

Breath test can discriminate between a bacterial overgrowth and IBS

December 19 2007

The gastrointestinal (GI) tract is colonized by bacteria immediately after birth; *Escherichia coli*, *Streptococci* and *Clostridi* are the first bacteria harboured by the colon, followed by anaerobic *Enterococci*, *Lactobacilli* and *Bacteroidi*.

These commensal bacteria inhabiting the human intestine (i.e., intestinal microflora) participate in the development and maintenance of gut sensory and motor functions, including the promotion of intestinal propulsive activity; on the other hand, intestinal motility represents one of the major control systems of gut microflora, though the sweeping of excessive bacteria from the lumen. There is emerging evidence indicating that changes in this bi-directional interplay contribute to the pathogenesis of gut diseases, such as small intestinal bacterial overgrowth (SIBO).

Many factors affect the type and distribution of the bacteria along the GI tract, starting from the type of delivery and nursing in the first days of life, up to the food habits during the adult life: a SIBO is often present in adult population of westernized countries, because of poor daily intake of fibres and faecal stasis; such an overgrowth contributes to a chronic inflammation on intestinal mucosa and development of symptoms, such as abdominal pain, diarrhoea or stipsis.

These symptoms look like those of inflammatory bowel diseases (IBS) and, unfortunately, most of these patients with a bacterial overgrowth are inappropriately treated with topically-active non-steroidal anti-

inflammatory agents. In fact, these compounds have no antibacterial activity and, therefore, they do not remove the causative factors of the symptoms (bacterial overgrowth) and are likely to provoke even severe adverse events.

The "breath test" is a recently developed test, which is able to detect elevated concentrations of hydrogen in the expired air. In presence of a SIBO, dietary carbohydrates are metabolised with production of massive amounts of hydrogen that are eliminated with the breath. Thus, the "breath test" consists in administering 50-75 grams of lactulose and assaying the concentrations of hydrogen in the expired air; if these concentrations exceed 10 to 20 part per million, the subject is suspected to have a SIBO and should be appropriately treated with antibiotics.

Clinicians should be encouraged to perform a "breath test" to promptly identify a bacterial overgrowth, because the disorder has several systemic consequences ranging from malabsorption of lipids and liposoluble vitamins and loss of electrolytes, to a more severe translocation of bacteria (usually, gram-negative and aerobic bacteria, such as Escherichia, Proteus, Enterobacter and Klebsiella) from the GI tract to extraintestinal tissues; all these factors may lead to sepsis and multiorgan failure.

Today, there is an effective treatment for bacterial overgrowth, which is rapidly corrected by the use of locally acting non-absorbable antibiotics, such as rifaximin polymorph A, which reverses the process (intestinal bacterial overgrowth) and prevents the cascade of events leading from intestinal low-grade inflammation to symptom development.

Source: World Journal of Gastroenterology

Citation: Breath test can discriminate between a bacterial overgrowth and IBS (2007, December 19) retrieved 27 April 2024 from <https://medicalxpress.com/news/2007-12-discriminate-bacterial-overgrowth-ibs.html>

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