The Relationship between Severity of Anemia and Nutritional Factors Determinant at Primary Health Care Centers in Baghdad City

Eman Abdul- Hamza AL-Khafajy[1], Rabea Mohsen Ali[2]

[1]MSc Student, Department of Maternal and Neonate Nursing Department. Collage of Nursing, University of Baghdad, [2] Professor, Maternal and Neonate Nursing Department, College of Nursing, University of Baghdad

Abstract

Objective: To determine the relationship between severity of anemia and nutritional factors determinant at Primary Health Care Centers. Methods: A descriptive study has been carried out at AL.Russafa Health Directorate (Bab AL Muadham, and AL Mustanseria) ideal training health care center. AL-Karkh Health Directorate (AL-Salam) ideal training health care center. Non-probability sample consists of (76) anemic pregnant women. questionnaire has been designed and constructed to be used as a means of data collection. Data collection is performed through interview techniques, and the use of the study instrument after permission were obtained from the pregnant women for the period 2nd January to 17th March 2020. Results: The results of nutritional factors indicates that (consumption of dairy products, vegetables, eggs, and fruits) are highly consumed per day (77.6%, 100%, 46.1%, and 92.1%) as indicated by high mean scores. While (consumption of poultry meat, dates and nuts) are moderately consumed per weeks (55.3%, and 56.6%). The remaining nutritional items are lower consuming that is (red meat products, fish, liver, and nutritional plants). Sever anemia found in (6.6%), moderate severity of anemia in (61.8%), and mild anemia in (31.6%). high significant relationships found among severity of anemia with consumption of red meat, consumption of poultry meat, and fish consumption (p-value= 0.004, 0.001, and 0.005); the finding also show significant relationship between severity of anemia and eating nutritional plants (p-value=0.007). Conclusions: the study results concluded high significant relationships between severity of anemia with consumption of red meat, consumption of poultry meat, and fish consumption and eating nutritional plants. Recommendation: Teach women in pregnancy age to dietary habits as a part of an overall approach to health promotion, Increasing level of awareness in women and their families about the risk of anemia on pregnancy.

Keywords: *Anemia , Pregnant women ,Primary Health Care Center ,Nutritional factors, hemoglobin.*

Introduction

Anemia is one of the most common nutritional deficiency diseases observed globally. It affects more than a quarter of the world's population. Globally, 41.8% of pregnant women and close to one third of non-pregnant women (30.2%) are anemic [(1)]. Anemia during pregnancy contributes to 20% of all maternal deaths and it increases the risks of fetal, neonatal and overall infant mortality [(2)]. Anemia during pregnancy is considered severe when Hb concentration is less than 7.0 g/dl, moderate when Hb level is 7.0 - 9.9 g/dl, and mild when Hb level is 10.0 - 10.9 g/dl. [(3,4,5)]. It is a major cause of morbidity and mortality of pregnant women in developing countries and has both maternal and fetal consequences [(5,6)]. In developing countries, the cause of anemia during pregnancy is multi factorial and includes nutritional deficiencies of iron, foliate, and vitamin B12 and also parasitic diseases. Iron deficiency is the cause of 75% of anemia cases during pregnancy [(7)]. The prevalence of iron deficiency was 10 times higher than that of foliate deficiency or vitamin B-12 deficiency. Anemia during pregnancy and its consequences can be prevented and treated if diagnosed on time [(8)].

Methodology

A descriptive study has been carried out throughout

the present study. The study has been conducted at AL.Russafa Health Directorate that include: Bab AL Muadham, and AL Mustanseria ideal training health care center . Also from AL-Karkh Health Directorate that include AL-Salam ideal training health care center. Non-probability (purposive) sample consists of (76) diagnosed anemic pregnant women. questionnaire has been designed and constructed to be used as a means of data collection. It is comprised of: nutritional factors, laboratory results. To make the instrument more valid, it have been presented to a panel of (12) experts in the different fields. A pilot study was conducted on (10) anemic pregnant women, attending Bab AL-Moudham health care center from December 15th , 2019 to December 23rd ,2019, alpha correlation coefficient was applied to determine the reliability (0.78) was statistically good. Data collection is performed through the use of the study instrument (the questionnaire), after permission were obtained from the pregnant women, data was collected through interview techniques, each interview took up to 30 to 40 minutes.

