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Small intestine bacterial overgrowth: A major biomarker in the pathogenesis of environmental enteropathy (EE)

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EE is a subclinical disorder that affects children usually of low income families who live in environments with poor sanitation and hygiene. EE is now widely recognized to be the major contributor to childhood malnutrition. EE is marked by alterations of the digestive-absorptive function and morphological abnormalities of the jejunal mucosa, such as villous flattening, crypt hyperplasia and increased inflammatory infiltration in the lamina propria. Small intestine bacterial overgrowth (SIBO) by the colonic type of bacteria has been reported in children of low income families in several different developing countries. The metabolism of these proliferating bacterial flora leads to de-conjugation and 7-alpha de-hydroxylation of the primary bile salts; colic and chenodeoxycholic transforming them in secondary bile salts, deoxycholic and lithocolic, respectively. These de-conjugated and secondary bile salts are injurious to the jejunal mucosa able to induce sodium and water secretion, carbohydrate mal-absorption, morphological damage and even rupture of the intestinal permeability barrier. Considering that SIBO plays a very important role in the pathogenesis of EE, it becomes mandatory to search its presence when suspected. There are two well-known biomarker tests available to investigate SIBO, namely: (1) Invasive: Jejunal fluid culture for aerobic and anaerobic bacteria; (2) Non-invasive: Hydrogen breath test utilizing lactulose, a non-absorbable carbohydrate, as a substrate. The objective of this presentation is to describe our experience utilizing these biomarkers in Brazilian children living in various different communities of low income families with lack of basic sanitary conditions.

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