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CHILDREN WITH DIARRHEA AND AWARENESS ABOUT ORS AMONG MOTHERS AT PEDIATRIC OPD OF DISTRICT HOSPITAL, DADU, SINDH, PAKISTAN

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ABSTRACT

Objectives: a) To identify cases of diarrhoea among children at paediatrics OPD, and b) to explore knowledge about use of oral rehydration salt (ORS) among mothers of children suffering from diarrhoea.
Methods: It was an exploratory study conducted at a tertiary care hospital with cases presenting diarrhoea in paediatrics OPD. A close ended questionnaire was administered to mothers to access their knowledge about ORS.
Results: 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%. The ratio of infants was higher, with high incidence in children on mixed feeding. Majority of cases suffered from acute watery diarrhoea. Severe dehydration was in 3% of cases, moderate dehydration in 41%, and no dehydration in 56%. All mothers, except two, were aware of ORS use, and 94% of them mentioned ORS as beneficial in diarrhoea, although 85% used ORS on their own which shows a gap between knowledge and practice. Ratio of mothers with adequate knowledge of preparing ORS was higher in mothers from urban areas.
Conclusion: 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 was 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. Not all medical practitioners prescribed ORS.

Keywords: Diarrhoea, Dehydration, General Practitioners, ORS, Pakistan

INTRODUCTION

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 faecal 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 tumours, and inflammatory bowel disease[3]. Diarrhoea is defined as the passage of three or more loose or watery stools in 24- hour period[4]. Frequent passing of formed stools is not diarrhoea. Babies fed only on breast milk often pass loose, 'pasty' stools; this also is not diarrhoea.

Dehydration & Rehydration

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 signs or symptoms.
2. Moderate dehydration:
   - o thirst
   - o restless or irritable behaviour
   - o decreased skin elasticity
   - o sunken eyes
3. Severe dehydration:
   - o symptoms become more severe
   - o 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

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.

Clinical types of Diarrheal disease

It is most practical to base treatment of diarrhoea on the clinical type of the illness, which can easily be determined when a child is first examined. Four clinical types of diarrhoea can be recognized, each reflecting the basic underlying pathology and altered physiology.

a. Acute watery diarrhoea (including cholera) which lasts several hours or days. The main danger is dehydration; weight loss also occurs if feeding is not continued.
b. Acute bloody diarrhoea (also called dysentery). The main dangers are intestinal damage, sepsis and malnutrition; other complications including dehydration may occur.
c. Persistent diarrhoea. It lasts for 14 days or longer. The main danger is malnutrition and serious non-intestinal infection; dehydration may also occur.
d. Diarrhoea with severe malnutrition (Marasmus or Kwashiorkor). The main dangers are severe systemic infection, dehydration, heart failure and vitamin and mineral deficiency.

The cause

Diarrhoea is caused by infectious organism, including viruses, bacteria, protozoa, and helminthes, which are transmitted from the stool of one individual to the mouth of another, termed faecal-oral transmission[6]. It is more common when there is shortage of clean water for drinking, cooking, and cleaning and basic hygiene is important in prevention. Water contaminated with human faeces, for example, from municipal sewage, septic tanks, and latrines is of special concern. Animal faces also contain microorganisms that can cause diarrhoea. Diarrhoea can also spread from person to person, aggravated by poor personal hygiene. Food is another major cause of diarrhoea when is it is prepared or stored in unhygienic conditions. Water can contaminate food during irrigation, and fish and seafood from polluted water may also contribute to disease.

The scenario: Worldwide and in Pakistan

Diarrhoea is one of the commonest causes of mortality in children in developing countries. Diarrhoeal disease is the second leading cause of death in children under five years old, 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]. 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. Treating each episode so diarrhoea with drugs not only exposes the child to harmful agents but also places excessive financial burden on the family.

In Pakistan, an average of eight children die every hour due to infections from diarrhea[12]. In Sindh, which is one of the four provinces of Pakistan, diarrhoea is one of the five most common illnesses. During the year 2001, new cases of diarrhoea were 9.27, 242 which is an estimated incidence rate of 6.3 per 100 new cases in children[8]. In 2003, infant mortality rate was 81 per 1000, crude death rate was 10/1000 live births and birth rate stood at 365[9]. WHO report for the health profile of Pakistan for the year 2008 states in the distribution of causes of deaths in children under 5 years of age as 20 from the diarrhea[10].

The daily Express Tribune in its March 12, 2011 issue says that 'one child dies every minute in Pakistan', quoting the recently published annual health report of Pakistan Medical Association for the year 2011. The details of the report reveal that every year about 400,000 infants die in the first year of their life[11]. The recent devastating floods in Pakistan have further increased the disease burden. Diseases like cholera or acute watery diarrhoea, dysentery or bloody diarrhoea, typhoid fever and hepatitis, can all cause excess mortality and morbidity amongst the susceptible populations in the flood-hit areas[11]. According to Dr Zulfiqar Bhutta, Sindh is leading the other provinces in both the highest number of diarrhoea cases and the highest number of under-five deaths, which stands at 101 per 1,000 live births[13].

