Prevalence of Anemia among Pregnant Women in Maternity and Children Hospital at Buraidah City

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Abstract

Introduction: Anemia is the common health problem in the developing and developed world and vulnerable groups are pregnant mother, adolescent girls and children. Iron deficiency anaemia exhibits the iceberg phenomenon of the disease.

Objectives: To determine the prevalence of anemia, socio-demographic characteristics, dietary habits and some risk factors associations with anemia.

Materials and Method: The present hospital based cross sectional study was conducted at Maternity and Children Hospital. A total of 233 pregnant women aged between 18-42 years' age group people were selected and a structured self-administered questionnaire submitted to all eligible pregnant women and hemoglobin estimation report was taken from the lab record. Data cleaned and entered in Statistical Package for Social Sciences (SPSS) 21.0 Version. Necessary statistical tests like simple proportions and chi square tests were applied.

Results: Prevalence of anemia among pregnant women was 29.3% in Buraidah city. Prevalence of anemia increases with increasing parity and prevalence of anemia among parity >3 was 35.7%. high prevalence of spacing of > 3 years was observed in 37-42 years' age group. In the study population, 12.5% were giving anemia history, 10.2% were thyroid problems. About 44.7% were taking iron supplements regularly.

Conclusions: Based on the study results, the prevalence of anemia was not very high comparatively to other studies conducted in the kingdom. There was no severe anaemia people in our study. Among pregnant women, there is a need to strengthen about the anemia awareness, periodical screening from the adolescent age group, regular intake of iron supplements during pregnancy,

Keywords: *Age, pregnant women, hemoglobin, parity, spacing, Iron supplements.*

Introduction

Anemia is the most common and widespread nutritional disorder in the world and affecting a large number of children and women in developing countries and also in developed countries especially during pregnancy. In Saudi Arabia the prevalence of iron deficiency anemia was 30-56 % and half of pregnant women are anemic[(1)]. Knowledge of the current situation in our environment is necessary. This knowledge will enhance early detection and timely management of anemia in pregnancy and better outcome for the baby and mother. Anemia has been a topical issue in many developing countries because of its association with adverse pregnancy outcome such as increased rates of maternal and perinatal mortality, premature delivery, low birth weight, low APGAR scores, fetal physical growth and mental impairment and infant deaths.[(2,3)]

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World Health Organization defines anemia as hemoglobin below 13g/dl for men, 12g/dl for women and 11g/dl as the lower limit acceptable and 10.5g/dl in the second half of pregnancy. Anemia can further be classified into mild anemia (10 -10.9g/dl), moderate anemia (7-9.9g/dl) and severe anemia (<7g/dl (4). An estimated 58.27 million women worldwide are anemic during pregnancy, 95.7% of whom live in developing countries[4]. Iron deficiency anemia accounts for 75% of all type of anemia in third world, affecting 30% of population[5].

Globally, Anemia was affected 1.62 billion people which accounts 24.8% of the population. The highest prevalence was found in preschool age children 47.4% and the lowest prevalence was found in men 12.7%[6]. Anemia is the most Common nutritional problem worldwide and the most affected population was pregnant women[7,8].

Clients with anemia may be feeling fatigue, pale appearance and shortness of breath, fainting, headache, decrease appetite, palpitation, tachycardia. There are different causes of anemia it may be due to bleeding, hemolytic disease and abortion. Anemia also often due to using of common drugs such as aspirin and ibuprofen, levodopa, quinidine.[9] According to the WHO, around 18% of women in industrialized countries are anemic; in the developing world, this rises to 56% and is a contributory factor to women developing health problems and dying during pregnancy and childbirth. Such situation renders both mother and fetal neonatal risks.[10] Maternal mortality is one of the prime health indicator in any society, therefore, the health worker in our community should be reduced the incidence of anemia to enhance the health status and prevent complication to a better outcome for baby and mother[11]. With this intention the present study was taken up to identify the prevalence and some risk factors associations with anaemia.

Objectives:

1. To determine the prevalence of anemia among pregnant women attending antenatal care at Maternal and Child Health hospital in Buraidah.
2. To study the socio demographic characters, dietary habits and some risk factors associations with anaemia among the study population.

