

Anemia and Its Associated Factors Among Pregnant Women in Babylon Governorate - Iraq

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Abstract

Background: The World Health Organization had defined anemia during pregnancy as the hemoglobin concentration of less than 11 g/dl, anemia is the commonest disorder in pregnancy and had serious devastating health effects on pregnant women and her fetus and or neonate. **Objectives:** To find out the relationship of anemia during pregnancy and some associated independent variables (factors). **Methodology:** A cross sectional study was conducted in Babylon maternity teaching hospital during the period December 20th 2020— through the end of February 2021, the convenient (purposive) sample included (100) pregnant women who were diagnosed as maternal anemia during pregnancy according to WHO guideline and accepted to participate in this study. Data were collected using pretested structured questionnaire. **Results:** The demographic characteristics that associated with anemia significantly were age (20-29) years which constituted (76%), intermediate level of education and below which constituted (71%) of the sample. Multigravida. Frequent abortions, previous history of anemia and stillbirths were significantly high among the study sample $p < 0.05$. **Conclusion:** The main associated factors of anemia during pregnancy were: multiple pregnancy, frequent abortions stillbirth, previous history of anemia and other demographic factors such as age, and low level of education, recommended educational programs to pregnant women and health care providers with improvement of Antenatal, natal and postnatal care services are strongly requested.

Keywords: Anemia, pregnant women, associated factors, Babylon.

INTRODUCTION

Anemia is a major public health concern and is one of the most prevalent health issue in women within reproductive age group [1], it is the most prevalent hematological problem in pregnancy [2]. Anemia is one of the most common nutritional deficiency disorders affecting the pregnant women in the developing countries [3]. Anemia during pregnancy is commonly associated with poor pregnancy outcome and can result in complications that threaten the life of both mother and fetus [4-7].

Anemia in pregnancy is defined by World Health Organization (WHO) as hemoglobin concentration below 11 gm. /dl [8,9]. Anemia affects 41.8% of pregnant women globally [10]. The prevalence of anemia in Iraq is high among pregnant women attending different hospitals in Baghdad- Iraq, it is about 70% [11-14].

Inadequate intake of micronutrients (particularly iron), closely spaced births allowing inadequate time for maternal repletion [15] and infections that destroy red blood cells, interfere with red blood cells formation, increase blood loss and (or) deplete nutrient uptake. Low social class and lack of ante natal care (ANC) were the multiple predisposing factors in anemic pregnant women which may differ from place to place [16,17]. Pregnant women should receive routine ANC and recognize iron supplementation [19].

The deleterious effects of anemia in pregnancy include high risk of maternal and fetal morbidity and mortality especially in developing countries including Iraq [20]. According to the potential bad consequence of anemia on the health of pregnant women and their children [21], there is a need to have current information about anemia during pregnancy and its associated factor to inform effective preventive and intervention programs in Iraq.

This study aims to identify the association between anemia among pregnant Iraqi women from Babylon governorate and some independent associated variables.

Methodology

A cross sectional study was conducted in Babylon maternity teaching hospital during the period December 20th 2020—

through the end of February 2021. A convenient (purposive) sample included (100) pregnant women who were diagnosed with anemia. Official acceptances were obtained from; the scientific research ethical committee in Hilla University College, before interviewing, aim of the study was explained to all participants and their informed verbal consents were obtained. Autonomy and privacy of the participants were respected during data collection. Data were collected using pretested validated structured questionnaire developed from relevant literature and the researchers experiences [22- 27]. The questionnaire included obstetric, gynecological and medical history: parity, past diagnoses of medical problems. Level of Hemoglobin was measured to each participant by using hemoglobin meter machine in the hospital laboratory by professionals, (hemoglobin level less than 11 gm./dl) considered anemia [28,29], .Pregnant women at any age who were in the 1st, 2nd and 3rd trimester of pregnancy, lived within Babylon geographical area and accepted to participate were enrolled while pregnant women who had history of Thalassemia, Sickle cell anemia, Renal disease, Thyroid disease, severe diseases, mental problems or refuse to participate were excluded from the study[25]. Before starting data collecting, a pilot study was done on 10 selected pregnant women (not included in the final sample) was done before the beginning of the study, then the final questionnaire was revised and modified accordingly. Face to face interview was done. Family income <500000 ID (Iraqi Dinars) = not enough (poor), > 500000-1000000 ID = enough (intermediate), >1000000 ID = more than enough (high income) [12,13]