METHODS

Objectives

The objectives of this descriptive study were:

a. To identify cases of diarrhoea among children attending paediatrics out-patient department
b. To explore awareness of use of oral rehydration salt (ORS) among mothers of patients suffering from diarrhoea.

Study Population and Locale

Study population comprised of the all children patients and their mothers who attended paediatric OPD of a tertiary care hospital. The study was done at Civil/ District Hospital Dadu, Pakistan. The study period was three months i.e. from 1st January 2013 to 30th March 2103.

Inclusion / Exclusion criterion

From all the cases of children and their mothers attending the paediatric OPD, only the cases with diarrhoea and their mothers were included in the study.

Data Collection tools and Analysis

A close-ended questionnaire, translated in local language was used. The questionnaire had three sections. Section one was regarding socio-demographic profiles; section two about diarrhoea, dehydration and feeding of child; Section three about awareness of use of ORS among mothers.

Data was collected on all working days. The data was coded and entered in computer and analysed on SPSS 16.

Ethical Considerations

Informed consent was taken from all mothers. Verbal consent was taken from uneducated and signatures were taken from educated mothers. To ensure confidentiality and privacy, they were administered the questionnaire in one corner of the consultation room with partition.

TABLE 1
Age of infants / children suffering from diarrhea

Age group	Number	Percent
Less than one year	104	58%
1 to 5 years	72	40%
5 years and above	3	2%
Total	**179**	**100%**

TABLE 2
Infants / children suffering from types of diarrhea

Type of diarrhea	Number	Percent
Acute watery	129	72%
Chronic persistent	23	13%
Stool with blood / mucus	27	15%
Total	**179**	**100%**

TABLE 3
Age of mothers

Age group	Number	Percent
15-24 years	43	24%
25-34 years	102	57%
35-44 years	30	17%
45 years and above	4	2%
Total	**179**	**100%**

RESULTS

Out of a total 3,087 patients who attended paediatrics out-patient department during the study period, 179 (5.8%) infants/children were suffering from various types of diarrhoea. The questionnaire was also completed with all mothers of 179 infants / children. There was no refusal. The detailed findings for different variables are discussed below.

Findings for infants / children

Little more than half (53%) of the patients were from rural areas, while 47% of cases came from urban areas. The ratio of the infants was high as compared to older children. Following Table 1 shows the details.

Details about the feeding patterns of the patients showed that 41(23%) were exclusively bottle fed, the same number were breast fed, while more than half of them (54%) were having both types of feeding. Table 2 below shows the details for types of diarrhoea.

As we can see from the above Table 2, an overwhelming majority (72%) of the cases were suffering from acute watery diarrhoea. On examination for dehydration it was found that majority of the cases (56%, n=100) were having no dehydration, 41% were having mild dehydration while only 3% were suffering from severe dehydration.

Cross tab frequencies also show some more important findings. Figures show that 90% of the cases from the age group of less than one year of age were suffering from acute watery diarrhoea. In the age group of 1-5 years almost half of the cases (35 out of 72) were suffering from acute watery diarrhoea. From the three

TABLE 4
Knowledge regarding preparation of ORS solution

Education	Adequate knowledge	Inadequate knowledge	No knowledge	Total
Uneducated	84	33	2	119
Educated	56	4	0	60
Total	140	37	1	**179**

TABLE 5
Knowledge regarding preparation of ORS solution

Locality	Adequate knowledge	Inadequate knowledge	No knowledge	Total
Rural	65	28	2	95
Urban	75	9	0	84
Total	94	37	2	**179**

cases of age group 5 years and above, two were suffering from chronic persistent while the one was passing stools with blood / mucus. Degrees of dehydration were also explored for the cases with different types of diarrhoea. The findings show that majority (80.8%) of those cases having mild dehydration were having acute watery diarrhoea. The six cases suffering from severe dehydration were also having acute watery diarrhoea. Of the total 179 respondents, mothers of 170 children continued giving regular feed / diet to their children during current episode of diarrhoea while seven mothers stopped diet to children.

Findings for mothers

Regarding literacy of mothers, it was found that two-thirds of mothers (n=119) were uneducated while only one third (n=60) mothers were educated. That who were educated, the highest level of education was up to secondary. For the age bracket of the mothers, Table 3 below shows the details.

