

Assessment of Knowledge and Practice of Mothers of Children under Five regarding Zinc Therapy in Childhood Diarrhea

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ABSTRACT

Aim: Zinc is now considered as an important treatment intervention along with low-osmolarity oral rehydration salts in diarrhea. But awareness about the use of zinc remains low. The present study was conducted with an objective of assessing knowledge and practice of mothers of under-5 children about zinc supplementation in diarrhea.

Materials and methods: A hospital-based cross-sectional study was carried out in the Paediatric Outpatient Department Agartala Government Medical College and GB Pant Hospital, Agartala, Tripura, India, with a sample size of 700 mothers of under-5 children over 2 months. Convenience sampling technique was employed and the data were collected in a structured, interview schedule. Descriptive statistics and tests like chi-square test were used for analysis.

Results: Only 1.9% of all the respondents (13 out of 700) had heard about zinc therapy in diarrhea. Out of them, 11 mothers had actually used zinc in practice and 7 could tell the duration of therapy. None of them were aware of what benefit is conferred by zinc in an episode of diarrhea. An association between knowledge levels and educational status and occupation of mothers was found to be statistically significant.

Conclusion: The study reaffirmed the abysmally low level of awareness about zinc supplementation among mothers. Therefore, health education can be used as a tool to promote knowledge and practice of zinc supplementation in diarrhea to reduce mortality and morbidity.

Keywords: Diarrhea, Knowledge, Mothers, Zinc.

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INTRODUCTION

Diarrhea is a major cause of morbidity and mortality among young children, contributing to 16% of the total

deaths among under-5 children globally. Among them, a staggering 47% of deaths occur in the Southeast Asian countries alone. It is estimated that there are 2.5 billion cases of diarrhea worldwide among children less than 5 years of age. Though with the advent of oral rehydration salts (ORS) and improvement in the standards of sanitation and hygiene, the global deaths from diarrhea have come down from 5 million deaths annually to 1.5 million deaths in 2004,¹ but the incidence of diarrhea has remained relatively stable over the past few decades. This showcases that the prevention aspect still needs to be emphasized.

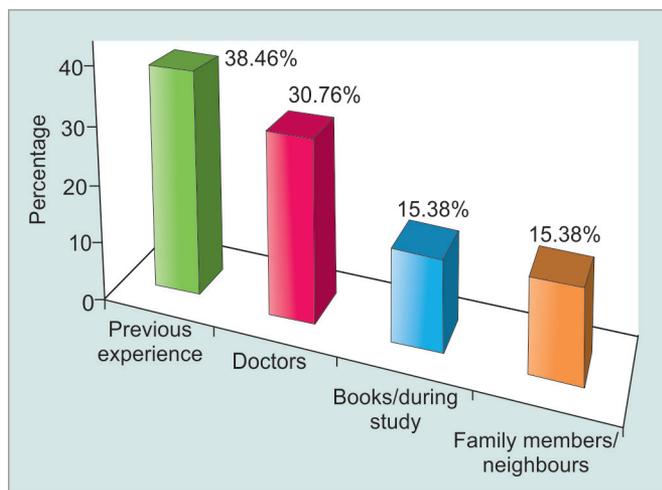
Since the 1970s, oral rehydration therapy has been the mainstay of diarrhea treatment programs. In recent years, zinc has also emerged as a necessary adjunct to ORS. Zinc is a micronutrient that can be found in all tissues of the body and is essential for cell growth, cell differentiation, and DNA synthesis.² It is also essential for the maintenance of a healthy immune system.³ Zinc is believed to improve absorption of water and electrolytes by the intestine, faster regeneration of gut epithelium, increased levels of enterocyte brush border enzymes, and an enhanced immune response, leading to increased clearance of the pathogen from the gut in an episode of diarrhea.⁴ It has been reported in several studies that children receiving zinc appeared to recover quickly than others.¹ Zinc has been associated with a 25% reduction in the duration of acute diarrhea, 30% reduction in the volume of stools, and a 40% reduction in treatment failure and death in persistent diarrhea.^{1,4} It also lowers the incidence of diarrhea in the following 2 to 3 months. The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) now recommend the use of low-osmolarity ORS for the correction and prevention of dehydration and 10 to 20 mg of zinc for 10 to 14 days as treatment for all episodes of diarrhea (10 mg per day for infants under 6 months). It has been said that with the use of this combination, up to 88% of the deaths due to diarrhea can be prevented.⁵ In view of all these benefits, zinc therapy was incorporated in the Integrated Management of Childhood Illness guidelines and the WHO list of essential drugs for use in diarrhea in 2005.⁴ Prompted by the joint statement made by the WHO and UNICEF and the recommendations of the

