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An article entitled "Zinc during and in convalescence from diarrhea has no demonstrable effect on subsequent morbidity and anthropometric status among infants <6 mo of age" was published by Fischer Walker et al. in the American Journal of Clinical Nutrition 2007;85:887-94

Introduction

In recent decades, the use of Oral Rehydration Solution has led to a decrease in diarrhea case fatality rates, but diarrhea incidence rates have remained unchanged in the developing world. Zinc is recommended by the World Health Organization and UNICEF as part of diarrhea therapy for all children aged <5. When given for 10-14 days during and after a diarrhea episode, zinc has benefits for the subsequent 2-3 months in decreasing the prevalence of diarrhea and has been shown to help children maintain their weight and to improve growth in the weeks after an episode.

The authors conducted a randomized, placebo-controlled trial to assess the effect of zinc on diarrhea among infants 1-5 months of age in Pakistan, India and Ethiopia. The authors previously reported that there was no effect of zinc on the duration and severity of the treated diarrhea episode among young infants. In this article, the authors report the effect of zinc on morbidity and growth during 8 weeks of follow-up after the index diarrhea episode. The current study is the first to assess the effects of zinc on subsequent morbidity and growth exclusively in infants <6 months of age.

Methods

A total of 1,110 infants aged 1-5 months with <72 hours of diarrhea and no signs of other serious illness were enrolled in the study between October 2003 and February 2005 in Addis Ababa, Karachi, and New Delhi. They were followed up weekly for a period of 8 weeks after the initial diarrhea episode. Written parental permission was obtained, and infants were randomly assigned to receive 10 mg zinc sulfate or placebo in the form of a dispersible tablet once per day for 14 days. Infants were followed up at home or in the clinic every 3 days by a trained data collector until the infant passed <3 loose or watery stools/24 hours and had maintained this state for >48 hours. On the last diarrhea episode follow-up visit, as well as on the 4th and 8th weeks of follow-up, the infant's length and weight were recorded.

Results

Infants in the zinc group were more likely to be girls and to have been exclusively breastfed before the diarrhea episode than were infants who received placebo. There were no significant differences between the diarrhea incidence rates of infants in the zinc and placebo groups after control for covariates. Infants in the zinc group had more days of diarrhea during the follow-up period after control for covariates. Weight and length were not significantly different between the zinc and placebo groups at the start of follow-up, week 4, and week 8.

Discussion

In this study, 14 days of zinc for the treatment of diarrhea in young infants did not decrease the incidence or prevalence of diarrhea episodes in the 8 weeks after treatment. These results differ from previous ones showing a 34% decrease in the prevalence of diarrhea in zinc-supplemented children. Also, there was no significant difference in the incidence of respiratory infections or pneumonia between the groups. No significant effect of zinc on growth was observed during the 2 months after the diarrhea episode and stunting rates increased from 27.8% to 31.7% in 8 weeks. The authors advance that it is possible that the infants enrolled in the current study did not respond to the zinc with the benefits observed in other studies conducted in older children because they had not yet become zinc deficient. Nearly all the infants were receiving breast-milk, which contains highly bioavailble zinc. A limitation of the current study was that the authors did not assess zinc

status via serum zinc concentrations or the quantification of dietary zinc intake and as such they could not assess the variation in effect, if any, by baseline zinc status. Further investigation of the exact mechanisms by which zinc helps maintain immune function and prevents infectious diseases is needed to clarify why the positive effect of zinc is observed in older infants, but not in all infants under 6 months of age.