As evident from above Table 3, more than half of the mothers were in the young age group of 25-34 years. Also considerable number of mother (i.e. ¼) in the age group of 15-24, which also shows a proxy indicator for early age marriage trends in Pakistan. All the mothers except two had heard about oral rehydration salt (ORS) as part of treatment for diarrhoea. When these 177 mothers were asked about the source of information about the ORS, an overwhelming majority (78%, n=138) told that their source was a doctor. For 13% of mothers their source of information was friend / relative while 9% of mothers knew about it through Lady Health Workers. Lady Health Workers, frequently abbreviated as LHWs in Pakistan are the influential part of healthcare workforce working mainly for various maternal and child health interventions by the ministry if health or WHO and UNICEF.

Regarding mothers' experience of the use of ORS in treatment of diarrhoea, 168 (94%) mothers mentioned it beneficial, whereas only 6% said that it was not helping. Although 168 found it beneficial in the treatment of diarrhoea, a less number i.e. 143 mothers used it on their own in the diarrheal episode of children. This shows a gap between knowledge and practice. It becomes more important in the case when the findings show that 78% (n=140) of the mothers had adequate knowledge of how to prepare ORS solution on their own. While only two mothers did not know how to prepare it, 37 mothers had inadequate knowledge to prepare ORS solution.

Cross tab frequencies also show some more important findings. Only two mothers who had not heard of ORS were both from rural areas and were uneducated. Another cross-tab with these two variables of locality and education of mothers with the knowledge regarding preparation of ORS solution came up with findings shown in the following Tables 4 and 5.

It is evident from Table 4 above that out of 37 mothers having inadequate knowledge regarding preparation of ORS solution, 33 (89%) were uneducated.

Table 5 above shows that out of 37 mothers, having inadequate knowledge regarding preparation of ORS solution, 28 (76%) belonged to rural areas.

These findings show that a vast majority of mothers having inadequate knowledge regarding preparation of ORS solution are uneducated and they live in rural areas. Some other findings may be of interest and relevance to mention. Although 84 mothers lived in urban areas but only 60 (71.4%) were educated (it must be remembered here that they had achieved only secondary level education). Although 84 lived in urban areas, but only 21 (25%) used ORS on their own. Out of the 95 living in the rural areas, only 13 (14%) used ORS on their own. Apart from the study objective about the knowledge and use of ORS, the above findings give proxy indicators about the empowerment of women as well. While scanning through the previous prescription slips for the treatment of diarrhoea that mothers brought with them in OPD, it was found that 107 prescription slips (60%) included ORS while 72 (40%) slips did not had ORS prescribed; albeit the prescription slips showed a long list of antibiotics. This shows that although more than half of the medical doctors prefer and prescribe ORS but still a considerable number of practitioners do not prefer ORS to be part of the management of diarrheal diseases.

DISCUSSION

From a total of 3,087 patients who attended paediatrics OPD during the study period, 179 infants/children were suffering from various types of diarrhoea. So the infants and children suffering from diarrheal disease were 5.8% of all the cases visiting paediatrics OPD. The patients came from urban and slum areas of Dadu city and rural areas of Dadu district. More than half of cases (53%) were from rural areas. Although it remains to be explored more for other variables regarding aetiology of the disease, around 1/3 of mothers from rural areas did not have adequate knowledge regarding preparation of ORS solution. All mothers from rural areas were uneducated. Ratio of mothers with adequate knowledge of preparing ORS was higher (89%) in mothers from urban areas as compared to mothers from rural areas (68%).

The ratio of infants suffering from diarrhoea was higher as compared to older children, and high in children on mixed feeding (breast-cum-bottle feeding). Majority of cases suffered from acute watery diarrhoea as compared to chronic persistent diarrhoea. More than half of cases showed no dehydration while only six cases had severe dehydration. Even though 168 (94%) mothers mentioned it beneficial as per their experience of using ORS, and all mothers, except two, were aware of usage of ORS in diarrhoea, a less number of mothers (85%) used ORS on their own which shows a wide gap between knowledge and practice.

All practitioners not preferring ORS to be part of the regimen for management of diarrheal diseases is an area of concern, as ORS is a clear first line and mainstay in managing the diarrheal disease [2]. This state of affairs becomes more important to be looked into when findings of this study show that 86% of mothers seek medical advice from practitioners for treatment of their child suffering from diarrhoea.

CONCLUSION

Majority of mothers with children having diarrhoea were from rural areas and were uneducated. More than half the cases were infants and were on mixed feeding (breast-cum-bottle 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 (85%) used ORS on their own when it is needed. Although a clear and vast majority of mothers (86%) go to seek medical advice from practitioners for the treatment of their child suffering from diarrhoea, but comparatively less number of physicians (60%) prescribe ORS in their regimen for children suffering from diarrhoea. The women who belonged to rural areas and were uneducated had the inadequate knowledge regarding the preparation of ORS. Medical practitioners still prefer to prescribe antibiotics as we could not

find ORS on a considerable number (40%) of prescriptions.

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