Results:

Table (1): Distribution of the Pregnant Women According to their Nutritional Factors (N=76)

List	Items	Daily f (%)	One day another f (%)	Once a week f (%)	Once every 2 weeks f (%)	Once a month f (%)	MS (Ass.)
1	consumption of red meat products	0 (0)	2 (2.6)	23 (30.3)	17 (22.4)	34 (44.7)	1.91 Low
2	consumption of poultry meat	0 (0)	3 (3.9)	42 (55.3)	21 (27.6)	10 (13.7)	2.50 Moderate
3	fish consumption	0 (0)	1 (1.3)	31 (40.8)	19 (25)	25 (32.9)	2.11 Low
4	consumption of dairy products	59 (77.6)	15 (19.7)	2 (2.6)	0 (0)	0 (0)	4.75 High
5	liver consumption	0 (0)	1 (1.3)	8 (10.5)	14 (18.4)	53 (69.7)	1.43 Low
6	consumption of vegetables	76 (100)	0 (0)	0 (0)	0 (0)	0 (0)	5.00 High
7	egg consumption	25 (32.9)	35 (46.1)	12 (15.8)	0 (0)	4 (5.3)	4.01 High
8	consumption of fruits	70 (92.1)	6 (7.9)	0 (0)	0 (0)	0 (0)	4.92 High
9	consumption of dates and nuts	11 (14.5)	16 (21.1)	43 (56.6)	1 (1.3)	5 (6.6)	3.36 Moderate
10	Eating only plant (nutritional plant)	18 (23.7)	1 (1.3)	0 (0)	0 (0)	57 (75)	1.24 Low

f: Frequency, %: Percentage, Assess: Assessment Low= 1-2.33, Moderate= 2.34-3.67. High= 3.68-5

Table (1) presents the nutritional factors among the pregnant women; the finding indicates that (consumption of dairy products, vegetables, eggs, and fruits) are highly consumed per day (77.6%, 100%, 46.1%, and 92.1%) as indicated by high mean scores. While (consumption of poultry meat, dates and nuts) are moderately consumed per weeks (55.3%, and 56.6%). The remaining nutritional items are lower consuming that is (red meat products, fish, liver, and nutritional plants

Table (2): Distribution of the Pregnant Women According Iron , Folic Acid, and Tea Consumption related Variables (Determinants of Anemia)

List	Variable			
1	Prescribed Ferrous by doctor?	No	0	0
		Yes	76	100
		Total	76	100
2	Regularity of taking ferrous	None	5	6.6
		Irregular	9	11.8
		Regular	62	81.6
		Total	76	100
3	Starting taking ferrous	None	5	6.6
		At second semester	68	89.5
		At third semester	3	3.9
		Total	76	100
4	Drinking coffee and tea	No	30	39.5
		Yes	46	60.5
		Total	76	100
5	Taking folic acid during pregnancy	No	11	14.5
		Yes	65	85.5
		Total	76	100

Table (2) shows that all of the pregnant women reporting that their doctor prescribed ferrous medication for them (100%), (81.6%) of them are regularly taking the medication daily. They start taking the medication at second semester (89.5 %). (60.5%) of pregnant women are drinking coffee and tea, and (85.5%) of pregnant women taking folic acid during pregnancy.

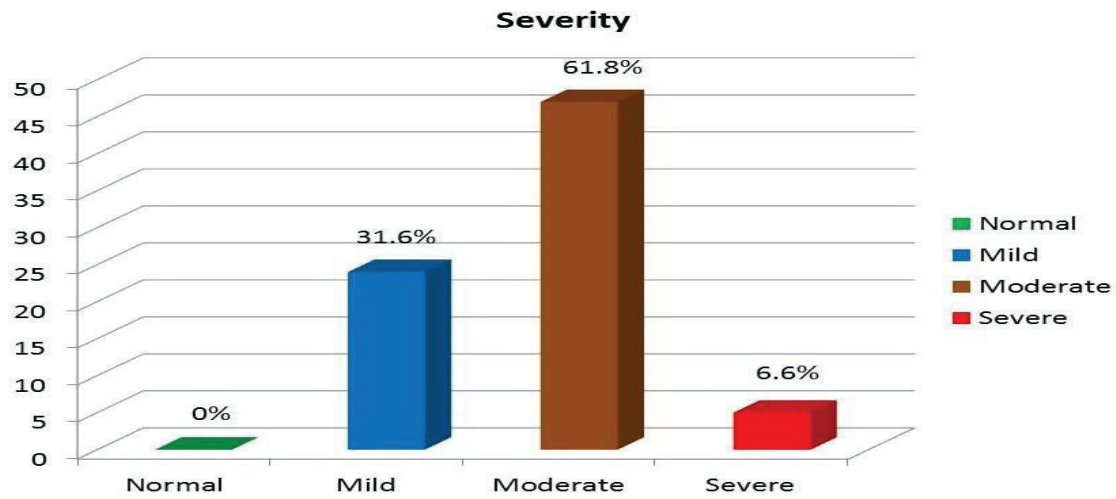

Figure (1): Severity of Anemia among Pregnant Women (N=76)

This figure shows the severity of anemia among pregnant women; the figure shows that sever anemia in (6.6%), moderate severity of anemia in (61.8%), and mild anemia in(31.6%).

