

KAP SURVEY ON USE OF ZINC SUPPLEMENTATION IN ACUTE PAEDIATRIC DIARRHEA AMONG YOUNG DOCTORS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Zinc given as a combination therapy to new formulation of ORS has become an efficient approach for the treatment of acute Paediatric diarrhoea. Objective of present study is to find the perception, use and awareness of zinc use in acute paediatric diarrhoea among young medical doctors.

Subjects and Method: Present study is a descriptive prevalence study. Study population consisted of young doctors working in medical, Paediatric and surgery wards. Data was collected by administering a structured questionnaire to the study population. Questionnaire was constructed and was pre-tested by researchers.

Results: Study population consisted of 158 young doctors working in a Tertiary Care Hospital. 78.5% of them were familiar with zinc supplementation. 60% of the study participants knew role of zinc in decreasing stool volume and 63.3% knew that it reduces the stool frequency. Around 50% were aware of the role that zinc played in intestinal water reabsorption, 47% of the doctors knew the role of zinc in re-epithelisation of the intestinal mucosa. 65.8% of the participants consented to WHO protocol of giving zinc in adjunct to ORS reduces hospital stay.

Conclusion: Present study revealed that a large number of the doctors were familiar with role of zinc supplements in management of diarrhoea in young children.. But specified knowledge on role of zinc in controlling Paediatric diarrhoea was sub optimal.

Key words: zinc supplement, young medical doctors, Paediatric diarrhoea, WHO protocol.

INTRODUCTION

Diarrhoea is clinically defined as the passage of three or greater number of loose or liquid stools per day or increase in number of stools than usual¹. Diarrhoea is major cause of morbidity & death in children in low and middle-income countries. Gastroenteric Infection has significant contribution to mal- nutrition in children of ages less than five years in developing countries^{2,3,4}. Due to its high prevalence it also has a significant socioeconomic effect⁴.

Zinc given in combination with ORS of reduced osmolality has become an efficient approach for the treatment of Paediatric diarrhea. ⁵Evidence supports that Zinc reduces the number and volume of stool: ⁵ It decreases gravity and period of diarrhea nearly up to three months⁵. Zinc supplement improves absorption of electrolytes and water, ⁶ renews epithelial layer of intestines, ⁶ improves levels of brush border enzymes and the increases immunity.⁶ Zinc is present in costly foods. Children therefore from socioeconomically

compromised families have either small or no zinc in diets. This makes them more vulnerable them to diarrhoea. Human body does not have the ability to store Zinc. Almost 50% of zinc is expelled through GI tract which become more in episodes of diarrhea Children who are more vulnerable to gastrointestinal disease producing organisms and food items they consume are rich in phytates and animal products are at higher risk⁷.

Based on the clinical evidence of the benefits WHO/UNICEF in a formal announcement advised the use of zinc and low osmolality ORS for management of diarrhoea in children in May 2004⁶. Pakistan has kept a policy to use zinc and new formulation ORS for management of diarrhea in children. this has also been incorporated in the lady health workers' programme. As per guidelines of UNICEF, 20 mg of zinc supplementation is given daily for about 10-14 days ⁵ It also stresses to increase fluids intake and give normal feeds in subsequent episodes of diarrhea ⁸.

Supplementary salts that are advocated are Zinc gluconate and Zinc sulphate. However use of zinc sulfate is more widespread.

Little has been done to promote the use of zinc in childhood diarrhea in Pakistan. Not much work has been documented to know about the perception and practices of care givers in use of zinc supplements in treatment of acute pediatric diarrhoea. This study was therefore carried out to evaluate the awareness knowledge and practices regarding the role of zinc in targeting doctors at Fauji Foundation Hospital, Rawalpindi

SUBJECTS AND METHODS

Present study was a Descriptive cross sectional survey conducted from January to July 2014. Purposive Sampling technique was used. Study population consisted of Registrars, medical officers, trainees & house officers of general surgery, medical and pediatric ward of FFH (Fauji Foundation Hospital). Informed verbal consent was obtained from the participants. Data was collected by administering a structured questionnaire. Questionnaire was designed by researchers after literature search and consultation with prof. of pediatrics department FFH. It was pretested on 20 faculty members of foundation medical college. Final version of questionnaire was drafted by incorporating input received during pretesting. It comprised of close-ended questions. The first part was made up of sociodemographic questions. The second part of the questionnaire has been designed to sought Information on familiarity with the product, Correct knowledge (regarding its mechanism of action for reducing frequency and amount of stool) regarding role of zinc in pediatric diarrheal management. Third and the last part consisted of questions to see practice of administration (dose, formulation and reported side effect) of zinc in diarrheal management

Statistical analysis: Data analysis was done by using SPSS version 17. Simple proportion was calculated to determine the level of knowledge and use of zinc. Data is presented in form of tables and charts.

