ESSENTIALS OF ZINC IN PAEDIATRIC DIARRHOEA

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ABSTRACT

Indeed zinc has played pivotal role in the treatment of diarrhea in children. It has been studied that zinc along with ORS has reduced the duration and diarrhoeal episode for upto 3 months. As per WHO daily requirement of zinc is 20mg for 10-14 days for children with acute diarrhea, 10mg per day for infants under 6months. It has been observed that poor sanitation & lack of safe water in many parts of the world has led to the death by causing diarrhoea. In fact WHO &UNICEF has recommended zinc & ORS for effective management of diarrhea. Zinc treatment is inexpensive, simple, and cheap for cure of diarrhea.

OVERVIEW OF DIARRHEAL SITUATION IN INDIA

Every year in INDIA, on an average approximately 10% of death among infants and 14% death among children in the age group 1-4yrs are due to diarrhea.

MECHANISM OF ACTIONOF ZINC IN DIARRHOEA

Zinc helps to fight infections by balancing the immune system response, according to the study led by DAREN KNOELL. Recent studies have shown that the positive action by Zinc in acute diarrhea derives from a regulation of intestinal fluid transport, mucosal integrity, immunity, gene expression & oxidative stress. A complex hemostatic network is able to regulate zinc status at cellular & extracellular level.

Zinc inhibits CAMP- induced, chloride dependent fluid secretion by suppressing basolateral potassium channels. As matter of fact, it improves absorption of water & electrolytes, improves regeneration of intestinal epithelium & increases level of brush border enzymes &enhances the immune response.

PHARMACOKINETICS OF ZINC IN DIARRHOEA

Absorption:- In fact, zinc is incompletely absorbed from gastrointestinal tract and the absorption is reduced in the presence of some dietary constituents such as phytates.

Bioavailability:- The solubility of salts depends on intragastric PH.Zinc is widely distributed in the body (RBC, WBC, MUSCLES, SKIN, KIDNEYS, LIVER, PANCREAS, RETINA, PROSTATE). Elemental zinc offered by ZINC SULPHATE is 23% which is 8% more than offered by ZINC GLUCONATE 14%.

Excretion:- It is excreted in faeces & small amount in urine & perspiration.

CLINICAL EVIDENCE:- Clinically it has been seen by RANDOMIZED CONTROLLED TRIALS that zinc had an effect in reduction of frequency,output & duration in 50 children during my survey conducted in my hospital. Statistically,80% have been forced to be cured by zinc supplement group like zinconia or zinc 20.

ZINC FOR PREVENTION OF ACUTE & PERSISTENT DIARRHOEA

Dose: WHO & UNICEF recommends following dose.

Children below 6 months: 10mg zinc daily for 10-14days.

Children above 6months: 20mg elemental zinc daily for 10-14 days.

ZINC FOR BLOODY DIARRHOEA

The studies conducted in HMCH during Acute Shigellosis infection in bloody diarrhea. Zinc infact improved seroconversion to shigellacidal antibody response and increases the proportions of circulating B lymphocytes and plasma cells and IgA specific immunoglobulin response.

DIFFERENT FORMS OF ZINC SALT

Zinc salt such as zinc sulphate, acetate, gluconate are all acceptable.

Zinc-DT is a dispersable form of ZINC tablet effective, safe and dissolves easily in teaspoon of 15ml. Available strength Zinc-DT 20mg.
SIDE EFFECT
Till now no major side effect has been noticed except vomiting is the only side effect.

CONCLUSION
Zinc administered orally has been proved significant for cure of acute diarrhoea, persistent diarrhoea and bloody diarrhoea. It is simple, effective and safe.

BIBLIOGRAPHY