Data were analyzed by using statistical package for social sciences version(20).Categorical variables was summarized as numbers and percentages presented tables figures, chi square test was used to assess the association between anemia and associated variables, a $p < 0.05$ is considered a statistically significant.

Results:

Table 1: Distribution of the Study Group by Demographic Variables

| Variables | Rating | Freq. | % |
|-----------------|-------------------|-------|-------|
| Age/ years | <20 years old | 21 | 21.0 |
| | 20-29 years old | 76 | 76.0 |
| | 30 and older | 3 | 3.0 |
| | Total | 100 | 100.0 |
| Education level | Illiterate | 21 | 21.0 |
| | Primary | 21 | 21.0 |
| | Intermediate | 39 | 39.0 |
| | Secondary | 17 | 17.0 |
| | Diploma and above | 2 | 2.0 |
| | Total | 100 | 100.0 |
| Occupation | Housewife | 48 | 48.0 |
| | Student | 22 | 22.0 |
| | Government employ | 30 | 30.0 |
| | Total | 100 | 100.0 |
| Residents | Urban | 92 | 92.0 |
| | Rural | 8 | 8.0 |
| | Total | 100 | 100.0 |
| Monthly income | More than enough | 33 | 33.0 |
| | Enough | 41 | 41.0 |
| | Not enough | 26 | 26.0 |
| | Total | 100 | 100.0 |

Table -1-represents the descriptive statistics of socio-demographic characteristics of participants, the majority of them fall in the age group (20-29) years. About one third of the sample (39.0 %) of study participants have intermediate educational level, and (48.0%) of them are house wives, the vast majority are urban dwellers (92%), (41%) have enough monthly income.

Table 2: Distribution of pregnant Women by Obstetric and Previous Medical History

| Variables | Rating | Freq. | % |
|-----------|--------|-------|------|
| Gravida | No | 30 | 30.0 |
| | 1 | 37 | 37.0 |
| | >1 | 33 | 33.0 |
| Para | No | 34 | 34.0 |
| | 1 | 41 | 41.0 |

| | | | |
|---------------------|---------------|----|------|
| | >1 | 25 | 25.0 |
| History of abortion | Non | 72 | 72.0 |
| | One | 19 | 19.0 |
| | More than one | 9 | 9.0 |
| Still birth | Non | 91 | 91.0 |
| | yes | 9 | 9.0 |
| Mode of delivery | Normal | 82 | 82.0 |
| | C/s | 18 | 18.0 |
| History of anemia | Yes | 84 | 84.0 |
| | No | 16 | 16.0 |

Table -2- Shows that most of participants have one Gravida versus one Para , one abortion was mentioned by 19% of them and having died children was reported by 9% , 82% have normal vaginal deliveries.

Table 3: Statistical Relationship between Anemic women and their Demographic Characteristics

| Demographic Data | Chi-Square Value | D.f | P-Value |
|------------------|------------------|-----|----------|
| Age/ years | 32.712 | 2 | 0.000 HS |
| Education level | 25.346 | 4 | 0.000 HS |
| Occupation | 9.420 | 2 | 0.009 S |
| Residents | 0.239 | 1 | 0.625 NS |
| Monthly income | 8.074 | 2 | 0.018 S |

Table-3- reveals that there is a significant statistical association between having anemia and the following independent demographic variables; age (29-29 years age group) and level of education (intermediate level) the differences in age and educational levels are associated significantly $p < 0.01$, while the monthly income (moderate level) and occupation of participants (house wife) are statistically significant $p < 0.05$ with the exception of the place of residence variable which is not significant $p > 0.05$.

