ABSTRACT

The status of the small intestine in 20 children with *Trichuris* Dysentery Syndrome was investigated using a Differential Sugar Absorption Test on two separate occasions (i.e. before treatment and after recovery during their growth spurt). Results from these tests were compared with results from 20 controls, matched for age, with no history of gastrointestinal disease.

The Sugar Absorption Test involved orally administering a moderately hypertonic sugar solution of Rhamnose and Lactulose after an overnight fast. Urine was collected in the subsequent 5 hours of the test and frozen at -20°C until analysis by HPLC. Results were expressed as the ratio of lactulose / rhamnose excreted over this time period, the normal intestinal ratio of which is 0.05 ± 0.02 .

All 20 children with the syndrome had significantly elevated, abnormal permeability ratios (0.37 ± 0.18 ; $p < 0.001$). These ratios were seen to decrease in the children upon recovery (0.14 ± 0.08) with 6 of the 18 children attaining normal ratios. The 20 controls had an intestinal permeability ratio of 0.10 ± 0.08 with 10 of them having elevated ratios.

Healthy individuals excrete ~ 12-14% of the rhamnose dose and less than 1%

of the lactulose dose. All children with the syndrome excreted less than 12 % of the oral dose of rhamnose while the amount of lactulose excreted was greater than 1% of the oral dose in 17 of the 20 subjects. Similarly, the amount of Rhamnose excreted in the children upon recovery was less than 12% of the oral dose, however the amount of lactulose excreted was less than 1 % of the oral dose in 17 of 18 cases. For the Controls, all children had a percentage recovery for rhamnose less than 12 % and a percentage recovery for lactulose less than 1%.

The monosaccharide Rhamnose demonstrates the degree of absorption through the ABUNDANT transcellular routes of the aqueous pores in the cell membrane while the disaccharide lactulose reflects the permeability through the FEWER intercellular junctional complexes and extrusion zones at the villous tips.

In Children with the *Trichuris* Dysentery Syndrome the abnormally elevated excretion of the lactulose not only suggests that inflammatory reactions are occurring in the small intestine but that these reactions are causing damage to the junctional complexes and creating extrusion zones.

The *Trichuris* Dysentery Syndrome, previously known to be a colonic disease, does appear from this study to be associated with inflammation of the small intestinal epithelium in man.