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IRON DEFICIENCY ANEMIA IN PREGNANCY AND POSTPARTUM PERIOD, DIAGNOSIS, AND TREATMENT: A CURABLE AND COMMON DISEASE

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Abstract

OBJECTIVE: *To ascertain whether iron deficiency anemia is present, the effects of its severity, its consequences, diagnosis, and therapy.*

STUDY DESIGN:*The analytic descriptive study was for one year, from March 1, 2024, to March 1, 2025, 100 pregnant women from OPD who had iron deficiency in all trimesters of pregnancy were monitored till delivery and the postpartum period. The study was conduced at Shaikh Zayad women hospital larkana.*

METHODOLOGY:*100 women, aged 22-48y, who were pregnant or in labour pain, primigravida, multigravida,preterm (24-36 wks), and term (37-42 wks). Each item of data was examined using SPSS version 19, a statistical analysis tool. An independent t -test was applied to compare data of anemic pregnant women, while chi-square test was analyze categorical variables.*

RESULT: *12% of the 100 patients who were chosen had mild anemia, 74% had moderate anemia, and 14% had severe anemia. Compared to those who did not receive any treatment, everyone who were seen in the emergency room or outpatient department (OPD) early in the first trimester for testing and treatment with oral or parenteral iron experienced fewer feto-maternal complications. Patients who were not scheduled showed up in worse shape and with more problems.*

CONCLUSION: *Iron deficiency anemia is a preventable, curable, and common medical condition. Early detection and treatment reduce complications, but untreated pregnant women face life-threatening conditions. Proper antenatal testing and proper treatment are crucial for improved fetal outcomes.*

INTRODUCTION

The World Health Organization estimates that anemia affects over 1.5 billion people worldwide. It is a hematological disorder where the body does not have enough red blood cells to meet its physiological needs (1). Hemoglobin levels below 11 g/dl during pregnancy and below 10.5 g/dl during the postpartum period are considered anemia, according to the WHO. The CDC (Centers for Disease Control)

defines anemia in pregnancy as hemoglobin levels below 11g/d Hct <33% in the first trimester, less than 10.5 g/dl Hct <32% in the second trimester, and less than 11g/dl Hct <33% in the third trimester. (2).

Approximately one-fourth about our population suffers from anemia, and iron deficiency anemia is the least common cause of anemia, accounting for up to 50% of cases. Inadequate intake or absorption of iron is the main cause of iron deficiency anemia, and its prevalence is higher in developing than in developed nations(3). In western society, iron deficiency anemia is most commonly hypochromic, microcytic anemia, and it is common among pregnant women during the gestational period across both industrial and no industrialized nations (4).According to WHO data, 35%–75% of pregnant women in developing countries have anemia (average 65%), compared to 18% in industrialized countries. fortunately women have become anemic at the period of conception; the average rate of anemia is 43% in non-pregnant people in developing countries and 12% in industrial countries. Iron deficiency is also common (low serum ferritin and spare along with absent stain iron in bone marrow), and it typically manifests in the third trimester of pregnancy (5).

It is a serious public health concern for women of reproductive age who are pregnant because it increases fetal-maternal morbidity and death and has a negative impact on the fetus. While 2–5% of women in industrialized nations (Europe) are anemic, 41.9% of women in South East Asia are of reproductive age (data 2020). Between 41.7% and 77.0% of Pakistani women suffer from anemia (6). Anemia is a significant risk factor for birth outcome that may be changed. According to this study, maternal anemia contributed to a number of pregnancy and postpartum problems. Fetal and neonatal problems were severely impacted by the severity of anemia (7). I/V iron can be considered in moderately anemic patients, but severe anemic patients or hemodynamically unstable women should receive blood transfusions prior to discharge, follow blood test results, and have their serum ferritin level checked before stopping iron treatment for three to six months. The WHO recommends 60 mg per day for routine prophylaxis for three months and 100 mg per day for anemic patients for six months (8).