Table 4: Statistical Relationship between Causes of Anemia and Women Reproductive History

| Reproductive History | Chi-Square Value | D.f | P-Value |
|--|------------------|-----|----------|
| Gravida | 6.336 | 2 | 0.042 S |
| Para | 4.833 | 2 | 0.089 NS |
| Number of abortion | 10.880 | 2 | 0.004 S |
| Still births | 2.718 | 1 | 0.099 NS |
| Mode of delivery by (caesarians sections) | 11.666 | 1 | 0.001 S |
| History of anemia | 5.24 | 1 | 0.046 S |

Table -4- shows that there is a significant association between having high number of pregnancies, number of abortions, delivery by caesarian section $p < 0.05$ and having anemia during pregnancy while the Para and previous history of anemia have insignificant relation to the current anemia $p > 0.05$.

Discussion

Anemia during pregnancy is an important cause of morbidity and maternal mortality of women in developing countries including Iraq and the continuous increasing risks of fetal and neonatal morbidity and deaths[30].

The findings of the current study show that age is an associated risk factor of maternal anemia, this finding goes in line with findings of other reporters [31,28], but disagrees with the findings of other local and international studies [32,33,13] . The current study reveals that there is a significant statistical association between low education levels and anemia among the study group this finding is similar to the findings reported by other local study conducted on pregnant women in Baghdad province [13] this could be explained by the fact that low educated pregnant women have little chance to be health educated properly in the field of maternal and child care. This finding is in contrast with the finding of Alreshidi et al 2021 who reported that the vast majority of Saudi Arabian pregnant women have high school and university educational levels (87.7%)this high education level was correlated with low prevalence of anemia during pregnancy[33,34,], High prevalence of anemia was detected among women with following socio-demographic characteristics: residing in the urban area , belonging to the middle -income family income level, these findings are contradicted to the findings of recent study conducted in India [35], but goes

in line with other local studies [13,24,34].

In this study, increased number of pregnancies, apportsions and parity was independently associated with anemia in pregnant women. Women with higher number of pregnancies had a higher risk of anemia in compared to those who had had fewer pregnancies [26], this may be related to short spacing of pregnancies and high blood loss and nutritional depleted women specially among those belonging to poor or middle socioeconomic class and having inadequate education, repeated pregnancies and abortions giving no chance to restore the depleted iron stores[36]. In this study high proportion of studied pregnant women (84%) had history of anemia, this finding is much higher than that reported by other study [28] this may be related to poor adherence to ante natal care and irregular intake of iron and folic acid [13]. Strengthening ante natal care and good adherence to micronutrients is a successful intervention to reduce anemia during pregnancy in developing countries with high prevalence of anemia (>40%) like Iraq [13, 24]. Among the study group about one fifth (18%) of anemic pregnant women they delivered by caesarean section which is slightly higher than that recommended by WHO [38], Drukker et al., found that anemia was associated with increased risk of cesarean section at delivery[39].

Conclusion: Anemia among pregnant women was associated significantly with the following factors: low education level, poor and moderate family income, living in urban area, multigravida, increased number of parity and abortions, previous history of anemia, and stillbirth.

Recommendations

- 1- Enhancing of mass public awareness in this regard and proper utilizing and improving the ongoing maternal child health and nutrition programmes in our primary health care services will help in decreasing the incidence of anaemia among pregnant women.
- 2- All measures must be taken to screen pregnant women for early detection of anemia and prompt treatment is crucial.
- 3- Further large scale studies are requested to areas this high priority public health problem.

Limitations

The cross-sectional study design has its own limitations, the most important is that the exposure and outcome are simultaneously assessed, there is generally no evidence of a temporal relationship between exposure and outcome, limited sample size and not all the associated factors with maternal anemia during pregnancy were studied as well as the social desirability and recall bias are major concerns in any interview.

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