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Current Concept in Diarrhoea management with Special Emphasis on Infantile Diarrhoea

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Diarrhoeal diseases, among malnutrition and upper respiratory infections, are the three major causes of infantile mortality, especially in developing countries, and all three can be found in a child at the same time.

Over the years, there have been conflicting teachings on diarrhoea management in children not only between different nations or cities but even between different hospitals in a given community as was exemplified by a lecture on "ORT- AN International Perspective" given by Dr Roy Brown, who is the chairman of Community Medicine Department, at St. Joseph's Hospital, New Jersey, U.S.A.

The ancient concept and management of infantile diarrhoea have been outlined below:

1. Stop diarrhoea as fast as possible: This was achieved by the use of :
   i. Bulk absorbents such as Kaolin and Bismuth.
   ii. Drugs that reduce intestinal motility e.g. Codeine and Atropine-containing drugs like Lomotil.
   iii. Antibiotics such as Sulphonamides, Penicillin and Neomycin, since all diarrhoea was thought to be caused by bacterial and other parasitic agents.
2. Withhold food including Breast milk during the diarrhoea episode. This is because a sore in the stomach or spoilt food was held responsible for most cases of diarrhoea, and the digestive system was thus thought unfit to deal with an additional burden of food. Some hospitals even advised patients to restrict fluid intake during the period.
3. The idea or concept of the loss of body fluids and electrolytes through the diarrhoeal stools which could lead to dehydration of the infant, and the need to replace these i.e.

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The invaluable practical experiences, research findings and observations made by the invited speakers, together with information gathered from "Dialogue on Diarrhoea"(an International Newsletter on the control of diarrhoeal diseases) and an editorial perspective expressing the views of UNICEF and WHO on the topic, which were circulated during the conference, have been compiled by her for the education not only of fellow pharmacists, but to all categories of health workers and the whole community at large.

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rehydration, was not all considered in the management of infantile diarrhoea until it was rather too late.

There was also the tendency to administer parenteral anti-emetics such as injection Largactil where diarrhoea was accompanied by vomiting.

The responsibility for those anomalies must be shared by all not only mothers, but all categories of health workers, both in the developed and developing countries.

The result was that a greater proportion of cases of infantile diarrhoea ended fatally due to severe dehydration and malnutrition and the few lucky ones that were saved at the hospitals had to be rehydrated by intravenous fluids such as ½ strength Darrow's Solution.

New Concept

Learning from these mistakes, a new concept of infantile diarrhoea with the requisite management has now been developed and is beings propagated by UNICEF, WHO and other international bodies. Governments throughout the world would do well to adopt these new measures and make them national policies to save their people. The current concepts are enumerated below:

1. About 95% of cases of infantile diarrhoea are of viral origin for which antibiotics are not necessary.
2. If in doubt, stool examinations should be carried out and when organisms such as shigella, E. Coli or amoebae are found, the right medication in the correct dosage regimen should be used.
3. Dehydration of the infant is the major cause of death in infantile diarrhoea, especially with concomitant vomiting.
4. The loss of body fluids is accompanied by essential nutrients which must necessarily be replaced for intestinal tissue repair and general body growth and therefore, there is the need to maintain a much more dietetically-balanced feeding both during and after each episode of diarrhoea.
   It must be remembered here that studies have shown that regeneration of the affected bowel is much more enhanced by continued oral therapy and feeding than when rehydration is achieved by the intravenous route.
5. The use of parenteral anti-emetics in infantile diarrhoea accompanied by vomiting should be discouraged completely since they tend to make the children too drowsy to drink or eat.
   Based on these concepts of infantile diarrhoea, the current teaching is that the appropriate first response of parents at the onset of an acute attack of diarrhoea in a child is to provide an adequate "home-prepared solution" or ORS to prevent the occurrence of dehydration.
   Before going on, it is important to enumerate the clinical signs of dehydration (Table 1) for the education of both parents and health workers. Dehydration can be mild, moderate or severe.