METHODOLOGY:

In this Analytic descriptive study, 100 pregnant patients with anemia were chosen. The study was carried out at Shaikh Zayad Women's Hospital in Larkana from March 1, 2024, to March 1, 2025, for a duration of one year. They range in age from 22 to 49, are primigravida and multigravida, and have either an early scan for dating or a pregnancy test to confirm their pregnancy. All expectant mothers provided their informed consent. The complete blood picture, Hb, PCV, MCH, MCHc, serum ferritin level, and TIBC were all checked after a thorough history and examination.

All of the pregnant women who were chosen for this trial received either parenteral iron or oral iron during pregnancy. Both booked and unbooked anemic women were then followed up with; some were admitted through the emergency department, while others were admitted through the outpatient department as elective patients. Patients who were admitted with current pregnancy complaints and labor pains had their labor stage and anemia severity evaluated and treated appropriately; some gave birth, while others underwent surgery. They were then monitored for five days

INCLUSIVE & EXCLUSIVE CRITERIA:

100 women pregnant with labour prenatal who were anemic between age of 33-48 y were admitted,term (37-40 weeks), multigravida, preterm (20 weeks-36 weeks), primigravida. Informed consent was obtained from each pregnant participant in this study. We did not include any women who having ovarian cancer, cervical cancer, fibroid uterus, and other medical illness.

All information was gathered through patient interviews who met the study's eligibility requirements. Informed consent was obtained from each pregnant participant in this study. biographical details, a comprehensive medical history, a head-to-toe examination, and laboratory tests such urea creatinine, PT, APTT, hemoglobin level, bleeding time, clotting time, and u; ultrasonography and ECG with echo. All serious women are managed medically and surgically

The study did receive permission from an institutional review board. This study's analysis contains the following variations: obstetric labor, protracted labor,

antepartum hemorrhage, postpartum hemorrhage, instrumental delivery, normal delivery or via cesarean section, and mother and fetal problems (APH). Intrauterine growth restriction (IUGR), fetal death (FSB, MSB, NND), and infant preterm birth.

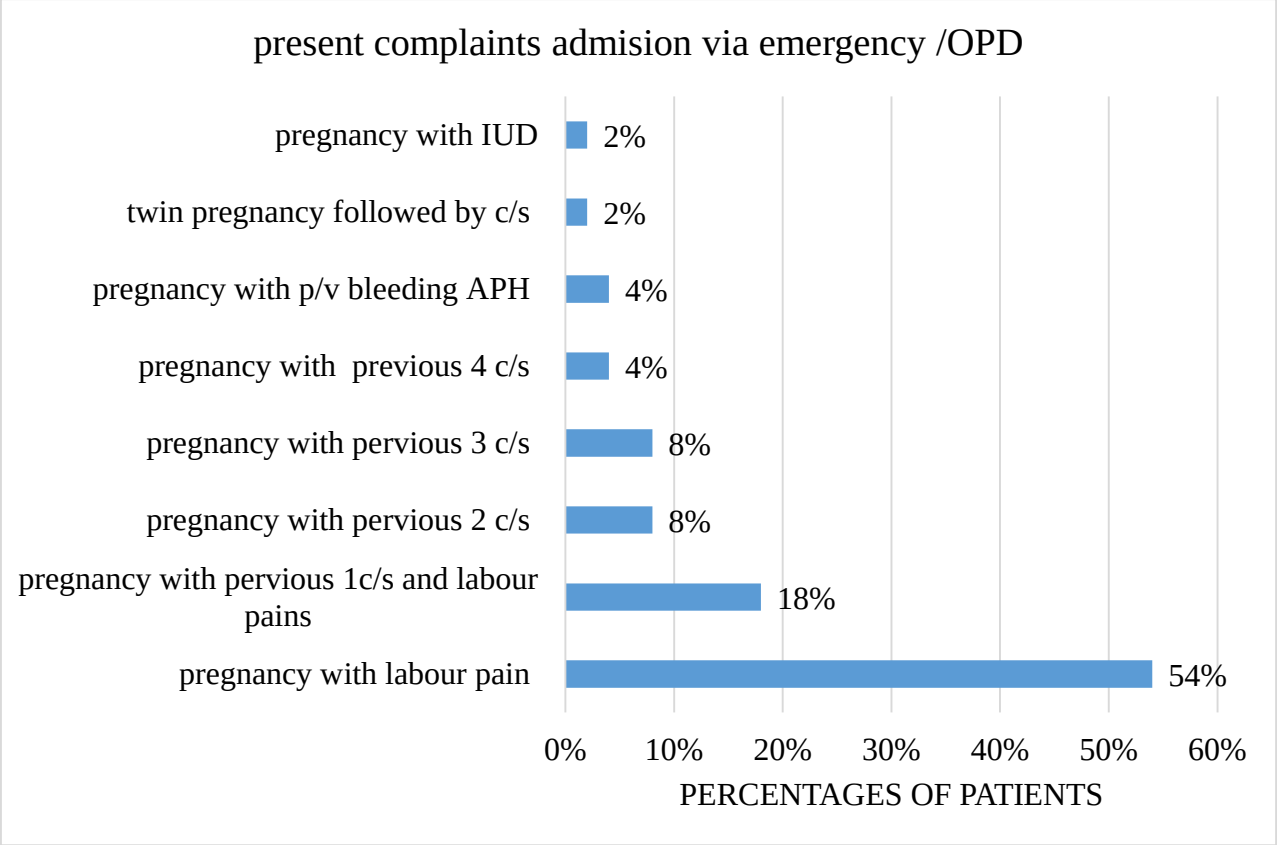
The study used IBM SPSS Statistics to analyze data on maternal deaths. Descriptive statistics were used to summarize findings, with categorical variables like age group and hospital stay expressed as means and standard deviations. The analysis aimed to identify trends, identify contributing factors, and support evidence-based recommendations.