Materials and Method

Study Design and Setting: This was a hospital based cross sectional study carried out in the antenatal clinic located in maternal and children hospital (MCH) in Buraidah city in AlQassim province.

Study Period: This study was conducted from December 2017 to June 2018.

Target Population: All pregnant women older than 18 and younger than 42 who visited antenatal clinic in maternal and children hospital in buraidah city in Al Qassim province.

Sample Size: Sample size was calculated based on the prevalence of the pilot study conducted by us at maternal and children hospital and prevalence was 30%. Same prevalence was used for the calculation of appropriate sample size in the present study. Sample size was estimated at 5% level of significance with an allowable error of 20%. For the calculation, using the formulae of $4pq/L^2$. Thus, the calculated study sample was 233 subjects.

Sampling procedure: Every client who visited to maternal and children hospital antenatal clinic who met our study criteria to be considered as study participant in the present study. sample size was estimated 233 however, because there were incomplete questionnaire and rejected some of participants. only completed questionnaire of 215 individuals data was entered in the Statistical package for Social Sciences (SPSS 21.0 version) program for the analysis purpose. Response rate was 92%.

Inclusion Criteria: All pregnant married women aged between 18-42 years included in our study.

Not suffering from any mental illness.

Exclusion Criteria: Pregnant women who suffered from speech and hearing disorder. Pregnant women who were critically ill.

Ethical Considerations: There were no major ethical issues involved in this study as it has been carrying out within the confined area of routine antenatal care. The study was approved by the Research Ethical Committee in AlQassim region. Informed consent was signed by all pregnant women. records were coded and patients'/clinicians' names were not used. All the information collected remained confidential.

Method of Data Collection: All Saudi and non-Saudi pregnant female who visited antenatal clinic in maternal and children hospital, data was collected from antenatal record and self-administration Questionnaire. Information collected from antenatal record included socio demographic and biological data/age – nationality gestational age, last hemoglobin was tested.

Haemoglobin Estimation: Haemoglobin was assessed by Beckman coulter by department of clinical biochemistry at maternal and children hospital laboratory, Buraidah.

Pilot Study: The questionnaire was distributed and data was collected from 30 Clients at MCH Hospital as pilot study. This 30 sample was not included in our analysis.

Data Analysis: Frequencies and percentages were calculated and categorical analysis chi-square test was performed to investigate the significance in the association of the different variables and the prevalence of anaemia.

Results

In the present study revealed as prevalence of anaemia among pregnant women was 29.3% (63/215) in Buraidah city. Mild anemia was 17.7% and moderate anemia was 11.6%. There was no severe anemia people found in our study. Among all the pregnant women, about 44.7% were taking iron supplements regularly. In the study population, once a week consuming green leafy vegetables, the prevalence of anaemia was high (45.5%). Present study revealed that only 54.4% were taking green leafy vegetables 5-7 times/week and less proportion of pregnant women, only 23.7% were taking eggs 5-7 times/week.

Table 1: Socio demographic variables association with Anaemia

Age	**Anaemia**	**No anaemia**	**Total**	**P value**
18-24	4 (16%)	21 (84%)	25 (100%)	
25-30	28 (34.1%)	54 (65.9%)	82 (100%)	
31-36	23 (29.4%)	55 (70.6%)	78 (100%)	x^2- 3.16, 3df, P-0.367
37-42	8 (26.6%)	22 (73.4%)	30 (100%)	
Total	**63 (29.3%)**	**152 (70.7%)**	**215 (100%)**	
Occupation	**Number of the people**	**Total sample**	**Prevalence**	
Employed	61	215	28.4%	
Unemployed	154	215	71.6%	
Total	**215**	**215**	**100.0%**	

Table 1 shown that the highest prevalence of anaemia was noticed among 25-30 years' age group and lowest prevalence was noticed among 18-24 years' age group pregnant women out of 215 pregnant women, 71.6% were unemployed and only 28.4% were employed status.

