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Prescription Pattern for Acute Diarrheal Disease in Children Between 6 months to 5 years

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Abstract

Objective: To study the prescription pattern for acute diarrheal disease in children between 6 months to 5 years. *Study design:* Cross sectional study; *Study setting:* Diarrhoea Treatment Unit in a tertiary care hospital in Central Kerala; *Study participants*: Patients who presented to the Department of Pediatrics with ADD, referred from the periphery, between ages of 6 months to 5 years; *Inclusion criteria:* All patients presented to the Department of Pediatrics with ADD who were referred from the periphery during the period December 2017 to May 2018; *Exclusion criteria:* Incomplete prescription details, children with dysentery and other coexisting major illness; *Results:* Out of 132 children ORS, Zinc and Antibiotics were used in 70.5%, 59% and 51.5% respectively. The use of IVF (17%), pre/probiotics (8.1%) and antisecretory drugs (6.8%) were less. Good percentage of mothers (61%) used home available fluids. *Conclusion:* We have to still improve use of ORS and Zinc in ADD. Irrational use of Antibiotics shoud be discouraged.

Keywords: Acute Diarrheal disease; Prescription pattern; ORS; Zinc.

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Introduction

Acute diarrhoeal disease (ADD) remains an important contributor to childhood deaths in India, being one of the top 10 causes of deaths among children below 5 years of age. About 10% of the infants and 14% of 0-4 year old children die due to diarrhea in India [1]. The standard treatment for ADD consists of ORS solution, Zinc and adequate nutritional supply. More than 90% of all diarrhea deaths could potentially be avoided with universal coverage of ORS [2].

Although ORS has tremendous therapeutic benefits, use of this wonder drug has remained low in many developing countries [3]. Many children are treated with antibiotics, IV fluids and probiotics unnecessarily. Many of them are unwanted, expensive and may produce diarrhea by themselves [4].

This study was conducted to know the prescriptions pattern for acute diarrheal disease by Pediatricians and General Practitioners and also to find out the irrational prescription for acute diarrheal disease.

Methods

This cross sectional study was conducted in Diarrhea treatment Unit (DTU) in the Department of Pediatrics, in a tertiary care hospital of Central Kerala. Study population consist of children between 6 months to 5 years presenting with ADD who were referred from periphery during the study period December 2017 to May 2018.

Children with chronic diarrhea, those who came directly to our hospital with ADD and also children with incomplete documentation were excluded from the study. Those admitted with dysentery, severe malnutrition and other concomitant illness were also excluded.

Statistical analysis

Prescriptions given by the doctors at the periphery, before referring the patient to our institution was collected. Details of drugs including ORS, Zinc, antibiotics, pro/prebiotics and anti secretory drugs were asked. We also enquired of the mother, about how they prepared ORS and whether the hospital staff had advised them properly about the preparation of ORS. If proper prescription was not available, we checked the drugs brought by the parents to the hospital.

The study was approved by the Ethical Committee of the Institution. Data obtained was analyzed using SPSS statistical software version 20.

Results

A total of 138 children below 5 years visited our hospital during the study period of which 6 children who were treated by alternate system of medicine were excluded. Of the 132, Males constituted 54.5% of the study population. Out of 132 children, 14 had features of severe dehydration (Table 1). 44 childrens were referred by MBBS doctors (33%) and the rest by pediatricians (MD or DCH/DNB). 71 of them were referred by doctors practicing in the private sector and the rest were referred by doctors in the Health Department.

The main reason of ADD in the present study was food taken from out side the house- that from hotels or outside party. Mothers of 14 children, had education below 8th std. 18 were educated up to 10th standard while others had degree or other higher qualifications. 93 children (70.5%) were given ORS, 80 children were also given-home made solution in the form of rice water with salt, salt-sugar solution or coconut water. Majority (78%) of them knew how to prepare ORS properly. Out of the 93 children, only 72 of them received WHO advised standard ORS, and the rest received costly and non WHO based ORS. Doctors with PG degree and in Government sector used ORS more often than that of doctors with MBBS degree only and doctors in private sector (Table 2 & 3). 23 children were treated with IVF, out of this 14 had features of severe dehydration. Out of this 11 children had vomiting in the beginning. Zinc was prescribed for 78 (59%) children. Majority of the children had a very short course of illness. 32 (24%) of them were found to be incompletely immunized. None of them received rotavirus vaccine.