Data was entered and analyzed through SPSS version 20. Quantitative variables like age, gestational age and blood loss are presented as mean and standard deviation. Qualitative variables like parity and efficacy are presented as frequency and percentage. Chi-square test applied to compare efficacy in both groups. P-value

RESULT:

The data shows in figure 1.0 that 54% of patients admitted to emergency or OPD experienced pregnancy-related complaints, with 18% having a previous cesarean section and labor pains, 8% having multiple cesarean sections, 4% having per vaginal bleeding, and 2% having an IUD.

Figure 1.0 Present of complain in patients.



Seventy-four percent of people had moderate anemia, fourteen percent had severe anemia, and twelve percent had light anemia, according to the data in figure 2.0.

Figure: 2 severity of anemia

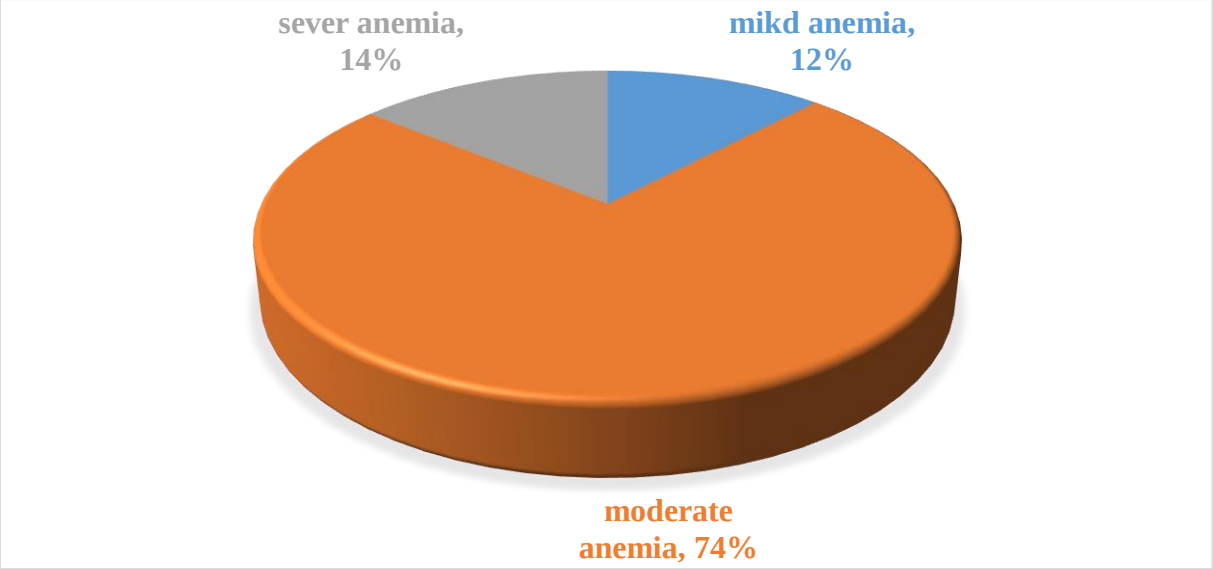


Figure 3.0 shows that while 74% of patients, including patients who had surgery as well as those who had a natural birth, required a blood transfusion, 26% of patients did not.

Figure 3. Blood transfusion history.

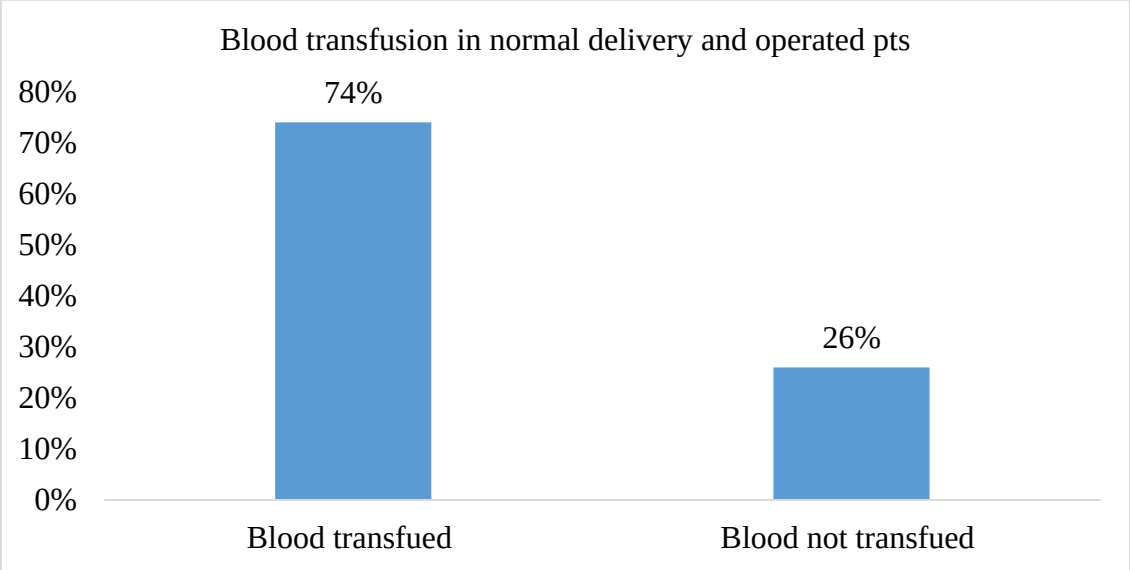
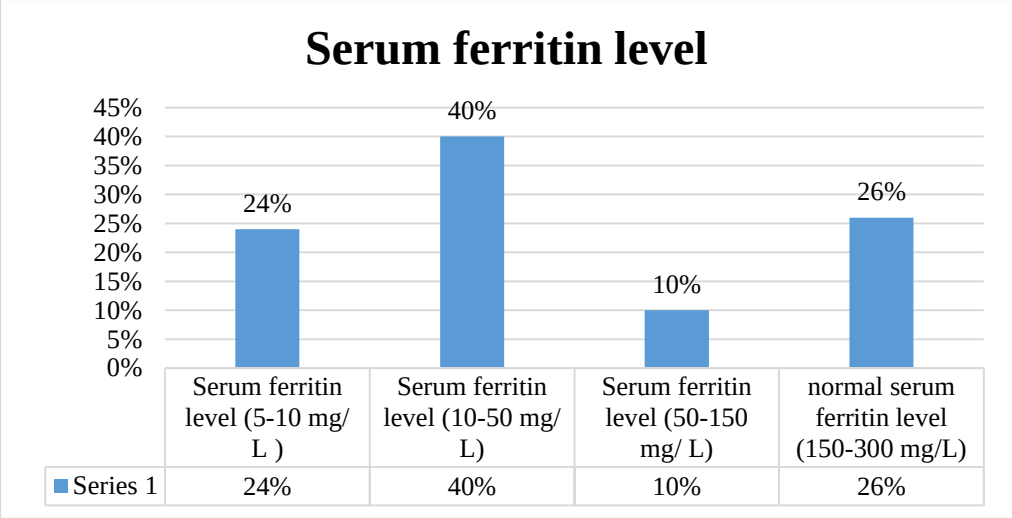


