Lactulose--a multifaceted substance.

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Source

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Abstract

Lactulose is therapeutically used in hepatic encephalopathy, constipation, and salmonellosis. This semisynthetic disaccharide is neither metabolized nor absorbed in the normal small intestines. Comparable to plant-polysaccharides lactulose is bacterially fermented in the colon to short chain fatty acids and gases. Major consequences are a drop in pH and a change in composition and metabolic activity of the colonic flora. These and other potential effects suggest complex mechanisms of action of lactulose, with the potential for additional indications in diagnosis and therapy. The use of lactulose as substrate for the H2-breath-test is well known as a means for the measurement of oroecal transit time and as test for small intestinal bacterial overgrowth. An extension of the diagnostic potential is given by the assessment of the permeability in diffuse intestinal disease with combined disaccharide/monosaccharide test solutions, especially in Crohn's disease. Explanations for positive effects in the prophylaxis of cholesterol-gallstones, in the therapy of hypercholesterolemia and in the prevention of colorectal adenoma and carcinoma can be found in changes in lipid- and bile acid metabolism found after lactulose ingestion. Lactulose may lead to an improved glucose-tolerance in parallel to fibre and acarbose effects which involve several mechanisms of carbohydrate metabolism. Lactulose presumably reduces pathogenic bacteria in favor of the health promoting bifidusflora; also, production and absorption of endotoxines may be reduced; this suggests that lactulose may have therapeutic effects on both infectious and idiopathic inflammatory bowel diseases. Numerous studies with interesting but not as yet convincingly documented clinical relevance suggest that the many effects of lactulose may be interesting subjects for future research.

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