بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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Comparative Study between Iron Dextran Infusion and Intramuscular Ferric Hydroxide Polymaltose Complex in Treatment of Iron Deficiency Anemia in Pregnant Women: Randamized Clinical Trial

Thesis

For Partial Fulfillment of Master Degree in Obestetrics & Gynecology

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التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

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Introduction

Nutritional iron deficiency (ID) is the most widespread nutritional deficiency disorder, afflicting more than 2 billion people worldwide. Although pregnant women and infants from developing countries are at higher risk, it frequently occurs not only in underdevelopment countries but also in developed ones. ***(Silla et al., 2013)***

World Health Organization (WHO) data showed that anemia's global prevalence is 14%. Iron deficiency anemia (IDA) in pregnant women has a prevalence of 17.4% in industrialized countries, whereas in underdeveloped countries, it goes close to 60%. Most of the anemic pregnant women were already anemic antecedent to conception. ***(Khalafallah and Dennis, 2012)***

Iron deficiency anemia in women brings extensive consequences to the individual's health. Iron deficiency anemia leads to poor pregnancy outcomes, decreased educational performance, and reduced work capacity and productivity and other socioeconomic vulnerabilities. It is well established that the incidence of ID and IDA in infants born to mothers who are anemic is higher. ***(Khalafallah and Dennis, 2012)***

Both ID and IDA in pregnant women are associated incremented risks of developing preeclampsia, low birth weight, prematurity, perinatal mortality, delayed fetal maturation, and irreversible compromise to infant neurocognitive development and motor capacity. ***(Zhou et al., 2007)***

Animal model studies consistently evidenced that inadequate iron intake during pregnancy would lead to permanent changes in the offspring's brains (structure and function wise). ***(Zhou et al., 2007)***

This body of evidence initiates the idea that the prevention and treatment of IDA in pregnant women would lead to the prevention IDA in infancy and its severe repercussions. ***(Roodenburg, 1995)***

The prevention and treatment of ID and IDA in pregnancy in many countries is commonly done with routine iron supplementation (IS) through different routes i.e. oral, intravenous infusion and intramuscular, once the iron obtained from diet usually does not reach the recommended daily intake levels. ***(Roodenburg, 1995)***

Even though routine IS in pregnancy is widely practiced, its effects on both pregnancy and infants are

uncertain, and currently, experts worldwide diverge on whether IS should be a routine during pregnancy. ***(Khalafallah and Dennis, 2012)***

Aim of the Work

The aim of this study is to compare between effect of iron dextran infusion versus intramuscular ferric hydroxide polymaltose complex in treatment of iron deficiency anemia in pregnant women.

Chapter (1)
Anemia in pregnancy

Anemia in pregnancy is a global health problem. While some degree of dilutional anemia is part of normal pregnancy physiology, iron deficiency anemia can have serious adverse health consequences for the mother and child. Thus, it is critical to distinguish iron deficiency anemia from physiologic anemia, as well as to identify other less common causes of anemia that may require treatment. ***(ACOG, 2017)***

Definition of anemia:

Definitions of anemia are different in pregnant women compared with non-pregnant women, and the lower limit of normal for the hemoglobin concentration may vary in different populations. However, it is helpful to have a threshold for determining the presence and severity of anemia. ***(ACOG, 2017)***

The World Health Organization (WHO) and the American College of Obstetricians and Gynecologists (ACOG) define anemia in pregnancy as follows: ***(ACOG, 2017)***

- First trimester: Hemoglobin <11 g/dL (approximately equivalent to a hematocrit <33 percent)
- Second trimester: Hemoglobin <10.5 g/dL (approximate hematocrit <31 or 32 percent)
- Third trimester: Hemoglobin level <11 g/dL (approximate hematocrit <33 percent)

Some individuals may have a significant decrease from baseline without crossing these thresholds, and clinical judgment is required to determine the reason(s) for the decrease and the need for (and aggressiveness of) further evaluation. As an example, in an individual with a baseline hemoglobin of 14 g/dL that decreases to 11 g/dL associated with macrocytosis, checking a reticulocyte count and testing for vitamin B12 and folate deficiencies is reasonable. For an individual with a baseline hemoglobin of 14 g/dL that decreases to 11 g/dL without macrocytosis, testing for iron deficiency and vitamin B12 and folate deficiencies is reasonable. ***(ACOG, 2017)***

Epidemiology:

An estimated 30 percent of reproductive-age women are anemic. Among pregnant women, the prevalence is even higher; the World Health Organization (WHO) estimates that over 40 percent of pregnant women globally have anemia.

Variations in regional and global prevalences of anemia during pregnancy reflect socioeconomic status and associated nutritional deficiencies. In African-American women, the prevalence of anemia during pregnancy is 27 percent, which is significantly higher than among non-Hispanic white women (7 percent). ***(WHO, 2018)***

The overwhelming majority of anemia in reproductive-age women is due to low or absent iron stores, making iron deficiency anemia the world's most common anemia due to a micronutrient deficiency. The incidence of iron deficiency anemia in the United States, Western Europe, and other high-resource regions of the world is lower than in low-resource regions, but iron deficiency anemia remains a formidable problem worldwide. ***(WHO, 2018)***

In addition to iron deficiency anemia, a large number of pregnant women have iron deficiency without anemia (ie, low iron stores that have not yet caused anemia). Data from the United States from 1999 to 2006 showed that iron deficiency (defined as serum ferritin <12 ng/mL [<12 mcg/L]) was present in 25 percent of pregnant women. The prevalence of iron deficiency increased from 7 percent in the first trimester to 24 and 39 percent in the second and third