Factors Influencing the Prescribing Patterns in Acute Watery Diarrhoea

Abdul Jamil Choudhry (Department of Community Medicine, Allama Iqbal Medical College.)
Mahmuda Mubasher (Institute of Public Health, Lahore.)

Abstract

Two hundred sixty-four randomly sampled general physicians of Lahore were interviewed to study the current practices and factors affecting the management of acute watery diarrhoea (AWD) in children below 5 years of age. Among the physicians, 19% prescribed ORS alone, 61% ORS with some drug, 15% drugs alone and 5% increased fluid intake only. Physicians in government sector, recent graduates and those trained in a paediatrics unit prescribed more on the WHO guidelines (p<0.05). Attending a diarrhoea training unit (OTU) course, reading WHO guidelines for management of diarrhoea and total number of patients seen daily had no significant effect on prescribing practices. Two hundred fifty-five (97%) physicians thought that majority of other physicians prescribed drugs for the management of acute watery diarrhoea to satisfy the mothers of the children, their belief in the effectiveness of drugs and competition in practice (JPMA 47:32, 1997).

Introduction

In Pakistan, there are estimated 54 millions episodes of diarrhoea yearly, causing some 300,000 deaths of children below 5 years of age1. Management of diarrhoea was previously based on intravenous (IV) fluids, initial bowel rest, gradual reintroduction of foods and use of antibiotics and antidiarrhoeal drugs. Mortality and morbidity associated with diarrhoea cases can be effectively reduced by oral rehydration solution (ORS), continued feeding, avoidance of drugs for acute watery diarrhoea (AWD) and effective instruction of the child’s mother or other caretaker in management and danger signs2.

It can be difficult to incorporate new information and to modify the physician’s choice of therapy3-6. The main sources of information on drugs for doctors are either physicians or advertisements by pharmaceutical companies. Thus ORT has to compete with the multimillion-dollar propaganda campaign of pharmaceutical companies for high-cost drugs. A number of studies in developing countries describe the current management of diarrhoea in children and the effect of different strategies used to change their practice. The use of ORS has increased without affecting the use of antibiotics and antidiarrhoeal drugs7-9. Special guidelines for the management of diarrhoea were prepared in 1988 and disseminated to physicians for information and implementation in Pakistan1. Since March 1989, a special one week training course for management of diarrhoea has been offered on a regular basis by the Government of Pakistan in diarrhoea training units (DTUs). During 1989-1991, approximately 10,000 physicians, mainly from the government sector, participated in this training. General physicians in the private sector have not been extensively trained through this mechanism although they might have participated in a workshop on diarrhoea management or obtained information from DTU-trained physicians or through journals and newsletters. This study was conducted to determine physicians reported practices in childhood diarrhoea and to identify factors affecting this behaviour.

Methods

Study area and study Population
A list of all private general physicians and medical officers/house physicians of Lahore who treat children but are not qualified paediatricians was prepared. Lists of medical officers in government sector and house physicians were compiled with the help of Provincial and Municipal Health Departments of house physicians and Heads of departments of paediatrics in teaching hospitals respectively. For private sector listing help was provided by Wellcome Pharmaceuticals and Pakistan Medical Association. Lahore branch. Thus a total of 1257 physicians were listed in the private (1067) and Government (190) sectors.

Epi Info 5 was used to calculate the sample size. In the absence of comparable data expected frequency was presumed to be 50%, to give the highest sample size required. To detect a 5% difference at a confidence interval of 95%, sample size was estimated to be 220. To give an approximate 20% margin for non-response, a total of 262 physicians (223 private and 39 government) were drawn from the list with the help of a random number table.

Data collection
All 262 physicians included in the study were interviewed at their place of work by a team of three physicians using a pretested, semi-structured questionnaire. The interviewing physicians were trained by the principal investigator.

