Diarrhea continues to be a global problem with a high morbidity and mortality particularly in children below the age of 5 years. In India, a National Control of Diarrhea Disease Programme was launched about a decade back with the main objective of reducing mortality on account of diarrheal diseases. Oral rehydration therapy (ORT), the most simple, economic and effective therapeutic intervention, has been successfully promoted through this programme. However, despite a visible success in reducing the mortality on account of diarrhea, the results are far from satisfactory. The reasons for this slow paced progress are many but one of the important determinants seems to be the non-participation of most of the physicians and pediatricians in this programme. The prevalent clinical practices reflect the knowledge and perceptions of our medical graduates and pediatricians which they have acquired during their training. This study was aimed to assess the knowledge and perceptions of resident doctors in various medical colleges in the country regarding case management of acute diarrhea.

Material and Methods

The results are based on a survey conducted through a questionnaire specially designed for the purpose. The questionnaire was composed of structured questions (close ended) on various aspects of diarrhea, ORT and case management. The

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respondents included were: interns, house physicians and postgraduate students working in the Department of Pediatrics in 32 medical colleges in the country. The pretested proformas were sent to various teachers working in Pediatrics Department with the request that 5-10 doctors from each category were to be randomly selected to fill these proformas under his/her personal supervision without any prior notice. In order to avoid identification (and possible bias or need for giving a hint) the teachers were asked to write only the rank of the doctor without mentioning the name of the respondent or his/her college. All the proformas were pooled together and the results were evaluated according to rank of the respondents. While assessing the answers of the respondents, leaving a question unanswered was taken as 'did not know'.

Results

The pretested proformas were sent to 32 medical colleges. Only 330 completed proformas were received from 24 medical colleges and the respondents were: 114 interns (34.5%), 126 house physicians (38.2%) and 90 postgraduate students (27.3%).

It was amazing to observe that only 22 interns (19.3%), 30 house physicians (23.8%) and 32 postgraduate students (35.5%) were familiar with objectives and action plan of National Control of Diarrheal Diseases (CDD) Programme.

Knowledge About ORS

Responses of the doctors regarding knowledge about ORS is shown in Table I. It highlights that concepts of postgraduate

<table>
<thead>
<tr>
<th>Questions</th>
<th>Interns (n = 114)</th>
<th>House physicians (n = 126)</th>
<th>Postgraduates (n = 90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition of ORS</td>
<td>78 68.4</td>
<td>84 66.6</td>
<td>64 71.1</td>
</tr>
<tr>
<td>Role of glucose in ORS</td>
<td>106 92.9</td>
<td>110 87.3</td>
<td>82 91.1</td>
</tr>
<tr>
<td>Most practical source of water to make ORS</td>
<td>98 85.9</td>
<td>102 80.9</td>
<td>54 60.0</td>
</tr>
<tr>
<td>Rehydration with ORS is not too slow as compared to IV therapy</td>
<td>36 31.5</td>
<td>26 20.6</td>
<td>40 44.4</td>
</tr>
</tbody>
</table>

n = Number of respondents; ORS: Oral rehydration solution.
students who have spent more time in the speciality are no better than the interns.

Case Management

Table II shows knowledge and perceptions regarding case management of diarrhea and reveals uniformly poor understanding of feeding during diarrhea. The performance of postgraduate students is poorer than the interns as regards use of ORS in moderate dehydration (p < 0.005) and in cases with associated vomiting (p < 0.05).

Drugs and Diarrhea

Similarly, concepts about the use of drugs in diarrhea (Table III) even though improving with more experience during residency, are far from satisfactory.

Discussion

Diarrhea morbidity and mortality in under fives in India continues to be a matter of great concern despite the encouraging results as a consequence of concerted efforts by National CDD Programme. The

### TABLE II—Knowledge and Perceptions About Case Management

<table>
<thead>
<tr>
<th>Response elicited</th>
<th>Interns (n = 114) Correct response</th>
<th>House physicians (n = 126) Correct response</th>
<th>Postgraduates (n = 90) Correct response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of signs of dehydration</td>
<td>91 79.4</td>
<td>102 80.9</td>
<td>73 81.1</td>
</tr>
<tr>
<td>How much and what to feed during and after diarrhea</td>
<td>24 21.0</td>
<td>30 23.8</td>
<td>21 23.3</td>
</tr>
<tr>
<td>ORS should be preferred to rehydrate moderate dehydration</td>
<td>94 82.4</td>
<td>98 77.7</td>
<td>58 64.4</td>
</tr>
<tr>
<td>ORS can be given in presence of vomiting</td>
<td>74 64.9</td>
<td>80 63.5</td>
<td>46 51.1</td>
</tr>
<tr>
<td>Calculation of ORS for deficit therapy</td>
<td>72 63.1</td>
<td>72 57.1</td>
<td>56 62.2</td>
</tr>
<tr>
<td>ORS should be given for ongoing losses after initial IV deficit therapy</td>
<td>44 38.5</td>
<td>42 33.3</td>
<td>60 66.6</td>
</tr>
</tbody>
</table>

ORS-Oral Rehydration Solution.
### TABLE III—Common Misconceptions About Drugs in Diarrhea

