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ORIGINAL ARTICLE

Prevalence of Anemia in Pregnant Women

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ABSTRACT

Aim: To determine the prevalence of anemia in pregnant women in Punjab.
Study Design: Cross-sectional study.
Place and Duration of Study: Department of Obstetrics & Gynaecology, DHQ Hospital, Faisalabad from 1st October 2021 to 31st March 2022.
Methodology: One hundred and fifty pregnant females were enrolled, clinically assessed for their anemic status and were divided into two groups in reference to suspicion of anemia. Group A had those pregnant females who were suspected for anemia while group B were with no suspicion of anemia. Both Group A and Group B had 75 pregnant females. The complete blood count and serum analysis of ferritin, iron and folic acid was performed in each patient after withdrawal of 5cc blood. The demographic details of each patient as well as dietary habits in context of meat, fruit and vegetables from last month were also documented.
Results: There were 37.3% pregnant females within suspected anemia group while 36% pregnant females in no suspected anemia group. The frequency of abortion was higher in group A than B with an odds ration as 1.17-1.18. There were more over weight and obese women in suspected anemia Group A while under-weight were more common in Group B. Pregnant females in Group A were consuming less amount of meat, fruit and vegetables than females in group B. The suspected anemia pregnant females blood analysis reports showed 74.6% been iron deficient in comparison with 41.3% non-suspected pregnant females
Conclusion: Anemia was prevalent in both suspected and unsuspected group and 75% of the suspected anemia group were also iron deficient.
Keywords: Iron deficiency anemia, Pregnancy, Hemoglobin, Incidence, Developing countries

INTRODUCTION

Anemia is highly prevalent in under-developed countries due to various causes and reasons. It is defined as health condition in which body does not have adequate amount of erythrocytes due to which oxygen carrying capacity of blood gets reduced and lead to various serious complications. It is more predominant in females especially among reproductive age women during pregnancy. Along with other health benefits, it is vital for the survival of both fetus and mother during pregnancy. Studies have shown that, anemia can result into maternal sepsis, pre-eclampsia and pre-term labor.[1,2]

Various etiological factors laid the foundation of anemia in women including frequent pregnancy and labor, nutritional deficiencies, genetic involvement, imbalanced diet, abortions, multiparity, infectious diseases, though iron deficiency anemia (IDA) is the main cause of anemia in pregnant females. Statistical data showed that, up to 75% of the anemia during pregnancies are due to iron deficiency.[3-5] Iron need and requirement escalates many times during pregnancy and insufficient intake of iron based diet lead to the deficiency of iron resulting anemia. Other factors which can contribute to anemia are poor bioavailability of iron and demand of iron also gets higher from 1st trimester to 3rd trimester.[6-8]

Three types of anemia are reported during pregnancy on the basis of hemoglobin concentration. Hemoglobin concentration <7.0 g/dL is regarded as severe anemia, concentration between 7-9.9 g/dL is referred as moderate anemia and mild anemia when hemoglobin level is in the range of 10-11 g/dL.[9,10] IDA is a well reported health problem of both developing and developed countries including Pakistan. Its incidence is even higher in pregnant women. In Pakistan, frequency of anemia in pregnant women is in the range of 30-50%. Frequency of IDA in pregnant women varies in main and most populated cities of Pakistan. These differences are due to difference in methodological variance and targeted population.[11-13] Present study was designed for the estimation of incidence of anemia in pregnant females. Result of the present study would prove supportive for Pakistani population where social conditions already pose serious challenges to women.