Physicians were asked whether they would prescribe ORS and/or drugs for a child under 5 years with acute watery diarrhoea (AWD) without dehydration and no history of blood or mucous in stool. The physician factors recorded included internal predictors such as year of medical graduation, experience in child care, training at a diarrhoea training unit (DTU) or other workshop, reading WHO guidelines on management of diarrhoea and external predictors such as place of work, perceived satisfaction of mothers with prescription of drugs or with ORS alone, children’s response to ORS and number of patients seen daily.

Analysis
The results were analyzed to study the relationship between the factors studied and the current reported practices of the physicians regarding the prescription of ORS and drugs. Statistical significance was tested by chi-square without continuity correction. For the purpose of reporting p<0.05 was used as a cut off point for statistical significance.

Results

Characteristics of Physicians
Out of 262 physicians who participated in the study, 39 (15%) were from the government and 223 (85%) from the private sector. Majority of physicians were male (85%) and had 5 years or more experience (71%) in the management of children with medical problems. Thirty-four percent physicians had previously worked in a paediatrics unit:

Although 48% of physicians had read the WHO guidelines for the management of AWD, only 18% had attended a special DTU course and 12% some workshop on diarrhoea management. Seventy-nine percent physicians managed 20 or more patients per day during their duty/practice hours; similarly, 78% managed 10 or more children below 5 years per day.

Do physicians prescribe according to WHO guidelines?
Prescribing pattern of physicians were for the management of AWD without dehydration in children below 5 years, with no fever or blood or mucous in stool is shown in Table I.
Sixty-one percent prescribed ORS with drugs. Overall 209 (80%) physicians prescribe ORS, either alone or with drugs and 198 (76%) drugs, either alone or with ORS.

**Factors affecting reported practice**

Forty-four percent physicians in government sector used ORS alone compared to 15% in private practice (p<0.05) as shown in Table II.

<table>
<thead>
<tr>
<th>Prescription</th>
<th>Number</th>
<th>(Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORS alone</td>
<td>50</td>
<td>(19)</td>
</tr>
<tr>
<td>ORS + Drugs</td>
<td>159</td>
<td>(61)</td>
</tr>
<tr>
<td>Drugs alone</td>
<td>39</td>
<td>(15)</td>
</tr>
<tr>
<td>No ORS, No drugs; advise only increased fluids.</td>
<td>14</td>
<td>(5)</td>
</tr>
</tbody>
</table>

*ORS, with or without drugs
**Drugs, with or without ORS

---

**Table I. Frequency distribution of physicians according to the reported prescription behaviour for management of acute watery diarrhoea in children below 5 years (n=262).**

<table>
<thead>
<tr>
<th>Prescription</th>
<th>Number</th>
<th>(Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORS alone</td>
<td>50</td>
<td>(19)</td>
</tr>
<tr>
<td>ORS + Drugs</td>
<td>159</td>
<td>(61)</td>
</tr>
<tr>
<td>Drugs alone</td>
<td>39</td>
<td>(15)</td>
</tr>
<tr>
<td>No ORS, No drugs; advise only increased fluids.</td>
<td>14</td>
<td>(5)</td>
</tr>
</tbody>
</table>

*ORS, with or without drugs
**Drugs, with or without ORS

---

**Table II. Reported practices of physicians in relation to the external predictors studied (n=262).**

<table>
<thead>
<tr>
<th>Practice site*</th>
<th>Number of Obs.</th>
<th>ORS alone</th>
<th>ORS+ Drugs</th>
<th>Drugs alone</th>
<th>No ORS</th>
<th>No Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>39</td>
<td>44</td>
<td>38</td>
<td>3</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Private</td>
<td>223</td>
<td>15</td>
<td>65</td>
<td>17</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of patients managed daily</th>
<th>Number of Obs.</th>
<th>ORS alone</th>
<th>ORS+ Drugs</th>
<th>Drugs alone</th>
<th>No ORS</th>
<th>No Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-19</td>
<td>56</td>
<td>25</td>
<td>59</td>
<td>11</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>20-39</td>
<td>66</td>
<td>17</td>
<td>67</td>
<td>11</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>40-59</td>
<td>52</td>
<td>17</td>
<td>60</td>
<td>17</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>60-79</td>
<td>38</td>
<td>24</td>
<td>55</td>
<td>16</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>80+</td>
<td>50</td>
<td>14</td>
<td>60</td>
<td>22</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Physicians belief regarding:**

