Management of ileostomy diarrhoea - a brand new concept.

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The standard WHO/UNICEF glucose containing oral dehydration solution Oralyte is the most commonly used for substitution both in acute and chronic diarrhoea. Its glucose contents facilitates sodium absorption and concomitantly reabsorption of water. The solution has no direct antidiarrhoeal effect however and does not therefore reduce stool losses.

Recent clinical studies show evidence that an oral rehydration salt-solution containing cooked rice powder in place of the usual glucose significantly reduces even the rate of stool loss in acute diarrhoea.

The benefit of rice oral dehydration solutions has attracted much interest recently. A meta-analysis performed on clinical trials comparing rice and glucose containing ORS showed evidence that the rice solution reduced significantly stool output by about 30-40% both in adults and children with cholera. In another prospective randomized trial of 100 children with acute diarrhoea and dehydration, the rice rehydration solution produced lower stool output, shorter duration of disease, and shorter recovery time to introduction of regular diet.

We have recently completed a study on healthy ileostomy patients who were given a rice based rehydration solution during 6 days. On average there was a 25 per cent reduction of ileostomy effluents while urinary excretion increased significantly.
There are at present two rice rehydration preparations on the market, Dioralyte relief® and Semper “ersättning”® (excl. for babies). Combilyte® from ConvaTec will shortly come out on the market as another attractive alternative to the traditional Oralyte-solution.

The mechanism by which the rice based preparations exert their effect is controversial however. The presence of starch in rice powder rather than glucose may be one advantage resulting in a lower osmolality reducing the amount of fluid being withdrawn from the tissues preventing additional fluid loss through the stools. Moreover, avoiding fermentation of glucose in the colon may reduce colon motility and the course of diarrhoea. However apart from these possible mechanisms another attractive hypothesis has been brought forward by scientists in Sweden (1) and elucidated further in a recent study in Japan (2).

Thus, it has been demonstrated that the release of an endogenous antisecretory factor (AF) with specific inhibitory effect on the intestinal secretion can be induced by dietary modifications. Hydrothermally processed cereals - treated hydrothermally in a process similar to malting – have been demonstrated to effectively reduce diarrhoea in newly weaned pigs.

Trials with hydroprocessed cereals given to healthy humans and patients with diarrhoea after small bowel resection have also proved successful results. The diet induces a significant increase of endogenous AF synthesis both in healthy humans and in those with diarrhoea or high ileostomy flow. As reflected in an arbitrary score system the rise of AF in the plasma samples seemed also to be associated with clinical improvement in patients with IBD. The endogenous AF activity appears to be stimulated to a lesser degree in “the short bowel” patients however i.e patients in whom the remaining small intestine is 200 cm or less in length (corresponding to a 50-60 per cent small bowel resection) an observation that support the view that the AF may be a cytoplasmatic protein existing in the intestinal wall (Tateishi et al 1999).

Experiments with other plant products both in animals and man lend strong support to the hypothesis and it appears very likely therefore that a component in rice may in a similar way induce the release of an antisecretory factor with specific inhibitory effect on the intestinal secretion.

The antisecretory factor (AF) has been chemically defined as a low molecular protein - synthesized both in the central nervous system and the intestinal mucosa. This low molecular substance - a lectin with hormone-like properties, and with the capacity to regulate water and electrolyte transport in the small intestine may well be an effective antidiarrhoic drug in the future.

References:
