Iron loading: A peril in pregnancy

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Abstract

Introduction
Increasingly, it is becoming apparent that "life was designed to exist at the very interface of iron deficiency and iron sufficiency". Unfortunately, iron supplements are available in the U.S. without medical supervision. Many persons take iron supplements to overcome fatigue or, in pregnancy, to insure a good outcome. However, in the U.S. a large majority of persons are not iron deficient. Information is needed to determine the possible hazard of adding iron to iron replete pregnant women.

The Hypothesis
Iron loading in pregnancy can be a risk factor for teratogenicity in the first trimester and for gestational diabetes, pre-eclampsia, GRACLE syndrome (foetal hepatic siderosis), retinopathy, oligohydramos, and increased oxidative stress in the second and third trimesters. Thus, unless maternal iron deficiency has been medically established, iron supplementation should be avoided.

Evaluation of hypothesis
To determine the magnitude of ferrotoxicity, women who have delivered normal babies as well as those who have miscarried or birthed an anatomically abnormal baby should be asked to recall how much of any supplemental iron was taken and the duration of supplementation.

Additionally, mammalian animal research is needed to confirm gestation time(s) at which iron is maximally teratogenic. Research to determine safe upper limits of iron nutrition would also be valuable.

Discussion
In mice, iron loading has been observed to result in fetal damage. The present hypothesis may stimulate acquisition of information of a possible association of iron loading with development of fetal and/or maternal complications in humans.

Conclusion
Ingestion of excessive, unneeded iron during pregnancy can be a risk factor for fetal health and normal development as well as for maternal health. Quantitative data on the association of iron loading with miscarriage, fetal abnormalities and maternal illnesses requires interviews with mothers of normal infants (for controls) and with mothers who suffered complications.

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