<table>
<thead>
<tr>
<th>Misconceptions</th>
<th>Interns No</th>
<th>Interns %</th>
<th>House physicians No</th>
<th>House physicians %</th>
<th>Postgraduates No</th>
<th>Postgraduates %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine use of antibiotics is justified because most of the diarrheas are caused by bacteria</td>
<td>92</td>
<td>80.7</td>
<td>90</td>
<td>71</td>
<td>65</td>
<td>72.2</td>
</tr>
<tr>
<td>Antimotility and binding agents reduce the frequency of diarrhea and hence indicated</td>
<td>60</td>
<td>52.6</td>
<td>72</td>
<td>57.1</td>
<td>24</td>
<td>26.6</td>
</tr>
<tr>
<td>Antiemetics should be given to stop vomiting</td>
<td>51</td>
<td>44.7</td>
<td>58</td>
<td>46.03</td>
<td>30</td>
<td>33.3</td>
</tr>
<tr>
<td>Medications have to be given to satisfy the mothers</td>
<td>80</td>
<td>70.2</td>
<td>80</td>
<td>63.5</td>
<td>36</td>
<td>40.0</td>
</tr>
</tbody>
</table>

Integration of CDD Programme in Primary Health Care has helped to reduce the mortality on account of diarrhea to some extent(1). A vast majority of patients, however, seek medical attention from private doctors or practitioners(2), who do not usually follow the standard case management protocol(3,4). The problem is even more alarming because current teaching of medical students completely lacks thrust on proper case management of diarrhea.

Our observations clearly show that a significant proportion of residents are not having necessary knowledge about ORS, its mechanism of action, composition, preparation and its effectiveness. It is not only the deficient undergraduate syllabus, but even the clinical training in pediatric wards seems to be inadequate.

It is sad to observe that after spending 1-3 years in pediatric wards requiring actual case management of a variety of cases of diarrhea, the responses of postgraduates were no better than the interns. On the contrary the responses of interns were relatively better than the postgraduates as far as the role of ORS in moderate dehydration and in cases with vomiting is concerned. It may suggest that undergraduate teaching has started giving some stress on diarrhea and its management during the last couple of years or it may just be an influence of existing practices in the hospitals which is responsible for the wrong concepts of postgraduate students. The residents remember what they are taught and practice what they see.

Assessment of dehydration is the most important component of management of diarrhea and it is quite discouraging to observe that 20.2% interns, 19.1% house physicians and 18.9% postgraduate students did not have the required knowledge about signs of dehydration. In a
National Programme in which the health workers and even the mothers are expected to acquire some knowledge about diarrheal dehydration, this observation is alarming. Failure to recognize the extent of dehydration and incorrect calculation of ORS to rehydrate a patient may not only result in apparent failure of ORT but may be responsible for lack of confidence of residents in oral therapy. Pediatricians are quite conscious and concerned with the problem of malnutrition and its relationship with diarrheal diseases. Still majority of respondents were not conversant with all the aspects of feeding during diarrhea.

Most of them did not know when to initiate feeding and what was the suitable diet for a child with diarrhea. Lack of clear information to mothers about feeding during diarrhea may in turn add to already prevalent cultural and socio-economic factors which adversely influence the feeding practices during diarrhea.

The concept of diarrhea being infective in origin in most of the cases and therefore, necessitating use of antibiotics is one of the major hurdles in promotion of ORT. In a population where mothers look forward to drugs for treatment of diarrhea(5), this apparently convincing explanation adversely undermines the role of ORT and results in indiscriminately use of drugs. Therefore, doctors tend to give more stress on drugs than on hydration(2). A very high proportion of our respondents justified routine use of antibiotics on this plea.

The only visible improvement in the perceptions of residents was noticed in their attitude towards use of antimotility drugs and binding agents. Most of the postgraduate students (73.4%) did not favour use of these drugs which reflects the impact of clinical training on these residents. It is also a positive trend that a majority of postgraduate students did not favour prescribing medications just to satisfy the mothers. This may be attributed to their confidence acquired in general during their clinical training.

The medical education seems to emphasize the responsibility of doctors to intervene, to apply their special knowledge in a way that adds, often dramatically, to their unique status(6). Therefore, to start an intravenous drip or to prescribe a new ‘miracle’ drug happens to be an inevitable practice if doctors are not properly trained in case management of diarrhea. Therefore, unless ORT is practised and promoted in the medical colleges, adequate stress is given to current concepts about diarrheal diseases during undergraduate curriculum and residents are exposed to proper treatment protocol with ‘hands on training’, the ultimate objectives of National CDD Programme will remain unfulfilled. It is desired to produce a new breed of committed physicians who are sufficiently knowledgeable, motivated and properly trained in proper case management of diarrhea and the only source is our teaching hospitals.

Acknowledgements

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REFERENCES


2. Viswanathan H, Rohde JE. Diarrhea in Rural India-A Nationwide Study of Mothers and Practitioners (All India


NOTES AND NEWS

NINTH CONGRESS OF PERINATOLOGY, BARODA

The Ninth Congress of Indian Society of Perinatology and Reproductive Biology (ISOPARB) is being organised by ISOPARB-West Zone at Baroda on 14th and 15th February, 1992.

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