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Research Article

**IMPACTS OF ANEMIA BECAUSE OF IRON DEFICIENCY  
ON THE HEALTH AND LIFE OF PREGNANT FEMALES****Dr Hafiz Muhammad Aman Ashraf, Dr Ammar Arshad, Dr Sikandar Ali Virk**  
Punjab Medical College Faisalabad**Article Received:** January 2020 **Accepted:** February 2020 **Published:** March 2020**Abstract:**

**Objective:** The aim of this study is to observe the impact of anemia due to iron deficiency on the health and life of females having pregnancy.

**Methodology:** This transverse research work carried out at Gynecology Department of Allied Hospital, Faisalabad from July to December 2019 in the period of six months. In the duration of this research work, all the females having pregnancy with iron deficiency anemia as well as level of hemoglobin lower than nine gram% were recruited, whereas females having pregnancy as well as suffering from other clinical complications were not the participants of this research work. Collection of the information carried out and SPSS V.23 was in use for the statistical analysis of the collected information.

**Result:** Out of 305 registered females with pregnancy present with iron deficiency anemia, majority of the females were young (n: 170, 55.73%) between 20 to 30 years of age, 83.27% (n: 254) females were from lower socioeconomic class, 34.09% (n: 104) females were multiparous. There was very low level of hemoglobin between 1 to 3 gram% in 17.7% (n: 54) females and between 4 to 6 gram% in 53.11% (n: 162) females. All these females were susceptible to severe complications like ante-partum hemorrhage in (n: 49, 16.06%), renal failure in (n: 48, 15.73%), disseminated intra-vascular coagulation in (n: 54, 17.7%) females. The rate of mortality was 5.24% (n: 16).

**Conclusion:** IDA is much common in the females present with pregnancy with very high rate of complications.

**KEY WORDS:** Anemia, Mortality, Intra-Vascular Coagulation, Multiparous, Hemoglobin, Hemorrhage, Susceptible.

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**INTRODUCTION:**

Anemia is serious problem of health in the whole world particularly in countries which are under development. Approximately 1.62 billion persons are affected in whole world. In current times, most vulnerable population suffering from these complications are females with pregnancy making 24.8% of whole [1, 2]. There is high incidence of the anemia in the developing areas which is the outcome of different factors [3]. There is variation in the incidence rate of anemia in accordance with the socioeconomic class, taboos of cultures, dietary deficiencies, low prevalence of contraceptives and multiple pregnancies [4]. Iron deficiency is the most common type of anemia and females with pregnancy are mostly prone to risk factors of this complication [5]. There is high rate of morbidity as well as mortality among pregnant females with anemia in the countries which are under development [6].

The outcome of mild form of this complication is without symptoms. Anemia is the cause of weakness, fatigue and drowsiness in its severe form. It can lead to the change in the normal color of skin. Anemia is the 2<sup>nd</sup> most important reason of maternal mortality in the countries of Asia because of postpartum hemorrhage [4]. Research in this field supported that 20.0% of maternal deaths are due to anemia [7, 8]. There are 3 main causes for mortality because of anemia as anemia is the reason of high loss of blood, severe anemia increases the risk of infection susceptibility and level of hemoglobin less than 4 g/dl [9]. The main purpose of this research work was to find out the morbidities related with anemia which can be avoided and to enforce the new techniques for the prevention of this complication.

**MATERIAL AND METHODS:**

The recruitment of 305 pregnant females suffering from anemia in the duration of this research work carried out. All these pregnant females were present with related complications at various gestational ages. The level of their hemoglobin varied from 1 to 9 gram% and period of their gestation age was from 13 to 40 weeks. The estimation of sample size

carried out in empirical way with prevalence, 27.2% [10], CI (Confident Interval) of 95.0% and with the application of the formula;

$$N = (Z)^2(pq) / e^2 = 305$$

Ethical committee of the hospital gave the permission to conduct this research work. We took written consent from all the participants after taking their written consent. We evaluated these females in detail about age of females, parity number, and period of gestation age, socioeconomic class, skin color, nail color and conjunctiva for the confirmation of the anemia type. We also carried out the related investigation like complete picture of blood, level of serum ferritin and level of hemoglobin.

We excluded the pregnant females suffering from other chronic complications. We managed all these females according to the management protocol of the institution. We recorded all the details of patients on a well-organized Performa. The collection of the information carried out and we used SPSS V.23 for the statistical analysis of collected information. We presented the categorical variables like age of the patient, parity number, gestational age in percentages and frequencies. We applied Chi square method for qualitative analysis. P value of greater than 0.05 was significant.

**RESULTS:**

Out of 305 pregnant females with anemia, 83.27% (n: 254) females were from lower socioeconomic group, 16.39% (n: 50) were middle class females. Majority of the females were in the age group of 21 to 30 years (n: 170, 55.73%), whereas 24.59% (n: 75) females were more than 31 year of age and 19.67% (n: 60) females were present with less than 20 years of age, average age of the patients was 26.5 ± 6.357. Majority of the females were multiparous (n: 105, 34.42%), while Primi-gravid females were 17.040% (n: 52) (Table-1).

