

Abstracts

Routine use of anthelmintics can improve anaemia

Anaemia is a widespread public health problem that also has major socioeconomic ramifications. Anaemia affects about one-third of the global population and is more widespread in South Asia than in other regions. Iron deficiency is the most common cause of anaemia and most anaemia programmes in the developing world rely on iron supplementation. But, the efficacy of iron supplementation alone is now being questioned, according to the authors of this recent paper in the *British Medical Journal*. These authors, from India, set out to evaluate the effect of routine administration of intestinal anthelmintic drugs on haemoglobin by making a systematic review of randomised controlled trials.

Their search identified 14 trials that could be included in their review. Data were available for 7 829 subjects, of whom 4 107 received an anthelmintic drug and 3 722 received placebo. They found that, using the World Health Organization's recommended haemoglobin cut-offs of 120 g/l in adults and 110 g/l in children, the average estimated reduction in the prevalence of anaemia ranged from 1.1% to 12.4% in adults and from 4.4% to 21.0% in children. The estimated reductions in the prevalence of anaemia increased with lower haemoglobin cut-offs used to define anaemia.

They concluded that routine administration of intestinal anthelmintic agents results in a marginal increase in haemoglobin (1.71 g/l), which could translate on a public health scale into a small (5 - 10%) reduction in the prevalence of anaemia in populations with a relatively high prevalence of intestinal helminths.

Gulani A *et al.* *BMJ* 2007; 334: 1095.

Combination therapy for uncomplicated falciparum malaria in Ugandan children

This recent paper in the *Journal of the American Medical Association* reports on the results of a trial to compare

the efficacy and safety of 3 leading combination therapies for the treatment of uncomplicated malaria. Combination therapy is now widely accepted as the first-line treatment for uncomplicated malaria in Africa. But, according to these authors, it is not clear which treatment regimens are optimal or how it is best to assess comparative efficacies in highly endemic areas.

They carried out a single-blinded randomised clinical trial between November 2004 and June 2006, looking at the treatment of all episodes of uncomplicated malaria in children in an urban community in Kampala, Uganda. They randomly selected 601 healthy children, who were followed up for 13 - 19 months.

Study participants were randomised to receive 1 of 3 combination therapies (amodiaquine plus sulphadoxine-pyrimethamine, amodiaquine plus artesunate or artemether-lumefantrine) when diagnosed with their first episode of uncomplicated malaria. The same treatment was then given for any subsequent episodes of malaria. Among study participants, 329 of the 601 children were diagnosed with at least 1 episode of malaria and 687 episodes of *Plasmodium falciparum* malaria were treated with study drugs. They found that artemether-lumefantrine was the best treatment for uncomplicated malaria in this population. However, all children who were given prompt and reasonably effective treatment in a health care facility had a good outcome - just as important as the specific type of treatment.

Dorsey G *et al.* *JAMA* 2007; 297: 2210-2219.

Fortifying maize flour with iron in Kenya

According to the authors of this paper in the *Lancet*, fortifying staple cereal flours with iron could be a cost-effective and sustainable way to improve children's iron status in developing countries. Elemental iron is the form of the mineral that is most often used to fortify cereal flours. Indeed, in South Africa fortification of maize and wheat flour with elemental iron is mandatory by law. However, although electrolytic iron is relatively cheap, its bioavailability, particularly in high-

phytate cereals, is questionable because it can bind to the phytates in the cereals. In developing countries the typical diet includes whole grain flour, which has a much higher phytate content than low-extraction white flour.

The authors of this study set out to assess the effect of consumption of whole maize flour fortified with iron as NaFeEDTA or elemental iron on children's iron status. They looked at 516 children, aged 3 - 8 years, from 4 schools in Marafa, Kenya, who were randomly assigned to 4 groups. All were given the same amount of porridge 5 times a week. The porridge for 1 group was made from unfortified whole maize flour; for the other 3 groups it was fortified with either high-dose NaFeEDTA (56 mg/kg), low-dose NaFeEDTA (28 mg/kg), or electrolytic iron (56 mg/kg). Concentrations of haemoglobin, plasma ferritin, and transferrin receptor were analysed in samples taken at baseline and at the end of the 5-month intervention. The primary outcome was iron-deficiency anaemia.

They found that the prevalence of iron-deficiency anaemia in children given unfortified flour was 10%. Compared with placebo, the prevalence of iron-deficiency anaemia in children given flour fortified with high-dose NaFeEDTA, low-dose NaFeEDTA, and electrolytic iron changed by -89%, -48%, and 59%, respectively. Consumption of high-dose NaFeEDTA improved all measured iron-status indicators. Low-dose NaFeEDTA decreased the prevalence of iron deficiency but did not noticeably change the prevalence of anaemia. Electrolytic iron did not improve any of these iron-status indicators. Children who were iron-deficient at baseline benefited more from high-dose and low-dose NaFeEDTA than those with sufficient iron at baseline.

They concluded that eating whole maize flour fortified with NaFeEDTA resulted in modest, dose-dependent improvements in children's iron status, but that fortification with elemental iron did not improve iron status. Therefore, it would appear that fortification of high-phytate flours with NaFeEDTA is better than fortification with elemental iron.

Anang'o, Pea *et al.* *Lancet* 2007; 369: 1799-1806

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