TABLE 1

CLINICAL SIGNS OF DEHYDRATION

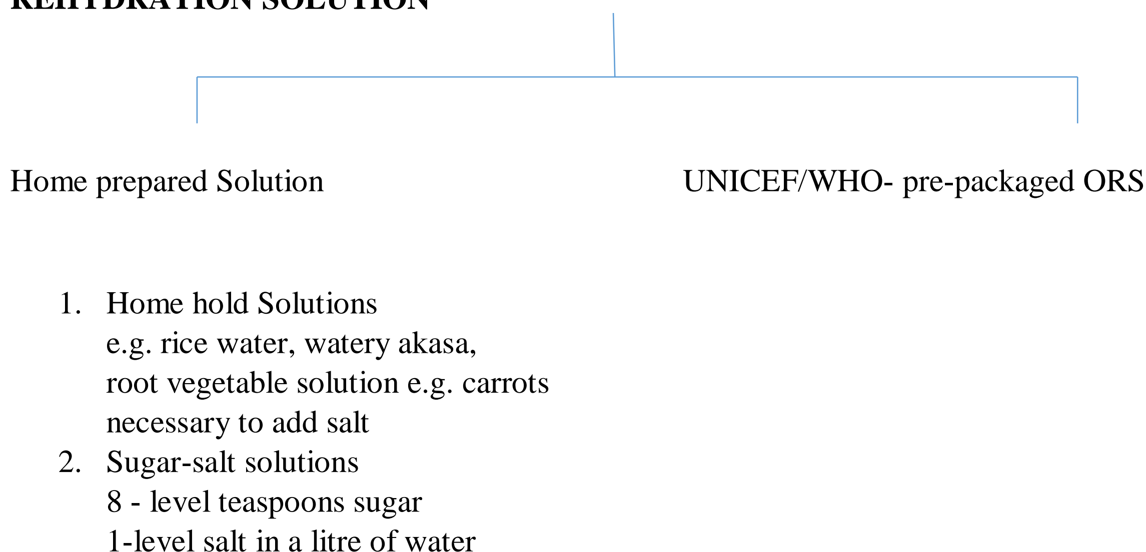
PARAMETER		MILD DEHYDRATION	SEVERE DEHYDRATION
1	General Appearance of patient	Alert	Not interested in surroundings
2	Skin	Elastic	Elasticity is lost
3	Eyes	Only slightly sunken	Deeply sunken
4	Anterior fontanelle	Slightly sunken	Deeply sunken
5	Pulse	Normal & strong i.e. about 120/min	Fast & weak i.e. faster than 160/min
6	Urine	Regular, may be of normal concentration	Scanty & very concentrated

Quite contrary to assertions o certain quarters that UNICEF and WHO are promoting either “home-prepared solutions” or pre-packaged ORS in their campaign in diarrhoea management, an editorial perspective currently issued by the two bodies state categorically that “Both home-prepared solutions and pre-packaged ORS have their appropriate place in a comprehensive diarrhoeal disease programme and UNICEF and WHO are successfully advocating in this comprehensive approach in many countries around the world.”

It is important, however, to identify the different types of rehydration solutions available and the advantages and limitations of each to make the best selection in any given situation. These are presented in tables 2 and 3 below for clarity.

TABLE 2

REHYDRATION SOLUTION



Home prepared Solution

UNICEF/WHO- pre-packaged ORS

1. Home hold Solutions
   e.g. rice water, watery akasa,
   root vegetable solution e.g. carrots
   necessary to add salt
2. Sugar-salt solutions
   8 - level teaspoons sugar
   1-level salt in a litre of water

TABLE III

COMPARISON OF REHYDRATION SOLUTIONS

Type of rehydration solution	Suitability to infants up to six (6) months	Availability of ingredients	Availability of portable water	Special measuring devices	Keeping time of solution	Cooking	Consistency of solution concentration	Effectiveness in correcting Acidosis & Hypokalaemia
1. Household food solutions e.g. Rice Water	Not suitable for up to 6 months babies because of incomplete digestion of starch	Whatever starch food locally available is used	Not much of a problem since food will be cooked	No special measuring devices needed	Fermentation and bacteria growth may limit useful life of solution to only a few hours especially rice solution	Necessary so may pose a problem in certain areas	No specific concentration needed	Not effective
2. Sugar-salt solutions	suitable for all ages	sugar and/ or salt may not be available	may be a problem	may pose a problem	24 hours	Not necessary	The major limit to its use. Conc. of solution too variable, even in a small sample area	- do -
3. Pre-packaged ORS	- do -	may or may not be available especially in remote villages	may be a problem	- do -	- do -	- do -	standard for optimum absorption of both glucose and salt	because of added $-HCO_3$ & K^+ is the most effective

It should be re-emphasised here that it is much simpler and easier to prevent than to correct dehydration in infants with diarrhoea, and the affected child should be attended to with utmost care and patience.

The rehydration solution and the infants' food should be given by cup and spoon. They should be given not in cupfuls at a time which may prolong an already existing vomiting or generate the same in one not already vomiting but should be given in spoonfuls steadily and persistently. Rehydration by the intravenous route should be resorted to only when the child is too weak to hold his head up or unconscious.

In summary, it should be stated that any meaningful national campaign on the control of infantile diarrhoeal diseases, should aim at prevention rather than treatment. Any such programme should be tacked intersectorally with mass health education and complete community involvement.

Aspects of prevention such as good sanitation and environmental hygiene stressing on food hygiene, good drinking water and proper disposal of waste materials; good nutrition embracing breastfeeding personal hygiene of all in the community and the immunisation against childhood communicable diseases such as measles, must form the basis of a worldwide comprehensive campaign against diarrhoeal diseases in infants.

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