Table 2. Gradient of Anaemia in relation to parity, age and Education:

Parity	**No Anaemia**	**Anaemia**	**Total**	**P value**
Primigravida	37 (72.5%)	14(27.5%)	51(100%)	
Parity upto 3	88 (72.1%)	34(27.9%)	122 (100%)	x^2-1.039, 2df, P-0.595
Parity > 3	27 (64.3%)	15(35.7%)	42 (100%)	

Parity	**No Anaemia**	**Anaemia**	**Total**	**P value**
Age	**Spacing < 3 yrs**	**Spacing > 3 yrs**	**Total**	
18-24	12 (70.5%)	5 (29.5%)	17 (100%)	
25-30	43 (72.9%)	16 (27.1%)	59 (100%)	
31-36	48 (64%)	27 (36%)	75 (100%)	
37-42	16 (55.2%)	13 (44.8%)	29 (100%)	
Education	Primigravida	Parity upto 3	Parity > 3	
Up to High school	19 (22.3%)	45 (52.9%)	21 (24.8%)	x^2- 2.39, 2df, P-0.302
College and above	32 (24.6%)	77 (59.2%)	21 (16.2%)	

Table 2 clearly shown that the prevalence of anaemia increases with increasing parity and prevalence of anaemia among parity>3 was 35.7%.

Table. 3: Health problems or disease during current pregnancy:

Health problems	**Yes**	**No**	**Total**
Diabetes	21 (9.7%)	194 (90.3%)	215 (100%)
Hypertension	10 (4.6%)	205 (95.4%)	215 (10 0%)
Anaemia	27 (12.5%)	188 (87.5%)	215 (100%)
Thyroid problems	22 (10.2%)	193 (89.8%)	215 (100%)
Haemorrhoids	10 (4.6%)	205 (95.4%)	215 (100%)
Any haematological conditions	6 (2.7%)	209 (97.3%)	215 (100%)

Table 3 revealed that in the study population, 12.5% were giving anaemia history, 10.2% were thyroid problems.

Table 4: Eating PICA and Tea after meal versus anaemia:

Eat PICA	**No Anaemia**	**Anaemia**	**Total**	**P value**
Yes	34 (70.8%)	14 (29.2%)	48 (100%)	
No	118 (70.7%)	49 (29.3%)	167 (100%)	P> 0.05
Total	**152 (70.7%)**	**63 (29.3%)**	**215 (100%)**	
Tea after meal	**No Anaemia**	**Anaemia**	**Total**	
Yes	47 (73.4%)	17 (26.6%)	64 (100%)	x^2- 0.33, 1df, P-0.566.
No	105 (69.5%)	46 (30.5%)	151 (100%)	

Prevalence of anaemia among PICA user was 29.2% and among non-PICA user the prevalence was 29.3%. there was no significant association was observed between PICA users and anaemia prevalence difference. 29.7% (64/215) were consuming tea after main meal.

Table: 5: Awareness about Symptoms and causes of Anaemia in study group.

Symptoms	**Yes**	**No**	**Don't know**	**Total**
Shortness of breath	66 (47.4%)	19 (13.7%)	54 (38.8%)	139 (100%)
Fatigue	86 (61.8%)	12 (8.6%)	41 (29.5%)	139 (100%)
General Weakness	77 (55.4%)	16 (11.5%)	46 (33.1%)	139 (100%)
Loss of Appetite	61 (43.9%)	17 (12.2%)	61 (43.9%)	139 (100%)

Symptoms	Yes	No	Don't know	Total
Dizziness & fainting	102 (73.4%)	8 (5.7%)	29 (20.9%)	139 (100%)
Headache	68 (48.9%)	15 (10.8%)	56 (40.3%)	139 (100%)
Pallor of face, lips and nail beds	101 (72.7%)	9 (6.5%)	29 (20.9%)	139 (100%)
Causes	Yes	No	Don't know	Total
Poor Nutrition	113 (81.3%)	5 (3.6%)	21 (15.1%)	139 (100%)
Bleeding during Pregnancy	57 (41.0%)	20 (14.4%)	62 (44.6%)	139 (100%)
Multiple pregnancies and spacing	39 (28.1%)	22 (15.8%)	78 (56.1%)	139 (100%)
Age at pregnancy	24 (17.3%)	34 (24.5%)	81 (58.3%)	139 (100%)

Table 5 shown that among the anaemia awareness, about 38.8% were don't know about the shortness of breath as a symptom of anaemia and 55.4% were mentioned as general weakness as a symptom of anaemia.