**Mother's response to ORS alone**

- Completely satisfied: 27, 63, 22, 0, 15
- Somewhat satisfied: 46, 33, 48, 15, 4
- Not satisfied: 166, 11, 69, 16, 5

**Child's response to ORS**

- Like ORS: 71, 21, 63, 10, 6
- Dislike but takes it: 147, 18, 63, 14, 5
- Refuse to take it: 41, 22, 46, 24, 7

Physicians trained in a paediatric unit and recent graduates prescribed ORS alone more frequently than
Attending the DTU course, reading the WHO guidelines for the management of diarrhoea and the number of patients seen daily had no significant effect on prescribing pattern. Physicians who believed that mothers are completely satisfied with the prescription of ORS alone to their children suffering from AWD, reported prescribing more ORS and fewer drugs as compared to those who did not believe so (P<0.05). Seventy-one (27%) physicians believed that the majority of children like ORS; 147 (57%) believed that they dislike ORS but take it and 41 (16%) thought that the majority of children refuse to take ORS. But this belief showed no statistically significant relationship with the reported practices of physicians. Two hundred fifty-five (97%) physicians believed that the majority of other physicians prescribed drugs for the management of AWD. The most commonly cited reasons were described as to satisfy the mother/caretaker of the child, the physician’s belief in the effectiveness of drugs and competition in practice (Table IV).
Discussion

The prescription of ORS for the management of AWD has increased in developing countries but the use of drugs still remains high\(^3\),\(^4\). In this study, only 19% physicians prescribed ORS alone but the majority (80%) used drugs with ORS. Physicians who graduated recently and those who worked in - paediatric units were exposed to the new concepts of management of AWD, therefore, they prescribed more on WHO guidelines. A short one-week special training course at the DTU and reading WHO guidelines did not have a significant impact on the reported practices of physicians. This suggests that medical school and postgraduate training in paediatrics are the critical determinants of prescribing practices. Physicians in the government sector prescribe more in accordance with the WHO recommendations than those in the private sector. This has also been reported from Indonesia, suggesting that physicians in government sector are affected less by their perception of mother’s expectations about prescribing drugs for AWD\(^8\). This may be because, their income is not directly affected by the number of patients seen. This practice is further reinforced by their belief that the majority of mothers can be satisfied with ORS alone. Perception of children’s preference had no effect on reported use of ORS. This suggests that education of mothers about the value of ORS alone for AWD can influence physicians practice. Two other issues appear to adversely affect reported practice, first is the belief in the efficacy of drugs and the second that other physicians give drugs and that it is necessary to do for the “competition”. These represent another target concept for education programmes. The failure of DTU training to influence reported practice suggests that the second may be a more “potent” message.

It is concluded that although the information to use ORS and no drugs in the management of AWD in children has reached the majority of physicians, but it has no effect on reported practice as expected. The answer of the problem therefore, lies in well planned teaching and training programmes for the
profession and the community and the organization of private practice in such a way, through the insurance system, that physicians are not directly dependent on the will of patients for their income.

Acknowledgements

We would like to thank Dr. Humaira Mubasher, Dr. Sahibzada Azhar Mujib and Dr. Tajammal Hussain Mir for their help in conducting the study. We would also like to acknowledge the help provided by ADDR staff including Dr. Richard Cash, Dr. Jim Trostle, Dr. Karen Peterson and Dr. Fitzroy Henzy. We specially acknowledge the support and help provided by Mr. Jonathon Simon throughout the study, without which this study would not have materialized. We also want to acknowledge the support provided by the Principal and administrative staff of Allama Iqbal Medical College, Lahore. Financial support for this research was provided in part by Harvard University by means of a cooperative agreement with the U.S. Agency for International Development.

References