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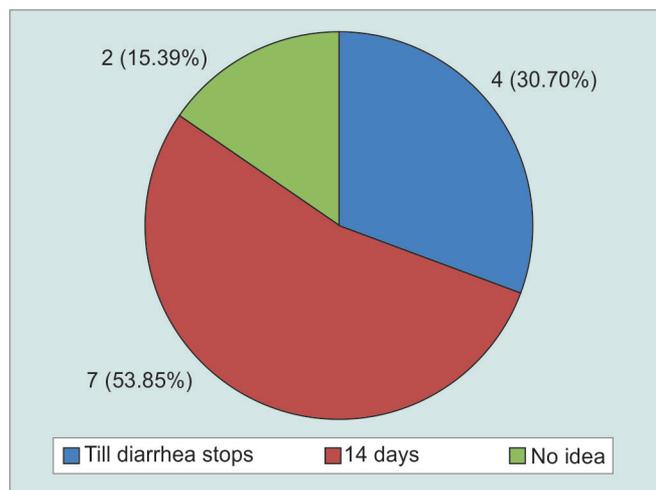
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Graph 1: Different sources from where mothers heard about zinc therapy



Graph 2: Knowledge of mothers about duration of zinc therapy

Indian Academy of Pediatrics, the Government of India in 2007 issued guidelines for zinc supplementation along with ORS in all cases of diarrhea.⁶

As mother is usually the prime caregiver of a sick child, it is her behavior, attitude, and practices that largely determine the outcome of an episode of diarrhea. Use of the available resources for treatment and prevention depends on the mother’s level of knowledge, which are indirectly determined by factors, such as her educational status, occupation, prior experience of managing the disease, etc. Lack of awareness is attributed as the main cause of poor use of available interventions.⁷ The present study is, therefore, intended to assess the knowledge and practices about zinc therapy in childhood diarrhea.

MATERIALS AND METHODS

A hospital-based cross-sectional study was carried out in the Department of Paediatrics, Agartala Government Medical College, Agartala, Tripura, India, over a period of 2 months (July–August 2013). The study population comprised mothers of under-5 children visiting the Paediatric Outpatient Department (OPD) of the college. Mothers of children who were above 5 years of age and those who were not willing to participate in the study were excluded from the study.

A total of 700 mothers fulfilling the selection criteria were interviewed with a predesigned and structured interview schedule. Convenience sampling technique was used while recording the data. As the targeted sample was 700 and it had to be covered over a 2-month (8 weeks) period, to maintain uniformity of sampling, in a single week, 88 mothers needed to be interviewed. Considering the fact that OPD remains closed on Sundays, over the remaining 6 days of the week, first 15 registered mothers who met the selection criteria were interviewed in a one-by-one, face-to-face manner.

Approval was obtained from the Institutional Ethical Committee prior to the study. Informed consent was taken from every respondent before starting the interview, and the information thus obtained was dealt with confidentiality. The data thus obtained were entered in computer using Statistical Package for the Social Sciences 13 version. Descriptive statistics and suitable statistical tests like chi-square test were applied. A p-value <0.05 was considered significant.

RESULTS

Majority of the total participants (81%) were housewives. Nursing staff comprised 1% of the respondents. With regard to education, majority were primary educated (45.4%) and only 8.7% were either graduates or higher educated. Only 1.9% of all the respondents (13) reported that they had heard about zinc therapy in diarrhea. Only 11 of them had actually used zinc in practice. The different sources from where they came to know about it are depicted in Graph 1. The knowledge of the mothers (among those who had heard) regarding the duration of zinc therapy is shown in Graph 2. Only one mother among them reported to have observed visible quicker recovery with the use of zinc as compared with a previous episode. None of them could tell what benefit zinc confers in the event of diarrhea. The knowledge and awareness of zinc therapy in childhood diarrhea was found to be significantly associated with the educational level and occupation of the mother (Table 1).

