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Perspective

A Detailed Description on Iron Deficiency during Pregnancy

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DESCRIPTION

Iron needs rise rapidly throughout pregnancy to address the increasing demands of the fetoplacental unit, to augment maternal erythrocyte mass, and to compensate for iron loss after delivery. Anemia in pregnancy affects more than 80% of the world's population and is considered a serious public health issue in more than 80 percent of those nations. Anemia in pregnancy is predicted to affect 41.8% of pregnant women worldwide. Undiagnosed and untreated Iron Deficiency Anemia (IDA) can have serious consequences for both the mother and the fetus. Chronic iron deficiency can impact a mother's overall health, causing weariness and a reduction in functioning ability. Early detection and treatment of this clinical disease is critical due to the severe negative influence on maternal-fetal outcomes. Anemia is defined as a hemoglobin (Hb) value less than two Standard Deviations (SD) below the median value for a healthy matched population by age, altitude, smoking, and pregnancy status. Given natural plasma expansion, ethnic variability in Hb levels, and the common use of iron supplementation in pregnancy, defining anemia in pregnancy is difficult.

The mother consumes an additional 630 mg of iron throughout pregnancy. The fetus comes first in the iron utilization hierarchy, followed by maternal hematocrit, and finally maternal iron reserves, which are commonly depleted throughout the course of pregnancy. Iron reserves are required by the mother for nursing and future pregnancies. To avoid a negative iron balance during pregnancy, a woman needs at least 300 mg of iron reserves at the start of the pregnancy if she eats a high-bioavailable-iron diet, and she will need to supplement if she eats a poor diet. During the second and third trimesters, the majority of iron is transferred to the fetus. In the first quarter, the average daily need for iron is 0.8 mg/d, increasing to 7.5 mg/day in the third trimester. The average daily absorption from a western diet is 1-5 mg/day, but the average daily absorption from an Indian diet ranges from 0.8 mg/d to 4.5 mg/d, depending on the staple consumed.

In order to determine the pregnancy, Iron is a vital element in the development of a newborn, since it plays a role in a variety of physiological and cellular processes. It is a cofactor for numerous enzymes and is involved in oxygen transport in red blood cells *via* hemoglobin (Hb) as well as other cellular activities such as DNA synthesis and oxidation-reduction reactions. In addition, animal studies have revealed that iron has a role in brain development and function. Inadequate iron levels cause a reduction in enzyme performance and red blood cell synthesis, resulting in a reduction in oxygen delivery to tissues.

When a woman has an iron deficiency during pregnancy, she will have a variety of symptoms such as pale complexion, dyspnea, palpitations, baldness, migraines, dizziness, joint pains, cold sensitivity, confusion, and impatience. Lower thermoregulation, weariness, poor focus, reduced working capacity, decreased mother breast milk supply, and depletion of maternal iron reserves during the postpartum period are all possible side effects of Iron deficiency anemia. Furthermore, compared to pregnant women without iron deficiency, the incidence of postpartum depression is greatly raised; exhaustion and sadness caused by anemia may have a detrimental impact on the mother-child bond.

The iron therapy entails determining the appropriate treatment for anemia based on the etiology and severity of the condition. The amount of time till birth, the degree of anemia, extra hazards, maternal comorbidities, and the preferences of the patients are all significant aspects to consider when choosing a treatment plan. Oral and parenteral iron deliveries are also options. From the second trimester onwards, parenteral iron treatment is recommended. Intravenous iron therapy is the most acceptable parenteral method; intramuscular iron therapy is typically not suggested since intramuscular iron absorption is sluggish, and intramuscular injections are unpleasant and can induce complications such as sterile abscesses. Furthermore, this method of iron delivery is neither less harmful nor safer than intravenous administration.

CONCLUSION

Anemia due to iron deficiency in pregnancy is a problem around the world. In cases of oral iron intolerance or poor compliance, intravenous iron is a frequent alternate therapy, and new formulations of intravenous iron have an excellent safety profile and great efficacy. Intravenous iron administration has a number of disadvantages, including the need to go to the hospital and

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the loss of work hours. Liposomal iron appears to be a potential new iron replacement technique. It is efficient and well-tolerated, resulting in higher compliance.