RESULTS

This study was designed to determine the level of knowledge and practice of use of zinc supplementation in management of childhood diarrhea among young medical doctors in a tertiary care hospital in Rawalpindi, A total of 158 doctors participated in the study, out of which there were 62 males (39.2%) and 96 (60.8%) were females.

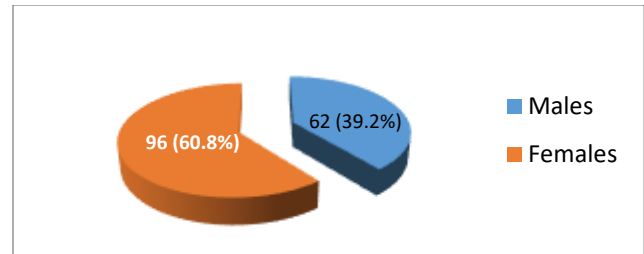


Fig. 1: Gender wise frequency distribution in the study population

Table 1: Knowledge, regarding use of zinc in management of paediatric diarrhoea.

| S.# | Variable | # & % |
|-----|---|-------------|
| 1. | Familiarity with use of Zinc in Diarrheal Management. | 124 (78.5%) |
| | Aware | 34 (21.5%) |
| | Unaware | |
| 2. | Awareness of role Zinc plays in intestinal water reabsorption | 79 (50%) |
| | Aware | 32 (20%) |
| | Unaware | 47 (30%) |
| 3. | Knowledge about Role of Zinc in Intestinal Re-epithelisation | 74 (47%) |
| | Yes | 46 (29%) |
| | No | 38 (24%) |
| 4. | The Zinc formulation used in diarrhea | 52 (32.9%) |
| | zinc sulphate tablet | 37 (23.4%) |
| | zinc sulphate suspension | 69 (43.7%) |

Majority of the doctors i.e. 78.5% (124) were familiar with the intervention of zinc in management of acute diarrhea. Around 50% knew the role that zinc played in intestinal water reabsorption while 19% were unaware and 30% were not sure. 47% of the doctors were familiar with the role of zinc in re-epithelisation of the intestinal mucosa. Upon inquiring about what is the zinc formulation used in childhood diarrhoea, 32.9% said it is zinc sulphate tablets, 23.4% said zinc sulphate suspension while 43.7% said both.

About 75% of the study population were using zinc in adjunct to ORS for childhood diarrhea. When enquired about adverse effects of zinc administration, (75%) reported nausea and vomiting, 20% agranulocytosis and 10% renal stones. Among the study population 47.5% believed recommended dose of zinc along with ORS reduce inappropriate use of antimicrobial drugs, 31.6% did not believe in it. Nearly

64.8% study subjects were of the opinion that use of zinc along with ORS reduces hospital stay. Nearly 59.9% of the study population said zinc supplementation Should Zinc be given to children in between episodes of diarrhea whereas 21.5% said there is none and 19% were no sure about it.

Table 2: Practice and perception about role zinc play in paediatric diarrhoeal management

| S.# | Variable | # & % |
|-----|--|--|
| 1. | Prescribe zinc along with ORS in acute management of diarrhea Yes No | 118(75%) 40(25%) |
| 2. | Common reported adverse effects Nausea vomiting Agranulocytosis Kidney stone | 118(75 %) 32 (20 %) 16(10 %) |
| 3. | Recommended doze of zinc along with ORS reduce inappropriate use of antimicrobial drugs Yes No Not sure | 75(47.5%) 50(31.6 %) 33(20.9%) |
| 4. | Agreed that use zinc along with ORS reduce hospital stay Yes No Not sure | 102(64.8%) 38(23.9 %) 18(11.3.%) |
| 5. | Should Zinc be given in between episodes of diarrhea Yes No Not sure | 94(59.9%) 34(21.5%) 94(19.0%) |

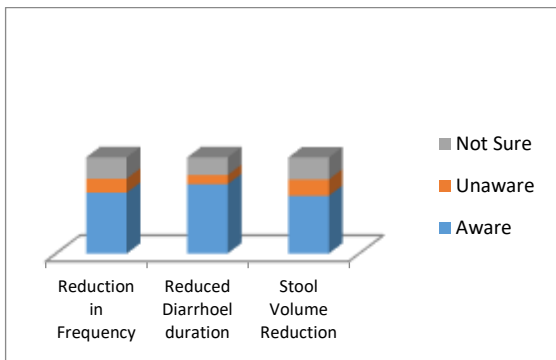


Figure 2: Perception of Zinc Role in decreasing stool frequency, duration and Volume in diarrhoe among study population.

