Original Research Paper

Volume-9 | Issue-9 | September - 2019 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Paediatrics

KNOWLEDGE OF ORAL REHYDRATION THERAPY IN MOTHERS OF CHILDREN WITH DIARRHOEA AND DEHYDRATION

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ABSTRACT

Background: Diarrhoea is a major cause of morbidity and mortality among the children. Children who survive develop malnutrition as a result of repeated episodes of diarrhoea and inadequate feeding during and following diarrhoea. Approximately 90% of these cases can be successfully treated with ORT and continued breast feeding without using anti-diarrheal drugs and antibiotics. The optimum management of diarrhoea is, therefore, not only to reduce morbidity and mortality, but also to prevent malnutrition. Correct knowledge regarding Oral Rehydration Therapy (ORT) helps to prevent morbidity and mortality due to diarrhoea.

Objective: a) To identify cases of diarrhoea among children at paediatrics OPD, b) To assess the awareness, knowledge and practice of mothers of children regarding oral rehydration therapy (ORT) and home management of diarrhoea.

Materials and Methods: This is an observational study conducted in a Teaching Hospital in Telangana State, India from April 2018 to March 2019. 600 children (n=600) with diarrhoea attending to our OPD and the mothers or caregivers of these children were enrolled in study and these mothers and caregivers were interviewed with preset questionnaire regarding oral rehydration therapy (ORT) and diarrhoea management and knowledge and awareness regarding ORT were assessed and analyzed.

Results: In this study we observed only 8.8% of mothers of children with diarrhoea were using ORS. Regarding Mainstay in Management of Mild Diarrhea in Children 17.6% Mothers – ORS and 82.4% Mothers - Syrups and Tablets. Those who know about ORS Correct Preparation – 30% and– 59% Incorrect Preparation. 14% of Women from Rural Areas know Proper Preparation of ORS and 42% Of Women from Urban Areas. In mothers whose educational standard is > 5th class 35.4% know correct preparation of ORS and in < 5th standard only 17.3% know. When mothers have been asked regarding what they will do if vomiting occurs the response is 44% of mothers said they will continue administration of ORS. 38.8% of mothers said they will continue administration of ORS with anti emetics. 11.2% -immediately consult medical practitioner. 6% - stop administration of ORS. Most of them were not aware regarding danger signs and education by healthcare provider about ORS and ORT was effective when compared to other measures.

Conclusion: Oral rehydration therapy in diarrhoea is most useful and effective treatment. But most of the mothers who will take initial care of the children with diarrhoea and dehydration are not aware of this therapy i.e. preparation and usage. There is need for educating the mothers by health care providers.

KEYWORDS : Oral Rehydration Solution (ORS), Oral Rehydration Therapy (ORT), Diarrhoea, Dehydration, Knowledge, Awareness, Education.

INTRODUCTION

Diarrhoea is one of the commonest causes of mortality in children in developing countries, and is responsible for killing around 760 000 children every year.[1] The median global incidence of diarrhoea was 5 and 2.6 episodes per child per year in infants (6-11 months) and for all children between 0-4 years respectively. Much higher rates are seen in children from low socioeconomic status.[7]

Diarrhoea is defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual). Frequent passing of formed stools is not diarrhoea, nor is the passing of loose, "pasty" stools by breastfed babies.[1] A recent change in consistency or character of the stools is more important, particularly in young breast-fed infants who may pass as many as 8-10 semi-formed stools per day when healthy.[2]

Diarrhoea is an intestinal disorder characterized by abnormal fluidity and frequency of fecal evacuation, generally the result of increased motility in the colon; may be an important symptom of such underlying disorders as dysenteric diseases, lactose intolerance, GI tumors, and inflammatory bowel disease.[3]

Dehydration is the most severe threat posed by diarrhoea. With an episode of diarrhoea, water and electrolytes (sodium, chloride, potassium and bicarbonate) are lost through liquid stools, vomit, sweat, urine and breathing. Dehydration occurs when these losses are not replaced.[1]

The degree of dehydration is rated on a scale of three.

1. Early dehydration (No dehydration)
- No signs or symptoms.

2. Moderate dehydration (Some dehydration)
- thirst
- restless or irritable behaviour
- decreased skin elasticity
- sunken eyes

3. Severe dehydration:
- symptoms become more severe
- shock, with diminished consciousness, lack of urine output,
- cool, moist extremities, a rapid and feeble pulse
- low or undetectable blood pressure, and pale skin[1]

Oral Rehydration Therapy (ORT)

Dehydration from diarrhoea can be prevented by giving extra fluids at home, or it can be treated simply, effectively, and cheaply in all age-groups and in all but the most severe cases by giving patients by mouth an adequate glucose-electrolyte solution called Oral Rehydration Salts (ORS) solution.[5] Oral rehydration therapy is simple, inexpensive, and effective, but ensuring that it is readily available and widely used in developing countries is a major public health challenge.