Discussion

Anemia is one of the main nutritional problems that affecting a large proportion of the population not only in developing country it's also in the industrialized country, in our study the prevalence of anemia among pregnant women was 29.3% in Buraidah, there was no published study of anemia in buraidah city to the best of my knowledge, this overall prevalence was lower compared to the study conducted by Parveen Rasheed, Manal R. Koura, Badria.k Aldabal, Suhair M.Makki, in PHC center in ALKhobar on 498 women, showed the prevalence of anemia among pregnant women was 41.3%.[12]

The prevalence of Anaemia was reported less in other study conducted by Riyadh Alzabeb, Osama Alamer among female University student in Tabuk, on 200 female students showed the prevalence of anemia among female students was 12.5%[13]. In present study anemia classification which represented the percentage of mild anemia was 17.7% and moderate anemia was 11.6%. Compared my study to other studies, in Dhaka city 37 % were anemic 26% mild anemia and 11 % moderate anemia[14], Slightly higher than our study.

In the current study, the highest prevalence of anemia among pregnant women was noticed among 25-30 years age group and there was no statistical association was found between different age group and anemia status($p>0.05$), similarly finding contrast to our study conducted by Sanku Dey, Sankar Goswami, Madhuchhanda Goswami, in Meghalaya, India[15].

In our study result clearly shown that the prevalence of anaemia increases with increasing parity and prevalence of anaemia among parity >3 was 35.7%. Similar finding was observed in the study conducted in PSMMC/Riyadh, Saudi Arabia by Ali Alghamdi, the age and parity were not associated with the significant statistical change in the hemoglobin level and were not considered as risk factors.[16]

Similar finding was observed in the study was conducted in King Abdul-Aziz University hospital, Jeddah, Saudi Arabia by SHARIFA A. ALSIBIAN who found that the risk of anemia was increased with parity, nearly 3-fold higher for women with 2-3 children and nearly 4-fold greater for women with 4 or more children, thus implicating pregnancy [17]. Similar finding was observed in Sudan and the study was conducted the antenatal clinic of new Halfa teaching hospital, eastern Sudan in the year 2004, they found no significant association between anemia and parity.[18]

In the present study among the Anaemia awareness pregnant women, about 81.3% were mentioned as poor nutrition as a cause of anaemia and only 17.3% were mentioned as age at pregnancy as cause of anaemia, our study result was high to compare the result with other studies, and was conducted in Bhavnagar city, only 13.2% of young college girls were aware of about nutritional diet and anaemia and 44.1% young college girls were aware about anemia.[19]

In the present study, revealed that 29.7% (64/215) were consuming tea after main meal. There was no statistical significant difference between tea after main meal and anaemia ($P>0.05$), similarly finding in other studies have reported either significant negative correlations between tea drinking and blood indicators of iron status.[20]

In the present study, there was no significant association was observed between PICA users and anaemia prevalence difference, compared to other study, was conducted in University Hospital Center in Marrakech, prevalence of pica among the patients with iron deficiency anemia was 17.5% which was lowest than our result [21].

In the present study, 12.5% were giving anaemia history, 10.2% were thyroid problems, 9.7% were giving Diabetes history. There were associated factors between anaemia and thyroid disease. Similar finding observed in China that IDA affecting thyroid function by decrease plasma T3 and T4 [22]. The study has certain limitations connected with design, sample size, sampling procedures, and data collection method. There is no available clinic given to the researcher also there some of the non-Arabic patients not speak English as a language barrier.

Conclusions

The overall prevalence of anaemia among antenatal mothers was 29.3% and mild and moderate anaemia was reported as 17.7% and 11.6% respectively. The prevalence of anaemia increases with increasing parity. There was no severe anaemia people in the study and further reduction of the anaemia by creating awareness and periodical checking of anaemia screening is required and motivation from the public is important as a community participation model. Balanced diet and additional calories which containing iron rich foods during pregnancy, ideal spacing and parity definitely benefit to the mothers from the protection of anemia. Similar studies are required in our province to substantiate the present study findings.

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