (62.1%) were anaemic (haemoglobin <11 gm/dl) and 39 (37.9%) were not anaemic (haemoglobin >11 gm/dl). In non-pregnant women 24.3 (25%) out of 103 were anaemic (haemoglobin <12 gm/dl) while 78 (75.7%) were not anaemic (haemoglobin >12 gm/dl) (Table-1).

Table-1: Frequency of anaemia in cases and controls

Group	Anaemia	No anaemia	<i>p</i>
Cases	64 (62.1%)	39 (37.9%)	0.0000
Controls	25 (24.3%)	78 (75.7%)	

Among 64 (62.1%) anaemic women 16 (25%) took 2 or less meals in a day; 4 (6.25%) pregnant anaemic women were vegetarian exclusively; and 6 (9.38%) pregnant anaemic women had gastrointestinal bleeding disorder and, NSAIDS were chronically taken by 4 (6.25%) pregnant women and, 4 (6.25%) pregnant anaemic women had chronic liver disorder, 1 (1.56%) pregnant anaemic women had renal disorders, 1 (1.56%) pregnant women had genetic blood disorder and was anaemic too. Thirteen (20.31%) pregnant women were anaemic from the beginning of their pregnancies, 3 (4.687%) pregnant anaemic women had history of recent surgery. Four (6.25%) pregnant anaemic women had previous menstrual problems, 19 (29.69%) pregnant anaemic women were addicted to *pan or gutka*. Three (4.69%) pregnant anaemic women had suffered from malaria during their pregnancies, 33 (51.56%) pregnant women had gap of less than 3 years between their pregnancies.

Table-2: Factors associated with anaemia in pregnant women

Associated factors	Anaemic	Non-anaemic	<i>p</i>
More than 3 meals a day	2	0	
3 meals a day	41	28	
2 meals a day	16	8	
Other	5	0	
Vegetarian	4	0	
Non-vegetarian	2	2	≤0.000
Both	58	37	
Gastrointestinal bleeding	6	0	≤0.000
No gastrointestinal bleeding	58	39	
NSAID users	4	0	≤0.000
NSAID non-users	60	39	
Liver disease present	4	0	≤0.000
No liver disease	60	39	
Renal disease	1	1	≤0.000
No renal disease	63	38	
Haematuria	0	1	≤0.000
No haematuria	64	38	
Blood disease	1	0	≤0.000
No blood disease	63	39	
Anaemia before pregnancy	13	4	≤0.000
No anaemia before pregnancy	51	35	
History of recent surgery	3	1	≤0.000
No history of recent surgery	61	38	
Menstrual problem	4	3	≤0.000
No menstrual problem	60	36	
<i>Pan, gutka</i> etc. users	45	19	≤0.000
No <i>Pan, gutka</i> etc.	29	10	
Antibiotic, anti-malarial drugs	3	61	≤0.000
No antibiotic, anti-malarial drugs	2	37	
Previous pregnancy in >3 year	33	20	
Previous pregnancy in last 3 year	11	10	≤0.000
First pregnancy	20	9	

DISCUSSION

Out of 64 anaemic pregnant women 4 were strict vegetarian which might lead to anaemia in pregnancy which was shown in another research where it was found that the severity of anaemia and iron deficiency was much greater in women belonging to poor class,

vegetarian families or multigravida.⁶ Vegetarianism might be one of the important causative factors of anaemia in pregnant women and newborn children.⁶

Out of the anaemic pregnant women 1 suffered from chronic renal disease (haematuria) which might have been a cause of her anaemia. According to another study it was shown that serum iron and free erythrocyte protoporphyrin values followed no consistent pattern in chronic renal insufficiency. There was an invariable depression of erythropoiesis. This constituted the prominent mechanism responsible for the anaemia. Thus depressed erythropoiesis might lead towards anaemia; haematuria infrequently accounted for a significant part of anaemia.⁷

Four anaemic pregnant women had chronic liver disease (Hepatitis B and/or C, or others) which might be a risk factor for anaemia because anaemia being a common complication of chronic liver diseases. The causes of anaemia include acute or chronic gastrointestinal haemorrhage, and hypersplenism secondary to portal hypertension. Severe hepatocellular disease predisposes to haemorrhage because of impaired blood coagulation caused by deficiency of blood coagulation factors synthesised by hepatocytes, and/or thrombocytopenia. These all responsible for progressive anaemia.⁸

One pregnant woman in our study had blood disorder (β -thalassemia minor). According to one study carriers of thalassemia minor were usually clinically asymptomatic but sometimes had a mild anaemia.⁹ Out of 64 anaemic pregnant women in our study, 10 had gastrointestinal bleeding disorder and some women had previous history of menstrual irregularities mostly metrorrhagia that might lead to iron deficiency and according to one study iron deficiency leads to iron deficiency anaemia and according to that study iron deficiency was due to inadequate iron intake, absorption or transport, excessive menstruation or chronic blood loss due to disease or any pathology.¹⁰

In our study 29.69% of anaemic pregnant women were addicted to *pan or gutka* might be a cause of anaemia and according to one study 63% pregnant women were addicted to betel nut (constituent of *gutka*) and among them 17% had folate deficiency. Betel nut has bad effects on pregnancy in relation to folate deficiency.¹¹ Out of 64 anaemic patient 4 were using NSAID chronically so cause of anaemia may be due to NSAID induced as in a research it was shown that those patients of rheumatoid arthritis who were on NSAIDS for long period became anaemic too.¹² In our research 33 out of 64 pregnant anaemic women had inter birth interval less than or approximately 3 years. This median inter-birth interval was lower than WHO recommended minimum length of 33 months between two live births. Non-adherence was might be due to any reason but our

concern is that this non adherence might leads to anaemia in pregnant ladies.¹³

CONCLUSION

Anaemia in pregnancy is more prevalent in low socioeconomic group. Education of the expectant mothers about maternal health problems regarding anaemia is essential to improve their nutritional support.

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