Intermittent iron supplementation for reducing anaemia and its associated impairments in menstruating women

03 March 2014

RHL summary

Findings of the review: Iron supplementation is used to prevent or treat anaemia. Women, especially those in low-resource settings, are at high risk of becoming anaemic due to iron deficiency. Daily regimens are usually used to treat anaemia. It has been proposed that intermittent regimens could help women to have fewer side-effects and improve adherence to treatment. This review aimed to evaluate the effects of intermittent oral iron supplementation on anaemia and its associated impairments in menstruating women. Twenty-one trials conducted in 15 different countries and involving 10258 women were included in this review. The quality of studies was low. Compared with placebo or no treatment, intermittent iron supplementation was effective in reducing the prevalence of anaemia and in increasing serum haemoglobin and ferritin concentrations. When compared with daily supplementation, intermittent regimens were associated with increased prevalence of anaemia. Levels of ferritin were lower in the intermittent group and concentrations of haemoglobin were similar in both groups. Although side-effects and adherence information was scarce, no differences were shown for this outcomes for the later comparison. Overall, results were not affected by dose regimens, duration of treatment and anaemia status or malaria background at baseline.

Implementation: Results extracted from this review suggest that intermittent oral iron supplementation is an achievable alternative for treatment or prevention of anaemia in women in whom daily supplementation is not feasible.

Cochrane review


Abstract
Daily iron supplementation has been traditionally a standard practice for preventing and treating anaemia but its long term use has been limited as it has been associated with adverse side effects such as nausea, constipation and teeth staining. Intermittent iron supplementation has been suggested as an effective and safer alternative to daily iron supplementation for preventing and reducing anaemia at population level, especially in areas where this condition is highly prevalent.

To assess the effects of intermittent oral iron supplementation, alone or in combination with other nutrients, on anaemia and its associated impairments in menstruating women, compared with no intervention, a placebo or daily supplementation.

We searched the following databases in May 2011: CENTRAL (The Cochrane Library 2011, Issue 2), MEDLINE (1948 to May Week 3, 2011), EMBASE (1980 to 2011 Week 20), CINAHL (1937 to current), POPLINE (all available years), Science Citation Index (1970 to 27 May 2011), BIOSIS Previews (1969 to current), and CPCI-S (1990 to 27 May 2011). On 7 July 2011 we searched all available years in the following databases: SCIELO, LILACS, IBECS and IMBIOMED, the Networked Digital Library of Theses and Dissertations, metaRegister and the WHO International Clinical Trials Registry Platform (ICTRP). We also contacted relevant organisations (on 11 October 2011) to identify ongoing and unpublished studies.

Randomised and quasi-randomised trials with either individual or cluster randomisation. Participants were menstruating women, that is women beyond menarche and prior to menopause who were not pregnant or lactating and did not have a known condition that impeded the presence of menstrual periods. The intervention was the use of iron supplements intermittently (one, two or three times a week on non-consecutive days) compared with no intervention, a placebo, or the use of same supplements on a daily basis.

Two review authors independently assessed the eligibility of studies against the inclusion criteria, extracted data from included studies, checked data entry for accuracy and assessed the risk of bias of the included studies.

We included 21 trials involving 10,258 women. Although the quality across trials was variable, the results consistently show that in comparison with no intervention or a placebo, intermittent iron supplementation (alone or with any other vitamins and minerals) reduces the risk of having anaemia (RR 0.73; 95% CI 0.56 to 0.95, 10 trials) and improves the concentration of haemoglobin (MD 4.58 g/L; 95% CI 2.56 to 6.59, 13 trials) and ferritin (MD 8.32 ?g/L; 95% CI 4.97 to 11.66, six trials). However, in comparison with daily supplementation, women receiving supplements intermittently presented anaemia more frequently (RR 1.26; 95% CI 1.04 to 1.51, six trials), despite achieving similar haemoglobin concentrations on average (MD -0.15 g/L; 95% CI -2.20 to 1.91, eight trials).

Information on disease outcomes, adherence, side effects, economic productivity and work performance is scarce and the evidence about the effects of intermittent supplementation on them is unclear.

Overall, whether the supplements were given once or twice weekly, for less or more than three months, contained less or more than 60 mg of elemental iron per week, or to populations with different degrees of anaemia at baseline did not seem to affect the findings. Furthermore, the response did not differ in areas where malaria is frequent, although very few trials were conducted in these settings.

Intermittent iron supplementation in menstruating women is a feasible intervention in settings where daily supplementation is likely to be unsuccessful or not possible. In comparison with daily supplementation, the provision of iron supplements intermittently is less effective in preventing or controlling anaemia. More information is needed on morbidity (including malaria outcomes), side effects, work performance, economic productivity, depression and adherence to the intervention.

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