

- Title** Zinc Supplementation as an Adjuvant Therapy in Management of Diarrhoea in Children Younger than 5 Years Old
- Agency** HTA Malaysia, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia
Level 4, Block E1, Parcel E, Presint 1,
Federal Government Administrative Center, 62590 Putrajaya, Malaysia
Tel: +603 88831229, Fax: +603 88831230; htamalaysia@moh.gov.my, www.moh.gov.my
- Reference** Technology Review Report - 001/2016, online:
http://www.moh.gov.my/index.php/database_stores/store_view_page/30/282

Aim

To assess the effectiveness, safety and cost-effectiveness of zinc supplementation as an adjuvant therapy in management of diarrhoea in children younger than five years old.

Conclusions and results

There was good level of retrievable evidence to suggest that zinc supplementation was able to shorten the duration of acute diarrhoea by about 10 hours (mean difference - 10.44 hours, 95% CI: -21.13, 0.25) although the difference was not statistically significant, and shorten the duration of persistent diarrhoea by about 16 hours (mean difference - 15.84 hours, 95% CI: -25.43, -6.24). An overall 26% (95% CI: 20%, 32%) reduction in the estimated relative risk of diarrhoea lasting beyond three days was observed among zinc-treated children as well as reduction in the stool output and stool frequency. In children with signs of moderate malnutrition, the effect appears greater, reducing the duration of diarrhoea by around 27 hours (mean difference -26.98 hours, 95% CI: -14.62, -39.34). However, the evidence with regards to the benefit of zinc supplementation for children less than six months of age was unclear. Limited good level of retrievable evidence to suggest that zinc supplementation was associated with increased use of ORS and decreased use of antibiotics during acute diarrhoea. There was insufficient evidence to suggest that zinc supplementation during acute diarrhoea reduces mortality.

Good level of retrievable evidence to suggest that the use of zinc supplementation in the management of diarrhoea for children younger than five years old was safe. Most common complication reported was vomiting. However, the evidence found no difference in time to resolution of vomiting between zinc and placebo.

Based on the two cost-effectiveness analyses and one cost-utility analysis, zinc supplementation as an adjunct in the management of diarrhoea in children younger than five years old was found to be more cost-effective than the standard treatment.

There was good level of retrievable evidence to suggest that zinc supplementation during acute diarrhoea was associated with reduction in the duration of hospital stay among children hospitalised for diarrhoea compared to the control groups.

WHO and UNICEF have issued a global recommendation in 2004 which advised zinc supplementation in addition to ORS for the treatment of all diarrhoea episodes among children younger than five years of age. ESPGHAN and ESPID stated that children age more than six months in developing countries may benefit from the use of zinc in the treatment of acute gastroenteritis. However, in the regions where zinc deficiency is rare, no benefit from the use of zinc is expected.

Recommendations (if any)

Based on the above review, zinc supplementation as an adjuvant therapy in management of diarrhoea is recommended for children more than six months old and less than five years old particularly in those with signs of moderate malnutrition.

Methods

Literature search was done to search for published articles to assess the effectiveness, safety and cost-effectiveness of zinc supplementation as an adjuvant therapy in management of diarrhoea in children younger than 5 years old. The following electronic databases were searched via OVID Interface: MEDLINE (1946 to present), EBM Reviews-Cochrane Database of Systematic Reviews (2005 to January 2016), EBM Reviews-Cochrane Central Register of Controlled Trials (December 2015), EBM Reviews-Database of Abstracts of Review of Effects (2nd Quarter 2015), EBM Reviews-Health Technology Assessment (4th Quarter 2015) NHS economic evaluation database (2nd Quarter 2015), PubMed and INAHTA database. The last search was run on 20th January 2016.

Further research/reviews required

Local effectiveness study of zinc supplementation as an adjuvant therapy in management of diarrhoea in children younger than 5 years old may bring further impact for local used.

Written by

Dr. Nur Farhana Mohamad, MaHTAS, Malaysia