

Lactose tolerance test

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Lactose tolerance test, ^{13}C -lactose breath test, H_2 -test

The lactose tolerance test is an indirect measure of the activity of intestinal lactase, an enterocyte brush border enzyme, that hydrolyzes lactose to glucose and Galactose. The lactose test for the differential diagnosis of malabsorption syndrome - lactose intolerance - was classically performed by evaluating blood glucose levels at 15, 30, 60 and 90 minutes after oral administration of 50 g of lactose in 500 ml of water. Evidence of lactase deficiency is an increase in blood glucose by less than 1 mmol / l. The lactose test can also be evaluated more recently by breath tests, such as the H_2 test, in which the concentration of hydrogen in exhaled air rises due to bacterial decomposition of undigested lactose in the large intestine, or by detecting ^{13}C carbon after administration of labeled ^{13}C -lactose. The combined method $^{13}\text{C}/^2\text{H}_2$ -lactose test provides very accurate results, when the enzymatic cleavage of lactose is evaluated (the marker is ^{13}C carbon) and at the same time as a correction of motility, bacterial cleavage in the large intestine is used (marker is H_2). Diagnosis of lactose intolerance can also be supplemented by DNA by determining a specific genotype - variant 13910 T / C. Combinations of two isotope markers can also be used to increase the reliability of the test. Recent studies recommend a combined test with intestinal permeability intestinal permeability - LDI / SAT index. The lactose test is performed by administering 25 g of ^{13}C -lactose + 0.5 g of $^2\text{H}_2$ -glucose, detection of ^{13}C -glucose by GC / C / IRMS; $^2\text{H}_2$ -glucose GC / MS, permeability is performed by administration of 5 g lactulose and 1 g L-rhamnose, urinary sugar levels are determined by GC method. Diagnosis of lactose intolerance can also be performed by a rapid test from a duodenal biopsy. The rapid test is technically similar to the CLO-rapid test for the diagnosis of *Helicobacter pylori*. The incubation medium in the biopsy insertion chamber comprises the enzymes glucose oxidase and peroxidase, and a chromogenic redox substrate, the test time being 20 minutes.



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Links

- Kocna, P.: Dechové testy (<http://www.solen.cz/pdfs/int/2006/07/06.pdf>)

Sources

- KOCNA, Petr. *GastroLab : MiniEncyklopedie laboratorních metod v gastroenterologii* [online]. ©2002. The last revision 2011-01-08, [cit. 2011-03-04]. <<http://www1.lf1.cuni.cz/~kocna/ghab/glency1.htm>>.

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