MATERIALS AND METHODS

This cross-sectional study was conducted at Department of Obstetrics &Gynaecology, DHQ Hospital, Faisalabad from 1st October 2021 to 31st March 2022 and 150 pregnant females who were enrolled. The sample size was statistically generated by using sample size formula retrieved from WHO sample size calculator using 95% confidence interval and parentage of anemic within pregnant females as 45% which was accumulative of previously reported literature in the relevant context. The pregnant females were clinically assessed for their anemic status and were divided into two groups in reference to suspicion of anemia. Group A had those pregnant females who were suspected for anemia while group B were those with no suspicion of anemia in both group A and Group B had 75 pregnant females enrolled. Those women suffering from any communicable disease or smokers were excluded from the study. Child marriages/pregnancy was also not included in the study. The complete blood count and serum analysis of ferritin, iron and folic acid was performed in each patient after withdrawal of 5cc blood. The blood was transferred into two separate vials with 3cc in EDTA vial while 2 cc in serum vials. Each patient body weight, height was measured through digital weight/height measuring machine/scale. The demographic details of each patient as well as dietary habits in context of meat, fruit and vegetables from last month were also documented. A well-structured questionnaire was designed to incorporate all the desired information in form of codes which were than statistically interpreted. The analysis of each variable was performed suing statistical software of SPSS-25. Odds ration analysis with 95% confidence of Interval was conducted. P value <0.001 was taken as significant.

RESULTS

There were 37.3% pregnant females within suspected anemia group having an age between 23-27 years while 36% pregnant females in unsuspected anemia group were within the age >32 years. Highest parity status as 2-4 was observed in 40% group A and 45.3% group B with both groups having increased number of uneducated women and rural areas than educated and urban respectively (Table 1).

The frequency of abortion was higher in group A than B with an odds ration as 1.17-1.18. There were 68% suspected anemic females who were currently breast feeding, however 56% of non-suspected anemia females were also breast feeding at the current status. There were more over weight and obese women in suspected anemia Group A while under-weight were more common in Group B (Table 2).

Pregnant females in Group A were consuming fewer amounts of meat, fruit and vegetables than females in group B. The difference was significant especially in the comparison of meat within both groups with a p value <0.001 (Fig. 1)

The suspected anemia pregnant females blood analysis reports showed 74.6% been iron deficient in comparison with 41.3% non-suspected pregnant females and 52% having lower serum ferritin levels as well than significantly different group B value as 25.3% only. The percentage of stool parasite was also higher in suspected anemia group (Table 3).

Table 1: Demographic distribution among suspected cases of anemia and no anemia

Variable	Group A (n=75)	Group B (n=75)	Odds Ratio	95% CI	P value
Age (years)					
18-22	15 (20%)	21 (28%)	1		
23-27	28 (37.3%)	15 (20%)	1.12		
28-32	25 (33.3%)	12 (16%)	1.13	0.51-2.6	0.64
>32	7 (9.4%)	27 (36%)	1.49	0.65-3.54	
Parity					
<2	18 (24%)	20 (26.6%)	1		
2-4	30 (40%)	34 (45.4%)	1.15	0.53-2.49	
>4	27 (36%)	21 (28%)	1.92	0.77-4.72	0.34
Educational Status					
Educated	14 (18.6%)	11 (14.6%)	1		
Un educated	61 (81.4%)	64 (85.4%)	0.75	0.28-1.77	0.45
Residential Status					
Urban	15 (20%)	13 (17.4%)	1		
Rural	60 (80%)	62 (82.6%)	0.86	0.35-2.02	0.71

Table 2: Frequency of abortion, breast feeding and body mass index

Variable	Group A (n=75)	Group B (n=75)	Odds Ratio	95% CI	P value
Abortion					
0	57 (76%)	69 (92%)		--	--
1-2	9 (12%)	1 (1.4%)	1	--	--
3-4	3 (4%)	2 (2.6%)	1.17	0.03-0.62	0.59
>4	6 (8%)	3 (4%)	1.18	0.04-0.63	0.61
Breast Feeding Status					
No	24 (32%)	33 (44%)	1	--	--
Yes	51 (68%)	42 (56%)	1.65	0.82-3.24	0.16
Body mass index (kg/m^2)					
Under weight	20 (26.6%)	22 (29.3%)	1	1.22-19.9	--
Normal	35 (46.6%)	33 (44%)	6.7	1.48-24.3	--
Over weight	10 (13.4%)	6 (8%)	4.95	1.49-29.6	0.04
Obesity	10 (13.4%)	14 (18.7%)	1.2	--	--