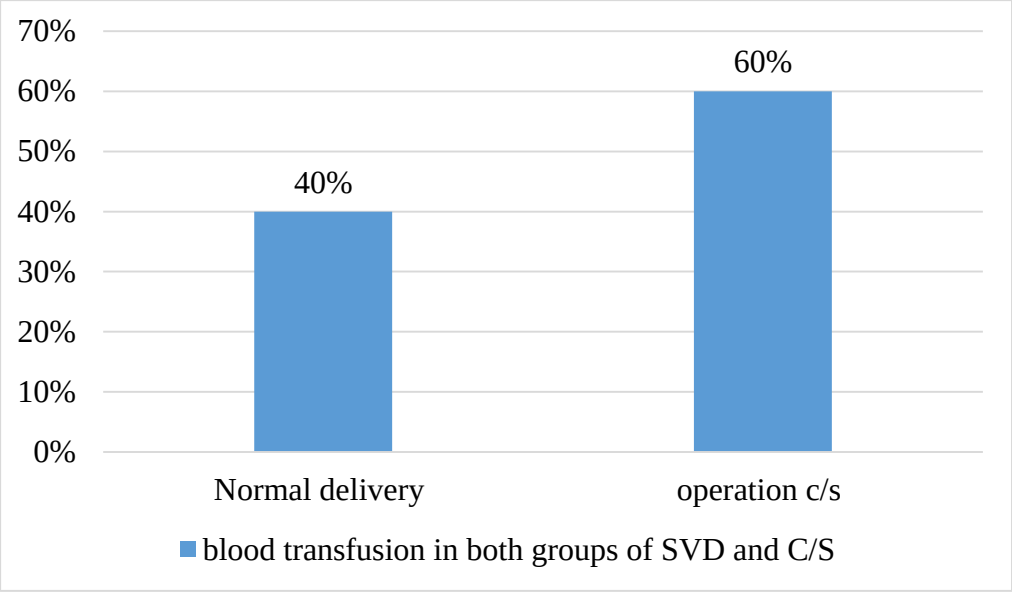
Figure 4.0 show the Serum ferritin levels among patients ranged from 5-10 mg/L, with 24% having normal levels, 40% having 10-50 mg/L, 10% having 50-150 mg/L, and 26% having normal levels.

