
PROCEEDINGS OF THE 14TH INTERNATIONAL CONGRESS OF NUTRITION

Vol. II: Workshops

New Era ./ Global Harmony Through Nutrition

**AUGUST 20-25, 1989
SEOUL, KOREA**

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LOCAL COMMON FOODS IN THE DIETARY MANAGEMENT OF ACUTE DIARRHEA: EXPERIENCE IN GUATEMALA

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~~PLEASE START HERE~~ Therapy can reduce mortality rates due to dehydration as a consequence of diarrhea. The next most serious consequence of diarrheal diseases is malnutrition, which, in turn, can be the underlying cause of death among many infants and children in developing countries.

The nutritional damage caused by diarrheal diseases is due to inadequate food intake and fecal losses of incompletely absorbed nutrients. The latter may be of secondary importance if sufficient amounts of food are eaten to compensate for the diminished proportions of nutrients that are absorbed. However, it should be borne in mind that some malabsorbed nutrients might increase the diarrhea.

Inadequate food intakes result from decreased appetite during the disease, and from poor dietary practices during and after the disease, which range from the withholding of all foods to the administration of dilute foods with low nutritional value. Good dietary practices involve foods that are: a) nutritionally adequate in terms of nutrient quality, density and balance; b) digestible to the extent that acceptable amounts of nutrients are absorbed during diarrhea and convalescence; c) non-deleterious in relation to the duration and severity of the disease; d) palatable to the child and its mother (who decides what to feed); e) easy to prepare; f) culturally acceptable by the child's parents; and, g) accessible in terms of cost and availability.

Dietary study: A low-cost diet based on foods eaten habitually in low-income households of Central America, which is easy to prepare and has good nutritional quality, was compared with a more conventional hospital diet for the dietary management of children with acute diarrhea. The comparison continued for three days after diarrhea stopped.

Boys 7-32 months old with uncomplicated, non-dysenteric diarrhea for less than 4 days, were admitted to a hospital metabolic ward. They were randomly assigned to receive a common vegetable-based diet (Diet V, n=31) or the control diet (Diet C, n=22). Nine children in group V and 5 in group C required oral rehydration for 2-6 hours before entering the study.

Diet V consisted of a liquid gruel with 55 kcal and 3.0 g protein/dl, made with 11% (w/v) Incaparina flour (56% corn flour, 38% cottonseed flour and 4% lysine, minerals and mixture) and 5% sugar, and a pap with 114 kcal and 1.5 g prot/100 g, that contained 5.6% (w/w) rice, 7% lime-treated corn flour, 2.5% black beans (*Phaseolus vulgaris*), 2.6% vegetable oil and 9% sugar. Diet C consisted of 12% (w/v) lactose-free full-fat cow's milk formula with 60 kcal and 3.1 g prot/dl, and a pap with 125 kcal and 2.2 g prot/100 g, that contained 6.4% (w/w) rice, 8% hard-boiled egg, 6% oatmeal, 3% vegetable oil and 10% sugar. Only the liquid food was given initially and the pap was added 24 hours later. When diarrhea ceased, 5% more sugar was added to the gruel and milk formula, and 3% more vegetable oil to the paps.

While the children had diarrhea and during the first 3 days of convalescence, food and stools were weighed, and apparent absorption of dietary energy

(bomb calorimetry), nitrogen (Kjeldahl) and fat (van de Kamer) were calculated.

Results: (Diet V vs Diet C; $*=p < 0.01$); Median duration of diarrhea: 1.9 vs 5.3 days*; 32% vs 14% patients with diarrhea ≤ 1 day*; 3% vs 23% with diarrhea > 10 days*. Median purging rate: 33 vs 37 g feces/kg/day; median diarrheal excreta: 54 vs 215 g feces/kg/episode*.

Apparent absorption during diarrhea (mean \pm s.d.): energy: 71 ± 11 vs $73 \pm 15\%$; N: 44 ± 16 vs $65 \pm 17\%$; fat: 58 ± 20 vs $76 \pm 14\%$. Apparent absorption in convalescence: energy: 88 ± 4 vs $87 \pm 6\%$; N: 67 ± 11 vs $81 \pm 8\%$; fat: 89 ± 10 vs $84 \pm 15\%$.

The differences in N absorption between diets were mainly due to differences in the digestibility of the protein sources. The lower apparent fat absorption with diet V during diarrhea may have been an artifact related to the very low fat content of the diet. The lower absorptions of all nutrients during diarrhea, compared with those in convalescence, lasted 64% less time with diet V than with diet A.

Conclusions: The common foods used in this study shortened diarrhea markedly without increasing the purging rate. The decrease in total fecal output and the substantial absorption of macronutrients during and after diarrhea, indicate that these diets are safe to use and will be of nutritional benefit.

The next step before recommending their widespread use, is to assess their acceptability by the patients' parents in their home environment.