Table 3: Prevalence of iron and ferritin deficiency in pregnant females

Variable	Group A (n=75)	Group B (n=75)	Odds Ratio	95% CI	P value
Folic Acid (ng/ml)					
>2.6	72 (96%)	66 (88%)	1	--	--
≤2.6	3 (4%)	9 (12%)	0.3	0.08-1.24	0.52
Ferritin (ng/ml)					
>10	36 (48%)	56 (74.6%)	1	--	<0.001
≤10	39 (52%)	19 (25.4%)	2.6	1.24-5.1	--
Iron (µg/dl)					
≥50	19 (25.4%)	44 (58.6%)	1	--	--
<50	56 (74.6%)	31 (41.3%)	4.2	2.0-8.6	<0.001
Hb deficiency					
Yes	8 (10.6%)	5 (6.6%)	1	--	--
No	67 (89.3%)	70 (93.4%)	1.47	0.42-5.1	0.49
Stool Parasites					
Seen	11 (14.6%)	4 (5.4%)	1	--	0.04
Not Seen	64 (85.3%)	71 (94.6%)	0.77	0.33-1.84	0.53

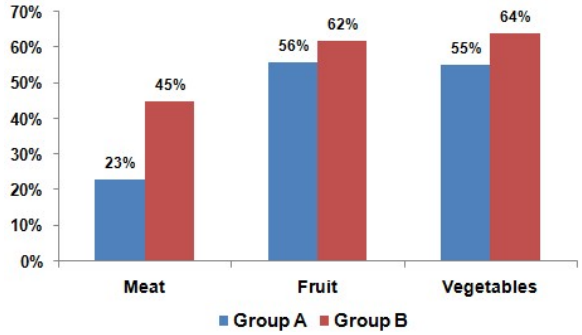

Fig. 1: Comparison of Group A and B nutrition intake

DISCUSSION

Anemia is an important health issue which is currently a challenging problem for low-income countries like Pakistan. According to the national health survey of Pakistan, almost 60% of the pregnant women are iron deficient. Various factors and causes can lead to anemia and condition can become worse during pregnancy when iron requirement escalates many times.[14] In the current study, there were 37.3% pregnant females within suspected anemia while 36% pregnant females in unsuspected anemia group. High parity rate was observed in uneducated rural women as compared to the educated urban women. Education leads to more awareness and concern about own health and also the consequences of the disease condition.[15] An Indian study also highlights the burden of anemia during pregnancy.[16]

In the present study, 75% of suspected group females were iron deficient whereas 41.3% of the unsuspected group women was also iron deficient. Pregnant females in group A were consuming fewer amount of meat, fruit and vegetables than females in group B. This difference was more obvious in terms of meat consumption in both groups. There were more over weight and obese women in suspected anemia Group A while under-weight were more common in Group B. These results suggest that, inappropriate diet were being taken by females because study participants were not taking iron based diet and one group is obese while under-weight women were prevalent in other group.[17-20]

To combat this seemingly challenging condition, a nationwide study should be conducted for the exact estimation and to determine the burden of anemia in the country. Policy makers should get several factors into consideration before policy drafting including educational status, living standard and availability of resources because variance was observed in health outcomes and coping strategies of rural and urban women. Vitamin/iron supplementation and appropriate nutritional counselling could be the best intervention to reduce the high incidence of pregnancy related anemia.

CONCLUSION

Anemia was prevalent in both suspected and unsuspected group and abortion frequency was higher in group A as compared to group B. Pregnant females of group A were consuming less amount of meat, fruit and vegetables than females in group B. 75% of the suspected anemia group were also iron deficient.

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