Review of Literature

Oral rehydration has not yet achieved its full potential of preventing diarrhoea deaths due to many factors. Poor socio-economic status and lack of knowledge among caregivers mean that oral rehydration is not always applied when needed.[17] There are so many studies on oral rehydration therapy (ORT) since decades throughout the world including India.

1. *Suman Saurabh et al.* in 2014 "Knowledge and Practice Regarding Oral Rehydration Therapy for Acute Diarrhoea among Mothers of Under-Five Children in an Urban area of Pondicherry, India." A total of 252 children and 245 mothers were covered. Around two-thirds of mothers knew about at least one method of diarrhoea prevention. Although awareness regarding ORS and home available fluids was adequate, knowledge regarding its continuation in persistent diarrhoea or vomiting was poor. Lack of education predisposed to ignorance regarding ORS preparation.
2. *Gul Muhammad Baloch et al.* in 2013 "Children with Diarrhea and Awareness about ORS among Mothers at Pediatric OPD of

District Hospital, Dadu, Sindh, Pakistan." Out of 3,087 patients who attended paediatrics out-patient department (OPD) during the study period, 179 (5.8%) were infants/children suffering from various types of diarrhoea. Cases belonging to rural areas were 53%. Majority of mothers with children having diarrhoea were from rural areas and uneducated. More than half of cases were on mixed feeding. Although all but two mothers were aware of the use of ORS and more than three quarters knew how to prepare it, but a less number used ORS on their own when needed.

3. *S. Mangala et al*. in 2001 "Impact of Educational Intervention on Knowledge of Mothers Regarding Home Management of Diarrhoea in a slum in Bangalore, Karnataka, India." A pre and post comparison study was carried out in the field practice area of M.S. Ramaiah Medical College Bangalore, Karnataka to assess the impact of educational intervention on the knowledge of mothers of under five children on home management of diarrheal diseases. A sample size of 225 mothers was estimated based on reports which showed that 30 % of diarrheal episodes received home available fluids and continued feeding. After an initial pilot study, the present study was conducted wherein 250 mothers were included. McNemar test was used to find out the change in knowledge before and after the educational intervention. The overall knowledge scores improved significantly after 2 months ($P<0.001$) as well as 2 years ($P<0.001$) when compared to the baseline study.
4. *Smriti Pahwa et al.* in 2010 "Performance of a Community-based Health and Nutrition-education Intervention in the Management of Diarrhoea in a Slum of Delhi, India." The objective of the study was to carry out a community-based health and nutrition-education intervention, focusing on several factors influencing child health with special emphasis on diarrhoea, in a slum of Delhi, India. Mothers (n=370) of children, aged >12–71 months, identified by a door-to-door survey from a large urban slum, were enrolled in the study in two groups, i.e. control and intervention. The results showed that health and nutrition-education intervention improved the knowledge and attitudes of mothers. The results indicate a need for intensive programmes, especially directed towards urban slums to further improve the usage of oral rehydration therapy.
5. *Olufemi G. Ogunrinde et al.* in 2011-12 "Knowledge, Attitude and Practice of Home Management of Childhood Diarrhoea among Caregivers of Under-5 Children with Diarrhoeal Disease in Northwestern Nigeria." A cross-sectional descriptive study of caregivers of children aged 1–59 months with DD presenting at 90 randomly selected Primary Health Care Centers (PHCs) in three northwestern Nigeria states (Kastina, Kebbi and Zamfara) was undertaken. Less than 1% of caregivers were knowledgeable about home management of DD. Antibiotics and anti-diarrhoeal agents use was common at 36%. ORS use was abysmally low at 8.6%. Only 32% of caregivers were aware of the use of zinc in the management of DD. Adherence to 10-day zinc supplementation was encouraging at 75.5%.

Treating each episode so diarrhoea with drugs not only exposes the child to harmful agents but also places excessive financial burden on the family. Often the caregivers are late in recognizing diarrhoea as a cause of concern.[18] Furthermore, diarrhoea treatment practices are not based on evidence as shown by widespread prescription of unnecessary drugs.[18]

MATERIALS AND METHODS

This is an observational study conducted in a Teaching Hospital in Telangana State, India, upon the children attending to our OPD and the mothers or caregivers of these children. The period of study was from April 2018 to March 2019. Age group of the children included in this study was from 6 months to 12 years. Sample size was 600 children (n=600) presenting with diarrhoea and mothers or care givers of these children. Before commencement of the study Institutional Ethics Committee clearance was obtained and the study was approved by Scientific Committee.