**Table-I: Sociodemographic Characteristics n=305**

Socio demographic characteristics		No. of cases	Percentage	P-value
Socio Economic Status	Low	254	83.27	0.277
	Middle	50	16.39	0.302
	High	1	0.327	0.028
Age	<20 years	60	19.67	0.054
	21-30 years	170	55.73	0.053
	31 years and above	75	24.59	0.024
Parity	Primigravid	52	17.04	0.584
	para 1-3	94	30.81	0.556
	Para 4-5	105	34.42	0.529
	Para >6	55	18.03	

Most frequent presentation mode was generalized edema in 28.52% (n: 87), dyspnea in 23.6% (n: 72), weakness in 15.08% (n: 46). There were 51.8% (n: 158) females were presented in 31 to 40 gestation weeks. Level of hemoglobin of these pregnant females varied from 4 to 6 gram% in 53.11% (n: 162) females, from 7 to 9 gram% in 29.18% (n: 89) females, whereas 17.7% (n: 54) females were present with the level of hemoglobin from 1 to 3 gram%. Most of the females were present with level of serum ferritin as 12 to 70 ng/ml (Table-2).

<b>Table-II: Clinical Presentation And Gestational Period n=305.</b>			
Clinical presentation	No of cases	Percentage	P-Value
Dyspnea	72	23.6	0
Weakness	46	15.08	0
Unable to Perform Routine Work	8	2.62	0
Generalized edema	87	28.52	0
Gestational period			
13-20 weeks	22	7.18	0
21-30 weeks	125	40.98	0
31-40 weeks	158	51.8	0

Most common complication observed was antepartum hemorrhage in 60.16% (n: 74) females and most of these females were present with level of hemoglobin from 7 to 9 gram%, whereas we observed post-partum hemorrhage in 66.66% (n: 42) females and these females were present with the level of hemoglobin from 4 to 6 gram% and in these female's rate of disseminated intra-vascular coagulation was present in 76.36% (n: 42). Table-3 provides the rate of mortality with the level of hemoglobin.

<b>Table-III: Hemoglobin Level Versus Morbidities And Mortality n=305</b>							
Hemoglobin level	Morbidities	Antepartum hemorrhage	Post-partum hemorrhage	Renal Failure	Disseminated intravascular coagulation	Mortality	P-Value
1-3 gram%	54(17.7%)	10(8.13%)	7(11.11%)	15(31.25%)	12(21.81%)	10(62.5%)	0
4-6 gram%	162(53.11%)	39(31.7%)	42(66.66%)	33(68.75%)	42(76.36%)	6(37.5%)	0
7-9 gram %	89(29.18%)	74(60.16%)	14(22.22%)	0	1(1.81%)	0	0
Total	305 (100%)	123(40.32%)	63(20.65%)	48(15.73%)	55(18.03%)	16(5.24%)	

### DISCUSSION:

Even after the application of various programs for the prevention of IDA, the magnitude of this very complication is much high. There is high prevalence of IDA in the low socioeconomic class due to malnutrition, high rate of infection, deficiency of facilities related with health care, lack of education, no family planning, and many other factors of contribution. In this current research work, the incidence of IDA was very high in lower socioeconomic class as 83.27% (n: 254) which is comparable with the findings of many other research

works [11, 12]. IDA was much prevalent in the age group of 21 to 30 years (n: 170, 55.730%), same

high infection rate was also reported by research works of Viveki & Judith AN [13-15, 16]. Pregnancy number is very important factor having association with anemia. Risk of this complication of anemia rises as there is increase in pregnancy number from 3 to 5 but is even common in the females present with less than 3 pregnancies. These results are in consistent with other research works carried out in Saudi Arabia & India, which elaborated that there is strong association between

number of pregnancies and development of anemia [17, 18, 19].

There was very high risk for the development of anemia in 3<sup>rd</sup> and 2<sup>nd</sup> trimester of pregnancy as compared to 1<sup>st</sup> trimester. This outcome is consistent with the research work conducted in Saudi Arabia, which discovered that there is high incidence of anemia in 3<sup>rd</sup> trimester as compared to 1<sup>st</sup> trimester of pregnancy [20,21]. One other research work conducted in India stated that there was high incidence of anemia in pregnant females present in their 3<sup>rd</sup> and 2<sup>nd</sup> trimester of pregnancy [22]. Research works conducted in various countries like Nepal, Vietnam and Indonesia discovered that enhanced gestational age has significant association with the high risk for the development of anemia [23]. This is the outcome of the fact that when there is increase in gestational age, there is more occurrence of weakness among mothers and there is sharing of iron present in blood with fetus present in womb so, it decreases the iron binding capacity of the pregnant females. There was high rate of mortality among females present with low level of hemoglobin and with other linked comorbidities like postpartum hemorrhage, disseminated intravascular coagulation and renal failure. Some other reports also stated these findings [24, 25].

### CONCLUSION:

There was very high prevalence of iron deficiency anemia in late pregnancy. Severity of this complication has association with high rate of morbidity as well as mortality.

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