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Effect of administration of antihelminthics for soil-transmitted helminths during pregnancy (Review)

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[Intervention Review]

Effect of administration of antihelminthics for soil-transmitted helminths during pregnancy

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ABSTRACT

Background

Helminthiasis is infestation of the human body with parasitic worms and it is estimated to affect 44 million pregnancies, globally, each year. Intestinal helminthiasis (hook worm) is associated with blood loss and decreased supply of nutrients for erythropoiesis, resulting in iron-deficiency anaemia. Over 50% of the pregnant women in low- and middle-income countries suffer from iron-deficiency anaemia. Though iron-deficiency anaemia is multifactorial, hook worm infestation is a major contributory cause in women of reproductive age in endemic areas. Antihelminthics are highly efficacious in treating hook worm but evidence of their beneficial effect and safety, when given during pregnancy, has not been established.

Objectives

To determine the effects of administration of antihelminthics for soil-transmitted helminths during the second or third trimester of pregnancy on maternal anaemia and pregnancy outcomes.

Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 January 2015) and reference lists of retrieved studies.

Selection criteria

All prospective randomised controlled trials evaluating the effect of administration of antihelminthics during the second or third trimester of pregnancy.

Data collection and analysis

Two review authors independently assessed trials for inclusion and risk of bias, extracted data and checked them for accuracy.

Main results

A total of four trials including 4265 participants were included in this review. Two of the included trials were of high quality, while two were of relatively low quality with limitations and biases in design and conduct.

Analysis showed that administration of a single dose of antihelminthic in the second trimester of pregnancy is not associated with any impact on maternal anaemia in the third trimester (risk ratio (RR) 0.94; 95% confidence interval (CI) 0.81 to 1.10; 3266 participants; four trials; *low quality evidence*). Subgroup analysis on the basis of co-interventions other than antihelminthic, which included iron supplementation given to both groups was also not associated with any impact on maternal anaemia (RR 0.76; 95% CI 0.47 to 1.23; 1290 participants; three trials; *moderate quality evidence*). No impact was found for the outcomes of low birthweight (RR 1.00; 95% CI 0.79 to 1.27; 3255 participants; three trials; *moderate quality evidence*), preterm birth (RR 0.88; 95% CI 0.43 to 1.78; 1318 participants; two trials, *moderate quality evidence*) and perinatal mortality (RR 1.09; 95% CI 0.71 to 1.67; 3385 participants; two trials; *moderate quality evidence*). None of the included studies reported impact on infant survival at six months of age.

Authors' conclusions

The evidence to date is insufficient to recommend use of antihelminthic for pregnant women after the first trimester of pregnancy. More well-designed, large scale randomised controlled trials are needed to establish the benefit of antihelminthic treatment during pregnancy.

PLAIN LANGUAGE SUMMARY

Effect of administration of antihelminthic for soil-transmitted helminths during pregnancy

Intestinal worms (helminths) contribute to iron-deficiency anaemia as they feed on blood and cause further bleeding by releasing anticoagulant compounds. They also affect the supply of nutrients and cause anorexia, vomiting and diarrhoea. Pregnancy complicated by maternal hookworm infection poses a serious threat to the health of mothers and their babies, especially in developing countries. Women who are anaemic during pregnancy are more likely to have ill health, give birth prematurely, and have low birthweight babies with low iron reserves. Antihelminthic drugs are highly effective and have minimal side-effects but information on their use during pregnancy is limited. The major concern is that the drugs may cause malformation of the fetus (teratogenic effects). We examined the research published up to 31 January 2015 on the impact of giving a single antihelminthic treatment in the second trimester of pregnancy on maternal anaemia and pregnancy outcomes.

We found four studies including 4265 pregnant women. Two of the included studies were of high quality, while the other two were of relatively low quality with limitations and biases in design and conduct. The studies were conducted in Sierra Leone, Peru and Uganda. In two studies, the women were also given a daily iron or iron-folate supplement along with antihelminthic treatment. There was no effect of antihelminthic administered in second trimester of pregnancy on maternal anaemia, low birthweight, preterm births or perinatal deaths. There was no impact on maternal anaemia in studies in which iron or iron-folate was also given to pregnant women along with antihelminthic. The impact on infant survival at six months of age could not be evaluated because data were not available. Evidence provided so far from randomised controlled trials is, therefore, insufficient to recommend use of antihelminthics for pregnant women after the first trimester of pregnancy.