Funding: None

Study Procedures: Mothers and caregivers of the children presenting with diarrhoea were interviewed with preset questionnaire containing 15 questions regarding ORS, ORT and Diarrhoea management.

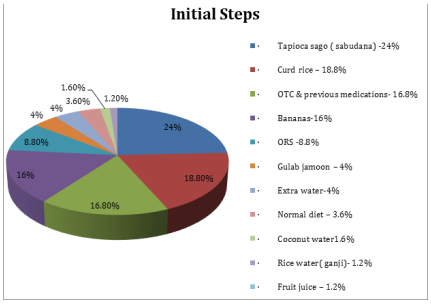
Proforma of questionnaire:
Name
Age
Educational qualification
Working/Home maker
Address
Economic status

After taking interview or getting answers for questions, these mothers and care givers were arranged in specific groups according to their level of knowledge, their attitude and their feeding practices during episodes of diarrhoea of their children. Faculty from other departments i.e. Preventive and Social Medicine, General Medicine, Microbiology were also involved for better analysis and calculations.

RESULTS

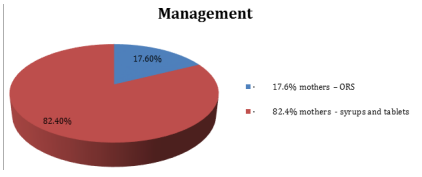
A. When Mothers Are Asked About Initial Step They Will Take at the Onset of Diarrhoeal Disease in Child the Response Is

- Tapioca sago (sabudana) -24%
- Curd rice – 18.8%
- OTC & previous medications- 16.8%
- Bananas-16%
- ORS -8.8%
- Gulab jamoon – 4%
- Extra water-4%
- Normal diet – 3.6%
- Coconut water1.6%
- Rice water(ganji)- 1.2%
- Fruit juice – 1.2%



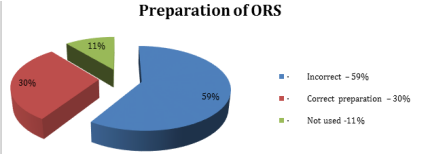
B. Regarding Mainstay in Management of Mild Diarrhea in Children

- 17.6% Mothers – ORS
- 82.4% Mothers - Syrups And Tablets



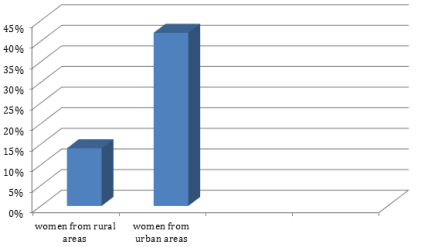
C. Regarding Appropriate Preparation

- Incorrect – 59%
- Correct Preparation – 30%
- Not Used -11%



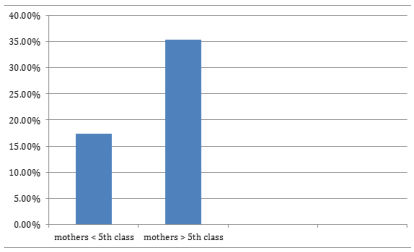
D. Comparing Rural and Urban Areas Regarding Appropriate Preparation

- 14% Of Women From Rural Areas - Proper Preparation Of ORS
- 42% Of Women From Urban Areas - Proper Preparation Of ORS



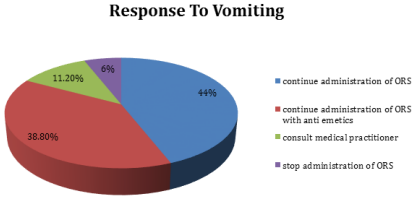
E. Educational Standards of Mothers and Appropriate Preparation

- 17.3% Of Mothers < 5th Class- Proper Preparation Of ORS
- 35.4% Of Mothers >5th Class- Proper Preparation Of ORS



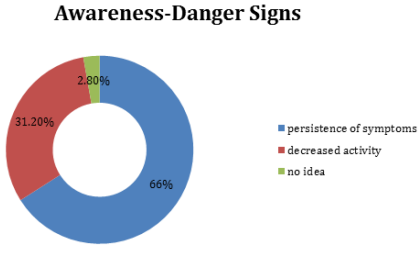
F. Mothers Have Been Asked Regarding What They Will Do If Vomiting Occurs The Response Is

