

EDITORIAL

"SUPER ORT"

Oral Rehydration Therapy (ORT) has come of age. Signalling this fact was the International Conference on Oral Rehydration Therapy (ICORT), held in Washington D.C. this past June, and sponsored by USAID in cooperation with the ICDDR,B, UNICEF and WHO. Another editorial (1) recently emphasized emerging consciousness of diarrhoeal diseases as a principal cause of death and debilitation of children worldwide, as well as the realization that there exists a simple, inexpensive preventive. The challenge now confronting us all is how to ensure, as rapidly as possible, that every household in endemic diarrhoea areas in every country has access to and knows how to administer ORT at the earliest sign of diarrhoea.

We know that, ideally, children, and adults, should receive the full ORS formulation in sterile drinking water. However, we know too that in many settings this is impossible. Compromises must be made, so that the three essential ORS components always are accessible: water, salt (sodium chloride) and a carrier substance (glucose). All three ingredients are universally available in all the world's households, except where severe deprivation or famine exists.

As for the glucose recommended by the WHO/UNICEF formula, it lies hidden within foods that are staples to all the world's people: cereal grains. Cereals, as well as some fruits and vegetables, contain starches, which are polymers of glucose. Since during diarrhoea the starch-digesting enzyme amylase is present in large amounts in the upper intestine, starches are broken down rapidly into glucose — thereby providing carrier molecules where most needed, and without any "osmotic penalty," which results if increased glucose is added to ORS. This consideration has led to clinical trials investigating the use of rice in place of glucose in ORS (2,3).

In this issue of the JDDR, a review of theoretical and practical issues surrounding the choice of carrier substances (4) presents evidence that optimizing ORS can both improve rehydration and can make diarrhoea shorter and less severe. Best of all, this can be accomplished with available foods, at a lower cost.

In 1977, Michael Field foreshadowed this improved ORS in an editorial in the *New England*

Journal of Medicine (5). He began with a rhyme from a children's book (6).

Sipping once
Sipping twice
Sipping chicken soup
With rice.

Dr. Field's editorial mentioned the benefits when the small carrier molecules glucose and certain amino acids are derived *in situ* from large food polymers.

Detractors of ORT will point to the fact that the therapy isn't new — that it merely is a refinement of empiric practices in many countries and cultures. In these practices, which may be thousands of years old, cereal broths, with or without some protein and containing an unknown amount of salt, have been given to sick children and adults, often for diarrhoea. The fact that our ancestors, for whatever reasons, arrived at the correct solution should in no way detract from the value of ORT. If anything, it is fascinating to realize that such ancient "folk medicine" was "scientifically" accurate — while the modern dogmas of "resting the bowel" and withholding food and fluids from diarrhoea patients have resulted in widespread suffering and death. Thus, the restrictive ideas of the past half-century have led to a diminished volume of diarrhoea, while simultaneously enhancing dehydration, thereby causing malnutrition and high death rates. In the last analysis, the fact that, once again, an ancient remedy has been rediscovered by modern science merely emphasizes the point that science only "discovers" things that already exist. This is as true for ORT as for digitalis or morphine.

However, a great deal of work now must be done in many countries, to chart the territory of what can be accomplished *vis-à-vis* preparing each country's "recipe" for "super ORT". The theoretical parameters already have been mapped out, but the task of translating these into practical household mixtures only is beginning.

At the same time, there remains another crucial dimension to consider: that of improving long-term nutrition in young diarrhoea victims treated consistently with ORS. In a large field trial recently completed by the ICDDR,B, a simple sea salt/crude cane sugar ORS, used regularly in children.

was found to result in significantly improved nutrition (7). We anticipate that nutrition can be enhanced even further, by using cereals and proteins as the basis for ORS. Thus, both fluid electrolyte malnutrition (FEM) and protein energy malnutrition (PEM) can be diminished or prevented, by using the forthcoming super ORT solutions.

References

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