DISCUSSION

The study confirmed the low levels of awareness regarding zinc therapy in diarrhea. Only 13 mothers (1.9%) had heard of zinc therapy, which was almost similar to a study conducted by UNICEF across 10 cities in India. UNICEF reported that the knowledge about zinc among mothers



Table 1: Association between knowledge of mothers regarding the use of zinc with educational level and occupation of mother

Determinants	Whether heard of use of zinc therapy in diarrhea				Total
	Yes		No		
	Number	%	Number	%	
<i>Distribution of the respondents according to educational level^a</i>					
Illiterate	0	0	114	16.59	114
Primary educated	0	0	318	46.29	318
Secondary educated	4	30.77	223	32.46	227
Graduate and above	9	69.23	32	4.65	41
Total	13	100.00	687	100.00	700
<i>Distribution of the respondents according to occupation^b</i>					
Housewife	5	38.46	562	81.81	567
Officegoer	3	23.08	42	6.11	45
Teacher	0	0	5	0.73	5
Nursing staff	5	38.46	2	0.29	7
Unskilled labor	0	0	53	7.72	53
Shopkeeper	0	0	23	3.35	23
Total	13	100.00	687	100.00	700

^ap-value = 0.000, ^bp-value = 0.000 by chi-square test

was almost nil.⁸ Similar low awareness levels were also reported by Rokkappanavar et al,⁹ where only 3.8% of mothers administered zinc. Among them, majority did so after medical consultation. Our study also pointed out that the source of knowledge about zinc was mostly from previous experience of using it in an episode of diarrhea (38.46%) and from doctors (30.76%). However, the present findings differed from studies done in Bangladesh and Kenya where about 35 and 32% of mothers respectively, were aware of zinc and administered it.^{10,11}

The present study also showed that only 1% of the participants (7 out of 13 mothers who had heard about zinc therapy) knew the correct duration for which it has to be given. This underlines the fact that even if zinc is prescribed by a doctor, lack of knowledge can in most cases lead to noncompliance for the entire duration. Patterns of noncompliance to full duration has been reported in various studies where 82% of caregivers stopped zinc supplementation by the 7th day.¹² However, a study from Nepal reported comparatively better levels where 29% of mothers knew about zinc and 18% used them.¹³ A study from rural Kenya carried out to assess knowledge and acceptability of zinc after a session of counseling by community workers reported still better findings where 67% of the caretakers used zinc, among which 88% reported satisfaction with the treatment. Also, 25% of them used zinc at home and 48% after medical consultation. As compared with those who had not used zinc, they could answer more questions regarding the correct use of zinc.¹⁴ In contrast, in our study, only one respondent could appreciate the satisfactory effect of zinc, and none of them could tell what benefit occurs with zinc supplementation.

Our study also revealed that education levels and occupation of the mother were significantly associated with the knowledge about zinc supplementation. Similar findings were reported by various other studies.^{9,12}

Therefore, the present study has displayed the low awareness about zinc supplementation in diarrhea. It stresses the need and highlights the scope of health education in familiarizing zinc therapy among mothers, because a mother is the center of family care in a home.

Community-based, multicentric studies can give a better picture of the true patterns and different variations in them (like urban and rural) than a hospital-based study, which is the limitation of the study. Also, a follow-up study can showcase the actual rate of compliance to zinc therapy as compared with a cross-sectional design. It will also enable researchers to find out reasons of noncompliance and assess acceptability of prescribed zinc.

CONCLUSION

Zinc has been recognized as a critical treatment intervention in diarrhea in addition to low-osmolarity ORS for quite some time now. Despite the fact that India being one of the 46 countries of the world to have explicit national policy on zinc therapy in diarrhea,¹ the knowledge and use of zinc by the mothers, who are the first caregivers of a child, remain appallingly low, which has also been revealed in our study. Therefore, there is enough room to scale up health education measures and disseminate the benefits and appropriate usage of zinc in the community. This in turn will reduce the burden of diarrheal diseases in the society and also in the country.

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