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[Intervention Review]

Effects and safety of preventive oral iron or iron+folic acid supplementation for women during pregnancy

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ABSTRACT

Background

Intake of supplements containing iron or a combination of iron and folic acid by pregnant women may improve maternal health and pregnancy outcomes. Recently, intermittent supplementation regimens have been proposed as alternatives to daily regimens.

Objectives

To assess the effectiveness and safety of daily and intermittent use of iron or iron+folic acid supplements by pregnant women.

Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (March 2009) and contacted relevant organisations for the identification of ongoing and unpublished studies.

Selection criteria

All randomised or quasi-randomised trials evaluating the effect of supplementation with iron or iron+folic acid during pregnancy.

Data collection and analysis

We assessed the methodological quality of trials using the standard Cochrane criteria. Two authors independently assessed which trials to include in the review and one author extracted data.

Main results

We included 49 trials, involving 23,200 pregnant women. Overall, the results showed significant heterogeneity across most prespecified outcomes and were analysed assuming random-effects. The trials provided limited information related to clinical maternal and infant outcomes.

Overall, daily iron supplementation was associated with increased haemoglobin levels in maternal blood both before and after birth and reduced risk of anaemia at term. These effects did not differ significantly between women receiving intermittent or daily iron or iron+folic acid supplementation. Women who received daily prenatal iron supplementation with or without folic acid were less likely to have iron deficiency at term as defined by current cut-off values than those who received no treatment or placebo. Side effects and haemoconcentration (a haemoglobin level greater than 130 g/L) were more common among women who received daily iron or iron+folic acid supplementation than among those who received no treatment or placebo. The risk of haemoconcentration during the second and

third trimester was higher among those on a daily regimen of iron supplementation. The clinical significance of haemoconcentration remains uncertain.

Authors' conclusions

Universal prenatal supplementation with iron or iron+folic acid provided either daily or weekly is effective to prevent anaemia and iron deficiency at term. We found no evidence, however, of the significant reduction in substantive maternal and neonatal adverse clinical outcomes (low birthweight, delayed development, preterm birth, infection, postpartum haemorrhage). Associated side effects and particularly haemoconcentration during pregnancy may suggest the need for revising iron doses and schemes of supplementation during pregnancy and adjust preventive iron supplementation recommendations.

PLAIN LANGUAGE SUMMARY

Effects and safety of preventive oral iron or iron+folic acid supplementation for women during pregnancy

Preventive daily or intermittent iron or iron+folic acid supplementation taken by women during pregnancy reduces anaemia and iron deficiency in mothers. There is evidence that taking iron or iron and folic acid daily or intermittently has a similar effect in reducing anaemia at term and improving haemoglobin concentrations in the mother. Daily iron or iron and folic acid is associated with adverse side effects.

During pregnancy, women need iron and folate to meet their own needs and those of their developing fetus. There is concern that pregnant women may become deficient in these nutrients and unable to supply them in sufficient quantities to their fetus. Low iron and folate levels in women can cause anaemia, and low folate periconceptionally increases the risk of neural tube defects (NTD). Anaemia can make women tired, faint, and at increased risk for infection. Iron and folate deficiencies could impact the mother and her pregnancy, and the baby. In this review of 49 trials, involving 23,200 pregnant women, we found data to conclude that the use of iron or iron+folic acid supplements was associated with a reduced risk of anaemia and iron deficiency in pregnancy and that daily iron supplementation was associated with increased risk of haemoconcentration at term. The effects of iron or iron+folic acid on reducing anaemia and iron deficiency anaemia at term were similar whether the supplements were taken daily or weekly. More research is needed on the safe and effective amounts of iron and schemes to provide in preventive supplementation programs for pregnant women on functional outcomes, particularly in low-income countries.