63.3% respondents were aware that zinc helps to decrease frequency of stools while 14.6% were unaware of it and 22.2% were not sure. 72.1% of the doctors in this survey were of the opinion that Zinc administration reduces duration of diahrea 9.55 disagreed with it 18.45 were not about it. 60% (95) believed that Zinc reduced the stool volume while 17% did not believe in it and 23% were not sure.

DISCUSSION

The study was conducted to find awareness and perception on general and specified outcome of zinc in management of paediatric diarrhoea. A fairly large population(three quarters) in our study sample knew that zinc supplements are used in adjunct with new formulation of ORS for childhood diarrhoeal management. The findings were in accordance with a study carried out in Nigeria Among Pediatric Doctors⁹. Same number of doctors (3/4) in present study were giving zinc supplements in combination with low osmolality ORS for treatment of acute childhood diarrhoea. A similar rate of prescription (65%) of zinc supplementation along with ORS for childhood diarrheal management were found in two surveys taken place in India.¹⁰ Whereas a study conducted in Ujjain India in contrast to above studies reported a lower rate(twenty –two %) prescription in treatment of diarrhoea ⁶. Numerous countries have changed their policy for management of childhood diarrhoea. Zinc has been included along with reduced osmolality ORS. But there exist a gap between the change in policy & its efficacious implementation¹¹.

Knowledge regarding effect of zinc in decreasing frequency and duration of diarrhoea was found high in present study.In contrast it was low regarding role of zinc in reduction of stool volume. Not markedly different results were obtained in another research whereas 38 (45.2%) agreed with the above statements and 46 (54.8%) did not agree or were not aware of the facts. Whereas 77.4% of the doctors in similar study affirms that zinc help in replacing stores of body fluid.⁹

A statistically significant result has been reported on impact of zinc as an adjunct therapy in decreasing both volume,number of stool in acute diarrhoea. Favourable effect has been observed on the course of disease by lowering both duration and frequency of the ailment ¹². Another study demonstrated, a decrease 43% to 47% in length of diarrhoea upon administration of zinc but reduction of stool frequency was less in magnitude. Above study also inferred that a better response can be obtained when zinc supplement is given early in the course of disease ¹³.

Majority of study participants were of the view that use of zinc along new formulation ORS can markedly decrease inappropriate use of antibiotics. This point is advocated by Baqui et.al. that administration of Zinc along with ORT, can decrease random use of antimicrobials in diarrhoea. Indiscriminate use of these drugs can cause resistance in pathogenic organisms¹⁴.

Zinc therapy in an acute diarrhoeal episode can enhance intestinal epithelial regeneration & brush border enzymes levels. It also boost water and electrolytes absorptions and immune response of body. Thus microbes can cleared off effectively¹⁵.

Regurgitation and vomiting are among the reported side effects in children of Zinc therapy¹⁶. Almost half (54%) of the respondents observed that vomiting was the most frequent untoward effect. It is ascribed to a metallic taste in zinc syrup/tablet. It can be taken care of by administering, whatever zinc formulation is used, in multiple small rather than one (OD) doze or by using high quality tablets¹⁷.

CONCLUSION

The results of study depicted that quite a high proportion of the medical doctors (more than two-thirds) were familiar with use of zinc supplementation in pediatric diarrheal management. Specific knowledge about supplementary role of zinc in adjunct to ORS for management of diarrhea in childhood was not optimal. A higher proportion of study participants heard this from one of their senior colleagues or a representative of a pharmaceutical firm and not from a seminar or workshop. Reports/data from health providers on how superior zinc works as compare to other products, and their perceptiveness of the contesting products, can help to develop programs to enhance use of zinc supplementation. Ideally, to have the maximum advantage and high validity of information from KAP studies, these must be replicated over time.

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