Out of 132 children, 68 (51.5%) had received antibiotics. There was not much difference in the pattern of prescription between MBBS or doctors with PG degree regarding antibiotics usage (Tables 2 & 3). Also no difference was noted between doctors in private sector and government sector with reference to antibiotic use. Most common antibiotics prescribed was Cefixime (60.3%), followed by Ofloxacin (20.6%) and trimethoprim-sulphamethoxazole (11.8%). 12 children had taken metronidazole. 19 children (27.9%) received multiple antimicrobials. 90% of the children who were put on antibiotics were treated with oral antibiotics.

Probiotic preparation were prescribed in 24 (18.1%) and Rececadotril only in 9 (6.8%) children. About one third of them had vomiting and so antiemetics were also prescribed.

Table 1: Clinical profile of children admitted with ADD (%)

Total Number of children enrolled	138
Study included	132
Sex	M (54.5), F: 45.5
Use of ORS	93 (70.5)
Proper preparation of ORS	88 (95)
WHO ORS	72 (77%)
Home available fluid	80 (61%)
Antibiotics	68 (51.5%)
Multiple/Combination of antibiotics	12 (17.6%)
Use of Zinc	78 (59)
IVF	23 (17)
Other drugs	
Pro/prebiotics	24 (18.1)
Rececadotril	9 (6.8)
Incomplete Immunization	32 (24.2)

Table 2: Comparison of Antibiotic and ORS prescription between doctors in Health Department and Private Sector

Drugs	Doctors in Health Dept	Doctors in Pvt. sector	X^2 Value	p value
ORS given:				
Yes	57	36	28.79	<0.0001
No	4	35		
Antibiotics given:				
Yes				
No	36	32	2.55	0.11
	25	39		

Table 3: Comparison of Antibiotic and ORS prescription between MBBS Doctors and Doctors with PG degree

Drugs	Doctors with PG degree	MBBS doctors	X^2 Value	p value
ORS given:				
Yes	66	27	2.62	<0.105
No	22	17		
Antibiotics given:				
Yes				
No	40	28	3.882	0.48
	48	16		

Discussion

The high morbidity and mortality in acute diarrhea is due to severe dehydration. Oral rehydration therapy (ORT) is the most simple, cheap and effective therapeutic intervention. There is a definite guideline by IAP and WHO for the management of ADD [5,6]. Despite definite guidelines for treatment, many cases of ADD are managed irrationally not only by general practitioners, but also by pediatricians. This may lead to unwanted treatment, unnecessary hospital admissions, economical burden , antibiotic resistance or diarrhea itself [7]. Data from the National Family Health Survey (NFHS-3) shows [8] that the ORS use rates have not changed in the last two decades; 18% in 1992-93 and 27% in 2005. The cause for concern is that the ORS use continue to be less than 43% in Indian children [9].

In our study the ORS was prescribed in 70.4%. When compared to other studies [10,11], the use of ORS is better. It may be because of better health infrastructure and maternal education. Another important observation was that majority of them was given rice water with salt or any other form of home made fluid.

The antibiotics were prescribed in 51.5% of cases. In studies conducted in UP, India antibiotic were used in 81.8% [9] and 92% [10] while a study conducted in Chennai it was only 41% [11]. In our study Cefixime was the most commonly used antibiotic. Antibiotic combination used were also less (12/68). The use of IV antibiotics was very low (10%) in our study when compared to other studies [12,13].

One interesting observation is that we could not find any difference between MBBS or Post graduate doctors regarding antibiotics prescription. Antibiotic use may be due to parental pressure or lack of confidence from the part of doctor or to get the children free of ADD quickly.

In our study 59% of the children had received zinc. The usage of Zinc was 13% [14] and 38.6% [10] only in other studies.

Use of pro/prebiotic (68.69%), rececodotril were 31.30% [10] high in many studies. High use of these drugs was also seen in a study conduced in Ujain [14]. In our study their use is very low-18.1% and 6.8% respectively (Table 1).

Conclusion

There are many lessons to be learnt from our study. We have to improve the use of ORS and Zinc. At the same time we have to give strict guideline, about the use of antibiotics. The use of antibiotics is very high even in doctors with PG degree and those working in Government sector. Similarly, we have to stress on use of ORS based on WHO formula.

Some good aspect of this study are-less use of IVF, pre/probiotics and anti-secretory drugs. The use of home available fluids is appreciable. It may be attributed to the higher education status of mothers in Kerala.

Incomplete immunization was also noted in up to one third cases. Our patients were from poor socioeconomic background and so none had taken rotavirus vaccine.

The leading cause for ADD in this study was food taken from outside home. We have to educate the mothers about avoiding food from outside, at least for their children.

The main limitations of this study is a small sample. We have also not considered ADD with other co-existing illness like malnutrition and other systemic illness.

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