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ePoster Viewing

Changes in the intestinal flora

Zinc supplementation study in young children with acute diarrhoea

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Objectives: Relation between zinc deficiency and severity of diarrhea in children is not a subject to doubt. As a result zinc supplementation during diarrhea is universally recommended in developing countries. Growing number of studies showing beneficial effects of zinc not restricted to zinc deficient status appeared recently. They changed our concept about the mechanism of its action and raised the need to review the standpoint about its usefulness in infectious diarrhea in developed countries. Our aim was to study the relations between zinc status, the clinical type and etiology of diarrhea in hospitalized children and their response to zinc therapy. **Methods:** We measured serum zinc concentration at admission of 137 patients with acute diarrhea and of 30 healthy children 3 months to 3 years of age using flame absorption atomic spectrometry. Sixty six of the patients received zinc and 71 - placebo in addition to the therapy. The participants were strictly observed about the intensity, duration and clinical type of diarrhea. **Results:** The patients had lower serum zinc levels (11.69 ± 0.25) compared to healthy children ($13.97 \pm 0.55 \mu\text{mol/l}$), $P=0.0002$. Initial serum zinc concentration showed dependency neither on the disease etiology, nor on the clinical characteristics of the diarrhea. Strong negative correlation was found between serum zinc and disease intensity in watery diarrhea ($N=104$, $P<0.0001$). Zinc treated participants experienced shorten diarrheal episode compared to the placebo group (25.88 ± 8.02 hours less, $P=0.0015$) but reduction in the number of stools was not observed. Among the patients with proven infectious etiology ($N=54$) decreased duration (43.36 ± 13.18 hours less, $P=0.0018$) and intensity of the disease (6.592 ± 2.81 less diarrheal stools, $P=0.023$) were observed in the zinc group ($N=25$) compared to placebo ($N=29$). The subjects with mucoid/bloody stools had more intensive diarrhea with longer duration compared to those with watery stools ($P=0.016$ and 0.038 , respectively). This dependency was preserved in the placebo group, but not in the zinc group when examined separately. **Conclusion:** Considerable worsening of the zinc status in acute diarrheal disease is observed. Nevertheless, the beneficial effects of zinc seem to be dependent on the etiology and type of diarrhea rather than on the initial serum zinc concentration.