

there is no decline in the overall incidence of diarrhea in the country and an increase of 36% in the rate of admissions in the pediatric ward during 1993-94 over 1986-87. Secondly, percentage of diarrhea with associated illnesses like PEM, pneumonia, etc. hospital

which necessitated admission were more in post DTU period than the pre DTU (17.4% vs 42.6%).

Although the benefits and results of ORT with diarrheal disease management are highly encouraging, still it is observed that ORT is being used only in one third episodes of diarrhoea(8). Hence a lot is needed to be done on health education of mothers and practitioners towards changing the diarrhea management practices.

In conclusion, establishment of DTU has resulted in a favorable impact on the rational management of diarrhea in a cost effective manner.

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## Medical Practitioners and Their Practices in Acute Diarrhea

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Factors like illiteracy and poverty contribute to persistence of diarrhea in the community(1). Indiscriminate use of drugs in childhood diarrhea even by profession-

als is serious concern. Even neonates are exposed to irrational and dangerous preparations which are freely available in the

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market(2,3). Most of the parents and even professionals are not fully aware of glucose electrolyte solution(4-7), which over the past decade has revolutionized the management of acute diarrhea. We conducted this study to focus on the inadequacies in the current management practices of acute diarrhea at various levels of practitioners including both qualified and unqualified ones.

### Material and Methods

This study was conducted in the Pediatric Outpatient Department of Institute of Medical Sciences, Srinagar. A group of 1,030 infants with acute diarrhea were selected, who in their first instance were treated at private clinics or other health units by general practitioners and chemists (Group A), hospital residents and other MBBS doctors (Group B) and qualified pediatricians (Group C). Information regarding nature of diarrhea and its management were collected from the details mentioned in the prescriptions of these infants; the maximum possible information being given by accompanying parents and of course by the display of medicines, carried by them. All those cases with evidence suggestive of dysentery or systemic illness or

those who had stayed in hospital for more than 24 hours were excluded from the study. All the details were recorded in the predesigned open ended questionnaire and the results thus obtained were analyzed by Chi-Square test.

### Results

Of the total 1030 cases 71.7%, 11.6% and 16.7% belonged to groups A,B and C, respectively. Only 10.6% of respondent were neonates and 62.1 were in the age group of 6-9 months

From *Table 1* it is clear that antidiarrheal and antispasmodic preparations were given to most of the cases, either alone (46.8%) or along with oral rehydration solution (45.4%). Oral rehydration therapy. (ORT) as a lone therapy was given to only 4.1% of total cases'. However, a significant number ( $p < 0.001$ ) of qualified pediatricians preferred a combination of ORT and other drugs (87.2%). Multiple drugs in the form of lopermaide (57.9%), pipenzolate (2.1%), metoclopramide (13.7%). steroids (2.5%), *etc.* were prescribed in most of the cases, both by qualified and unqualified practitioners. Most of the prescriptions were incomplete and did not mention about the severi-

TABLE I-Prescribing Habit in Acute Diarrhea\*

Therapy	Total (n=1030) %	Group A (n=739) %	Group B (n=119) %	Group C (n=172) %	p value
1 AD+AS	46.8	58.2	32.8	7.6	<0.001
2 ORS/SSS	4.1	2.8	17.6	-	<0.001
3 AD+AS+ORT	45.4	37.9	31.9	87.2	<0.001
4 Parenteral antibiotics	11.3	8.1	26.0	14.5	<0.001
5 Parenteral fluids	3.9	1.4	17.6	5.2	<0.001
6 Steroids	2.5	2.8	2.5	1.2	>0.05

AD = Antidiarrheal drugs; As = Antispasmodic drugs. \* Multiple drugs were given to most of the patients

ty of dehydration, nature of diarrhea or type and duration of fluid therapy. Three babies had developed cellulitis of the abdominal wall following subcutaneous fluid therapy, given by Group A practitioners because of their failure to get the intravenous line.