Figure 4.0 Serum ferritin level



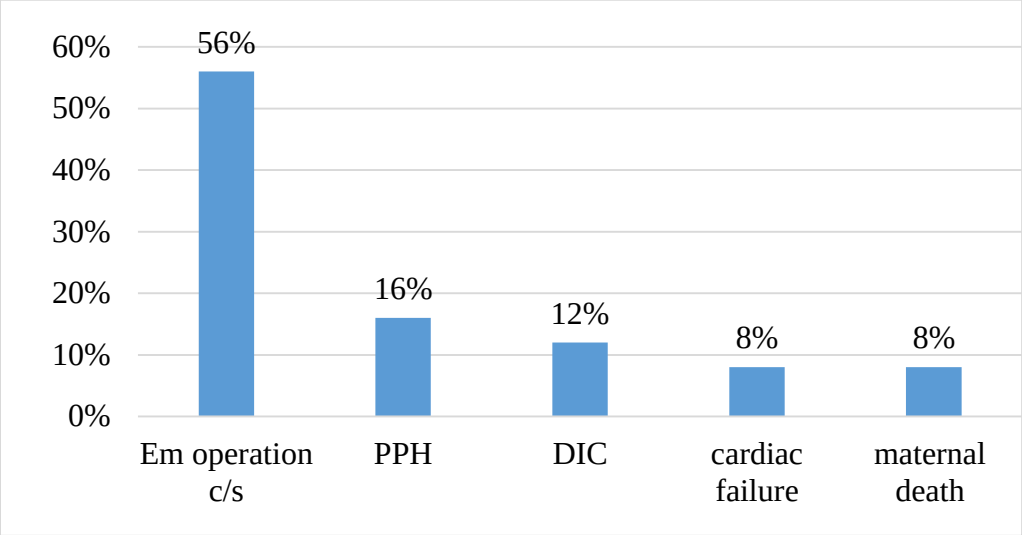
The data shows in figure 5.0 that 40% of deliveries were normal, 60% were cesarean sections, with a higher proportion of cesarean sections requiring blood transfusions, highlighting the need for more accurate data on blood transfusions.

Figure 5.0 Blood transfusion in normal delivery and c/s



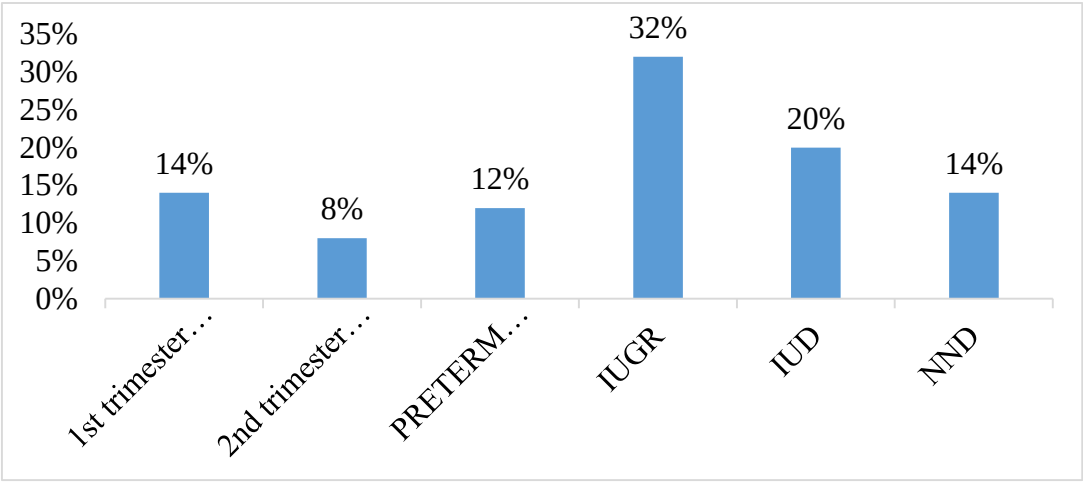
As can be seen from figure 6.0, there are several health problems associated with childbirth. The most common complication, necessitating a cesarean section (C/S) in 56% of patients, indicates a high rate of surgical intervention. Postpartum hemorrhage (PPH), which happens in 16% of instances, poses a serious risk of excessive blood loss after delivery. Disseminated intra-vascular coagulation (DIC), a condition that affects blood coagulation and can lead to severe bleeding, occurs in 12% of cases. 8% of patients experience cardiac failure, another problem that emphasizes the heart's inability to meet the physiological demands of pregnancy and delivery. Lastly, maternal death remains a significant risk factor even if it is less frequent. Representing 8% of cases, highlighting the gravity of problems that can arise before or following childbirth.