Table (3): Correlation between Severity of Anemia and Nutritional Factors Determinants among Pregnant Women (N=76)

Severity of anemia Nutritional Factors	Pearson correlation	p-value	Sig
Consumption of red meat products	.323	.004	H.S
Consumption of poultry meat	.378	.001	H.S
Fish consumption	.317	.005	H.S
Consumption of dairy products	-.059	.610	N.S
Liver consumption	.056	.633	N.S
Consumption of vegetables	.054	.643	N.S
Egg consumption	.042	.721	N.S
Consumption of fruits	-.130	.365	N.S
Consumption of dates and nuts	.054	.643	N.S
Eating only plant (nutritional plant)	-.309	.007	S

P: probability, Sig: Significance, N.S: Not Significant, S: Significant, H.S: High significant

This table reveals that there are high significant relationships among severity of anemia with consumption of red meat, consumption of poultry meat, and fish consumption (p-value= 0.004, 0.001, and 0.005); the finding also show significant relationship between severity of anemia and eating nutritional plants (p-value=0.007).

Discussion

The study results presents the nutritional factors among the pregnant women; the finding indicates that (consumption of dairy products, vegetables, eggs, and fruits) are highly consumed per day (77.6%, 100%, 46.1%, and 92.1%) respectively. While (consumption of poultry meat, dates and nuts) are moderately consumed per weeks (55.3%, and 56.6%). The remaining

nutritional items are lower consuming that is (red meat products, fish, liver, and nutritional plants). It was found that one of the major contributory factors for anemia in developing countries is consumption of plant based food containing insufficient iron. Meat is a good source of high quality protein, iron , zinc and of all the Vitamins except folic acid. Iron absorption is enhanced when consumed with foods high in vitamin C such as orange juice while coffee and tea inhibit iron absorption [9] .

Also, study in Erbil city, Iraq, address the explanation for that may be one of the major contributory factors in developing countries for development of anemia is consumption of plant based foods containing insufficient iron in accordance with body needs especially during pregnancy; also lack of iron absorption enhancer in the meals like vitamin C, and drinking of iron absorption inhibitor drinks like tea immediately after meal **[10].** The study results presents the severity of anemia among pregnant women; the figure shows that sever anemia in (6.6%), moderate severity of anemia in (61.8%), and mild anemia in(31.6%).This study in agreement with the study of (145) pregnant women found the mean of Hb concentration was 11.55 ± 2.97 g/dl with a range of 5.4 to 18.7g/dl. Among anemic pregnant women, 44(30.34%) had mild anemia, 87(60%) had moderate anemia, and 14(9.66%) had severe anemia [11].

The study results indicates that all of the pregnant women reporting that their doctor prescribed ferrous medication for them (100%), (81.6%) of them are regularly taking the medication daily. They start taking the medication at second semester (89.5 %), (60.5%) of pregnant women are drinking coffee and tea. (85.5%) of pregnant women report that their doctor prescribed folic acid during pregnancy. In a study of anemia (IDA) and dietary pattern among pregnant women in Baghdad city, Iraq show About 45% had one tablet day of iron-folic acid, while only 6% had two tablets a day and, others didn't take it (statistically significant association). The result referred to the number and percentage of anemic women who take prophylactic drugs (iron, Folic acid, vit. B12) was (21.8%) that lower than pregnant women who didn't take it (33.6%) [12]. A study result is consistent with other studies done in Ethiopia[13]. This significant association might be due to the reason that meat is an important source of heme iron [14,15,16]. This result is in agreement with a study done in Egypt and Ethiopia, which showed significant association between anemia and consumption of tea [18,19]. This could be drinking tea/coffee after food intake may affect iron absorption which leads to inadequate dietary iron intake in the pregnant women.

The study results reveals that there are high significant relationships among severity of anemia with consumption of red meat, consumption of poultry meat, and fish consumption (p-value= 0.004, 0.001, and 0.005); the finding also show significant relationship between severity of anemia and eating nutritional plants (p-value=0.007). of anemia with remaining nutritional factors that are: consumption of dairy pro. The results reports that there are no significant relationships among severity ducts, liver consumption, consumption of vegetables, egg consumption, consumption of fruits, and consumption of dates and nuts**.** Table (3)

A study found the distribution of food by meals between the groups was very similar, though, the pregnant women presented a significantly higher ($p<0.05$) consumption of fruits/natural juices at lunch and afternoon snack, and milk and dairy products at breakfast [19].

Conclusions

The study concluded that there are high significant relationships among severity of anemia with consumption of red meat, consumption of poultry meat, and fish consumption; the finding also show significant relationship between severity of anemia and eating nutritional plants.