As depicted in *Table II*, 49.6% cases were given ORS with low sodium content. A significantly higher proportion of cases ( $p < 0.001$ ) in Group B received low sodium ORS. However, 45.3% cases from Group C had received preparations resembling WHO formulations. Only 23.7% cases had received home made sugar salt solution (SSS) which were mainly prescribed by Group A practitioners ( $p < 0.001$ ). Regarding reconstitution of ORS, proper directions were given to only 23.7% cases, which were equally lacking in all three groups. All the three groups preferred to prepare one glass or one cup of solution at a time rather than full litre and 60% had mentioned about powder to be used as 1-2 tsf per glass or per cup *etc.* Electrolyte imbalance in the form of hypo or hypernatremia was documented in 11/510 (2.2%) cases treated with oral rehydration therapy in their first in-

stance compared to only 1/154 (0.6%) subjects without any fluid therapy,

### Discussion

ORT is a life saving and widely recommended therapy in the management of acute diarrhea. However, only a limited number of patients may have actual access to such therapy. Multiple drugs in form of binding agents, antispasmodic preparations and antibiotics, *etc.* are prescribed even by qualified doctors, thus leading to harmful side effects of these drugs(2-3). As noted by us, 95% patients seen by qualified pediatricians were given antidiarrheal and antispasmodic preparations with or without ORT. In one earlier study(8), it was noted that only 40% prescriptions mentioned about ORT. Since most of the parents have very poor or no knowledge about the management of diarrhea and ORT, almost 68% of them prefer to use the drugs and parenteral fluid in acute diarrhea(4). Some overenthusiastic practitioners follow these unwanted practices to satisfy these parents, which are unjustified in absence of severe systemic illness, dysentery or severe dehydration.

**TABLE II**—Type of Oral Rehydration Therapy in Acute Diarrhea

Type of ORT	Total (n=510) %	Group A (n=301) %	Group B (n=59) %	Group C (n=150) %	p value
1 Homemade (SSS)	23.7	30.2	15.2	14.6	<0.001
2 Low Na <sup>+</sup> ORS	49.6	49.8	71.2	40.7	<0.001
3 Resembling WHO formulation	26.7	19.9	13.6	45.3	<0.001
4 Direction for preparation of ORS					
(a) Proper	23.7	22.6	18.6	28.0	>0.05
(b) Improper	76.3	77.4	81.4	72.0	>0.05

Almost 52% of marketed preparations of ORS are low in sodium Content (30-50 meq/l)(7) and such preparations are preferred both by doctors and general practitioners, may be due to their easy availability or in certain instances due to substitution by chemists. Home made Sugar Salt Solution (SSS) was the first choice for a significant number ( $p < 0.001$ ) of Group A practitioners since many cases seen by them had probably mild or no dehydration.

Unfortunately, most of the parents (76.3%) have either no or incorrect information regarding proper reconstitution of ORS. The source of such information is mainly through mass media doctors and other health personnel(4). An earlier study(9) documented only 10% doctors providing proper directions for reconstitution of ORS. As noted by us, this type of practice is followed equally by all group of practitioners. The possible reasons may be over busy clinics of these practitioners, where they have little time to write or explain to parents. Since 60% of chemists and general practitioners have limited or no knowledge regarding importance, composition and reconstitution of ORS(7,9), they usually follow the prescriptions of qualified doctors. Above all, the variations in the composition, packing and instructions for the reconstitution of solution is so varied, that even a qualified person sometimes gets confused while prescribing ORS.

An incorrect approach to diarrheal management through various group of practitioners, either through their incomplete prescriptions or discussion with parents may lead to iatrogenic hazards and contribute to electrolyte imbalance, water intoxication(7,10,11) and in emergence of multi-drug resistant strains of micro-organisms(12). So a great emphasis is needed for creating a rational and scientific approach towards diarrheal disease by restricting un-

wanted drugs, by maintaining uniform ingredients of ORS sachets and proper reconstitution of ORS. Pediatricians and Social Workers have to take a leading role in guiding the parents. Doctors have to improve their prescribing habits by orientating and auditing their own prescriptions.

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