Figure 6.0 Maternal complication developed from anemia



The data shows in figure 7.0 that high prevalence of adverse pregnancy outcomes, with 14% of pregnancies resulting in first-trimester abortions, 8% second-trimester abortions, 12% preterm deliveries, 32% intrauterine growth restriction, 20% intrauterine death, and 14% neonatal death.

FIGURE. 7. MATERNAL COMPLICATIONS



DISSCUSION:

Only a diet with a middle bioavailability can meet the iron requirements of pregnant women that were not iron deficient. If the preconception iron stores (serum ferritin level) are at least 300 mg, then dietary iron absorption (hem from animals, nonhem from plants) might be sufficient to avoid iron shortage. 20% in industrialized nations and 15% to 20% in emerging nations (9). Some women may stabilize in equilibrium with their dietary intake of iron with moderate anemia due to the increased absorption of iron (homeostasis of increased iron demand with enhanced iron absorption) caused by low body storage and pregnancy-related metabolic adaptation.

The prevalence of anemia between poor and rural women had been found to be comparatively high. DHS studies showed that the prevalence of anemia in Nepal was 34.4%, Pakistan was 51.1%, and Bangladesh was 41.3%. Iron deficiency is very common in the developing world due to a variety of factors at different levels, including poverty, lack of meat diet, transportation costs to access prenatal care, poor access to health services, inadequate water supply and demand, poor sanitation, lack of understanding of iron nutrition, minimal education, low iron intake,

poor accessibility of iron, parasitic infection, worm infestation, and malabsorption (10).

According to research, anemia is linked to a higher risk of low Apgar scores, birth asphyxia, low birth weight following preterm birth, including prenatal illness and death The blood volume, red cell volumes, and circulating hemoglobin mass of newborns born to non-anemic mothers were significantly higher compared to that of infants born to anemic mothers

Women with higher socioeconomic rank and wealth had a lower risk of anemia, but those with lower socioeconomic status and living in tiny homes had a higher risk. Because they cannot afford iron-rich foods like meat, fish, and fruits, the poor suffer from anemia. Health status declined as a result of insufficient sanitation.

It's uncertain how low serum ferritin levels relate to pregnancy outcomes. Inadequate iron status encourages preterm delivery; in one investigation, the blood ferritin level was inversely connected with gestational age, but no such link was observed with other indicators of iron deficiency anemia. Because of tissue ferritin release and altered Ferro kinetics, serum ferritin levels are elevated in PIH and pre-eclampsia (11).Iron deficiency anemia negatively affected maternal along with fetal well being all over pregnancy and was linked to increased fetal morbidity alongside fetal death. The affected mother presented with weakness, vertigo, breathing difficulty, palpitation, fatigue, headache, and increased risk of IUGR, FSB, IUD, NND, infection, APH, PPH, DVT, pulmonary embolismic, cardiac arrest, and death. The clinical utility of serum ferritin level in predicting neonatal outcome appeared limited. Enhancing hematological iron status when pregnant may also reduce morbidity APH, PPH, and death.Regular prenatal visits, early booking, accurate diagnosis, and prompt treatment of anemia are necessary to prevent all complications. Blood transfusions are required for symptomatic patients at term pregnancy (37–42 weeks) or indicated for surgery based on obstetrical background; hemoglobin (Hb <10 g/dl) requires weekly administration of 2000 mg, and hemoglobin (Hb >10 g/dl) requires weekly administration of 1500 mg (12). In order to address and avoid any fetal, infant, or maternal complications as well as long-term neurogenic issues including autism and schizophrenia, my research suggests that anemia should be identified early.

CONCLUSION:

Iron deficiency anemia (IDA) is a common and manageable condition during pregnancy and postpartum. Early diagnosis, dietary adjustments, and monitoring can minimize its negative impacts. With diagnostic tools, treatment options, and education, it can lead to healthier pregnancies and better postpartum recovery.

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