Recommendations:

The study recommended to teach women in pregnancy age to dietary habits as a part of an overall approach to health promotion, and education pregnant women and infant by health lectures, T.V., Posters to avoid future anemia during pregnancy. Instruction classes should be given for pregnant women in each primary health care center to encourage them to take daily oral iron and folic acid supplementation to prevent maternal anemia.

Financial Disclosure: There is no financial disclosure.

Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Baghdad and all experiments were carried out in accordance with approved guidelines.

References

1- Ndegwa S. Anemia & its associated factors among pregnant women attending antenatal clinic at Mbagathi County Hospital, Nairobi County, Kenya. African Journal of Health Sciences. 2019; 32(1): 59-73

2- Okube O, Mirie W, Odhiambo E. Prevalence and factors associated with anaemia among pregnant women attending antenatal clinic in the second and third trimesters at pumwani maternity hospital, Kenya. Open Journal of Obstetrics and Gynecology. 2016; 6(1): 16-27

3- Mulepati S, Chaudhary T. Determinants of anemia among Pregnant Women attending in a tertiary level Hospital, Kathmandu. Med Phoenix. 2017; 2(1): 24-33.

4- . Salhan S, Tripathi V, Singh R, Gaikwad HS. Evaluation of hematological parameters in partial exchange and packed cell transfusion in treatment of severe anemia in pregnancy. Anemia. 2012; 2012: 7

5- Siteti M, Namasaka S. Anaemia in pregnancy: Prevalence and possible risk factors in Kakamega County, Kenya. Science journal of public health. 2014; 2(3): 216-222

6- Akhtar M, Hassan I. Severe anaemia during late pregnancy. Case reports in obstetrics and gynecology, 2012.

7- Maskey M, Jha N, Poudel S, Yadav D. Anemia in pregnancy and its associated factors: a study from eastern Nepal. Nepal journal of epidemiology. 2014; 4(4): 386-92

8- Shwetha P. Prevalence of anemia among pregnant women--A cross-sectional study. International Journal of Medical Science and Public Health. 2018; 7(12): 1023-1027.

9- Al-Shawi A. The incidence and types of anemia in pregnant women in Diyala province Iraq. AL-yarmouk Journall. 2019; 11(1): 13-19.

10- Ahmed A, Mohammed-Ali K. Maternal anemia status among pregnant women in Erbil city, Iraq. World Family Medicine Journal: Incorporating the Middle East Journal of Family Medicine. 2013; 99(1142): 1-7

11- Gedefaw L, Ayele A, Asres Y, Mossie A. Anaemia and associated factors among pregnant women attending antenatal care clinic in Walayita Sodo town, Southern Ethiopia. Ethiopian journal of health sciences. 2015; 25(2): 155-164

12- Abdul-Fatah B, Murshid R, Ahmed T. Assessment of Iron Deficiency Anemia (IDA) and Dietary Pattern among pregnant women in Baghdad City, Iraq. Journal of Pharmaceutical Sciences and Research. 2018; 10(9): 2279-2284.

13- Weldekidan F, Kote M, Girma M, Boti N. Determinants of anemia among pregnant women attending antenatal clinic in public health facilities at Durame Town: unmatched case control study. Anemia.2018.

14- Bekele A, Tilahun M, Mekuria A. Prevalence of Anemia and Its Associated Factors among Pregnant Women Attending Antenatal Care in Health Institutions of Arba Minch Town, Gamo Gofa Zone, Ethiopia: A Cross-Sectional Study. Anemia. 2016.

15- Argaw B, Argaw A, Taye B, Worku A. Major Risk Factors Predicting Anemia Development during Pregnancy: Unmatched-Case Control Study. Journal of Community Medicine Health Education. 2015; 5(3).

16- Ayenew F, Abere Y, Timerga G. Pregnancy Anaemia Prevalence and Associated Factors among Women Attending Ante Natal Care in Debre Berhan Health Institutions, Ethiopia. Journal of Women's Health Care. 2014;3(5)

17- El Ashiry A, El Ghazali S, Habil I. Prevalence and determinants of anaemia in third trimester pregnancy in Fayoum governorate-Egypt. Acta Medica Mediterranea. 2014; 30(10): 1045-1051

18- Getachew M, Yewhalaw D, Tafess K, Getachew Y, Zeynudin A. Anaemia and associated risk factors among pregnant women in Gilgel Gibe dam area, Southwest Ethiopia. *Parasites & Vectors*. 2012; 5

19- Sato A, Fujimori E, Szarfarc S, Borges A, Tsunechiro M. Food consumption and iron intake of pregnant and reproductive aged women. Revista Latino-Americana de Enfermagem. 2010; 18(2): 247-254.