- 44% Of Mothers Said They Will Continue Administration Of ORS
- 38.8% Of Mothers Said They Will Continue Administration Of ORS With Anti Emetics
- 11.2% -Immediately Consult Medical Practitioner
- 6% - Stop Administration Of ORS



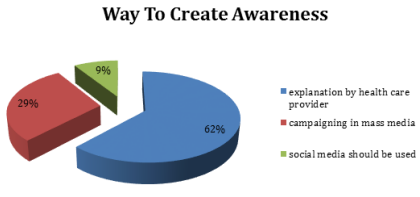
G. Regarding Awareness of Danger Signs In Diarrhoeal Disease

- 66% - Persistence of Symptoms
- 31.2% -Decreased Activity
- 2.8% - No Idea About Danger Signs



H. Best Way to Create Awareness Regarding ORS Preparation and Importance

- 62% -explanation by health care provider
- 29% - campaigning in mass media
- 9% -social media should be used



DISCUSSION

This study was done in a Teaching Hospital in Telangana State, India, from April 2018 to March 2019. After taking informed consent from mothers have been given a questionnaire in vernacular and English language however mothers who were not able to read or write have been given an attendant for support and results are documented.

In this study when mothers were asked about initial steps regarding diarrhoea only 8.8% of them told about ORS. This is comparable with other studies such as Olufemi G. Ogunrinde *et al.* in 2011-12 in Northwestern Nigeria. Antibiotics and anti diarrhoeals were used in 36% cases. ORS was used in only 8.6% cases. In persistent diarrhoea also mainstay of management was syrups and tablets i.e. 82.4% and use of ORS was 17.6% only in our study. This is also comparable with other studies like *Suman Saurabh et al.* in 2014 in an urban area of Pondicherry, India. Although awareness regarding ORS and home available fluids was adequate, knowledge regarding its continuation in persistent diarrhoea or vomiting was poor.

Gul Muhammad Baloch et al. in 2013 "Children with Diarrhea and Awareness about ORS among Mothers at Pediatric OPD of District Hospital, Dadu, Sindh, Pakistan" suggests more than half of cases were on mixed feeding. More than three quarters knew how to prepare it, but a less number used ORS on their own when needed. Majority of mothers with children having diarrhoea were from rural areas and uneducated. In our study also 14% Mothers from rural area and 42% from urban area were using ORS appropriately and educational standard was playing significant role. 17.3% of Mothers < 5th Class and 35.4% of Mothers >5th Class.

Awareness regarding danger signs in diarrhoea and response to vomiting were also not satisfactory in this study because of lack of proper knowledge regarding importance, preparation and usage of ORS in diarrhoea. *S. Mangala et al*. in 2001 "Impact of Educational Intervention on Knowledge of Mothers Regarding Home Management of Diarrhoea in a slum in Bangalore, Karnataka, India." The overall knowledge scores improved significantly after 2 months (P<0.001) as well as 2 years (P<0.001) when compared to the baseline study. Smriti Pahwa *et al.* in 2010 "Performance of a Community-based Health and Nutrition-education Intervention in the Management of Diarrhoea in a Slum of Delhi, India." The results showed that health and nutrition-education intervention improved the knowledge and attitudes of mothers. Our study also shows similar results.

Merits and Demerits: This study was done under the guidance of Senior Pediatricians, Trained Staff, Nutrition Medical Officer, Nutrition Counselor and Expert Faculty from Other Departments like Microbiology, Preventive and Social Medicine. Team approach was there even enquiry was done regarding family atmosphere, school environment and if necessary visiting of these areas was also taken place. However, this study was conducted in children, who were attending to our hospital. Thus our findings may not represent the exact picture in the population.

Recommendations: In developing countries, prevention of diarrhea may be more challenging due to dirty water and poor sanitation.
The following can help prevent diarrhea:

- Clean and safe drinking water
- Good sanitation systems, for example, waste water and sewage
- good hygiene practices, including hand washing with soap after defecation, after cleaning a child who has defecated, after disposing of a child's stool, before preparing food, and before eating
- Breastfeeding for the first 6 months of life
- Education on the spread of infection
- Education regarding ORS therapy in diarrhoea

There is evidence that interventions from public health bodies to promote hand washing can cut diarrhea rates by about one-third.

CONCLUSION

Diarrheal disease is one of the leading causes of death in children under five years old. Dehydration from diarrhoea can be prevented by oral rehydration therapy. This study was carried out in a Teaching Hospital in Telangana State, India. This study shows most of the mothers of children with diarrhoea are not aware of ORT i.e. preparation of ORS its usage during episode of diarrhea. Explanation by health care provider is the best way to create awareness in these mothers. The results indicate a need for intensive programmes to further improve the usage of oral rehydration therapy.

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