Detection of Helicobacter pylori antigen in stool

Detection of Helicobacter pylori antigen in faeces is an alternative to the breath test. It is the basic method for detecting Helicobacter pylori infection. The method was developed as a classical ELISA and is performed on standard microtiter plates for 96 samples. The stool sample is prepared at a concentration of 200 mg / ml and centrifuged at 7000 × g for 5 minutes. Then ELISA with tetramethylbenzidine as substrate and photometric evaluation at 450 nm is performed. There are several modifications of the ELISA method that achieve a specificity and sensitivity of 98%. The original method (HpSAg) used polyclonal antibodies, newer methods with monoclonal antibodies show higher diagnostic parameters. With regard to the sampling, the method is not demanding for the patient, the laboratories have sampling containers with a plastic core in the form of a spoon, by which the stool sample is taken and closed. Stool samples can be stored at -20 ° C for several months.

Recently, quick so caller rapid tests on the immunochromatographic detection principle, designed for individual examinations, have also appeared. However, the reliability of these rapid tests is lower compared to the ELISA method, the results of rapid tests may be affected by stool collection.

Links

Source

- 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/glab/glency1.htm>.

References

- ZAMBON, CF. Non-invasive diagnosis of Helicobacter pylori infection: simplified 13C-urea breath test, stool antigen testing, or DNA PCR in human feces in a clinical laboratory setting?. *Clinical biochemistry* [online]. 2004, vol. 37, no. 4, p. 261-267, Available from <https://www.ncbi.nlm.nih.gov/pubmed/15003727?dopt=Abstract>. ISSN 0009-9120, eISSN 1873-2933. PMID: 15003727 (http://www.ncbi.nlm.nih.gov/pubmed/15003727).
- TREVISANI, L. Diagnostic accuracy of a rapid fecal test to confirm H pylori eradication after therapy: prospective comparison with a laboratory stool test. *World journal of gastroenterology* [online]. 2007, vol. 13, no. 33, p. 4484-4488, Available from <https://www.ncbi.nlm.nih.gov/pubmed/17724805?ordinalpos=31&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>. ISSN 1007-9327. PMID: 17724805 (http://www.ncbi.nlm.nih.gov/pubmed/17724805).
- SCHWARZER, A. Evaluation of a novel rapid one-step monoclonal chromatographic immunoassay for detection of Helicobacter pylori in stool from children. *European journal of clinical microbiology & infectious diseases* [online]. 2007, vol. 26, no. 7, p. 475-480, Available from <https://www.ncbi.nlm.nih.gov/sites/entrez?Db=pubmed&Cmd=ShowDetailView&TermToSearch=17554570&ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum>. ISSN 0934-9723, eISSN 1435-4373. PMID: 17554570 (http://www.ncbi.nlm.nih.gov/pubmed/17554570).
- STRAY-PEDERSEN, A. Detection rate of Helicobacter pylori stool antigen in newborn infants and small children. *Journal of perinatal medicine* [online]. 2007, vol. 35, no. 2, p. 155-158, Available from <https://www.ncbi.nlm.nih.gov/pubmed/17343545?dopt=AbstractPlus>. ISSN 0300-5577, eISSN 1619-3997. PMID: 17343545 (http://www.ncbi.nlm.nih.gov/pubmed/17343545).
- DOMÍNGUEZ, J. Comparison of a monoclonal with a polyclonal antibody-based enzyme immunoassay stool test in diagnosing Helicobacter pylori infection before and after eradication therapy. *Alimentary pharmacology & therapeutics* [online]. 2006, vol. 23, no. 12, p. 1735-1740, Available from <https://www.ncbi.nlm.nih.gov/pubmed/16817917?dopt=AbstractPlus>. ISSN 0269-2813, eISSN 1365-2036. PMID: 16817917 (http://www.ncbi.nlm.nih.gov/pubmed/16817917).
- HOOTON, C. Comparison of three stool antigen assays with the 13C- urea breath test for the primary diagnosis of Helicobacter pylori infection and monitoring treatment outcome. *European journal of gastroenterology & hepatology* [online]. 2006, vol. 18, no. 6, p. 595-599, Available from <https://www.ncbi.nlm.nih.gov/pubmed/16702847?dopt=Abstract>. ISSN 0954-691X, eISSN 1473-5687. PMID: 16702847 (http://www.ncbi.nlm.nih.gov/pubmed/16702847).
- HAUSER, B. Multiple-step polyclonal versus one-step monoclonal enzyme immunoassay in the detection of Helicobacter pylori antigen in the stools of children. *Acta paediatrica* [online]. 2006, vol. 95, no. 3, p. 297-301, Available from <https://www.ncbi.nlm.nih.gov/pubmed/16497639?dopt=Abstract>. ISSN 0001-656X. PMID: 16497639 (http://www.ncbi.nlm.nih.gov/pubmed/16497639).
- ANTOS, D. Evaluation of a novel rapid one-step immunochromatographic assay for detection of monoclonal Helicobacter pylori antigen in stool samples from children. *European journal of clinical microbiology* [online]. 2005, vol. 43, no. 6, p. 2598-2601, Available from <https://www.ncbi.nlm.nih.gov/pubmed/15956370>. ISSN 0722-2211. PMID: 15956370 (http://www.ncbi.nlm.nih.gov/pubmed/15956370).
- GATTA, L. A rapid immunochromatographic assay for Helicobacter pylori in stool before and after treatment. *Alimentary pharmacology & therapeutics* [online]. 2004, vol. 20, no. 4, p. 469-474, Available from <https://www.ncbi.nlm.nih.gov/pubmed/15298642?dopt=Abstract>. ISSN 0269-2813, eISSN 1365-2036. PMID: 15298642 (http://www.ncbi.nlm.nih.gov/pubmed/15298642).
- LEODOLTER, A. Evaluation of a near-patient fecal antigen test for the assessment of Helicobacter pylori status. *Diagn Microbiol Infect Dis.* 2004, vol. 48, no. 2, p. 145-7, ISSN 0732-8893 (Print), 1879-0070 (Electronic). PMID: 14972385 (http://www.ncbi.nlm.nih.gov/pubmed/14972385).
- KOLETZKO, S. Evaluation of a novel monoclonal enzyme immunoassay for detection of Helicobacter pylori antigen in stool from children. *Gut.* 2003, vol. 52, no. 6, p. 804-6, ISSN 0017-5749 (Print), 1468-3288 (Electronic). PMID: 12740334 (http://www.ncbi.nlm.nih.gov/pubmed/12740334).
- ANDREWS, J. Comparison of three stool antigen tests for Helicobacter pylori detection. *J Clin Pathol.* 2003, vol. 56, no. 10, p. 769-71, ISSN 0021-9746 (Print), 1472-4146 (Electronic). PMID: 14514781 (http://www.ncbi.nlm.nih.gov/pubmed/14514781).
- KATO, S. Accuracy of the stool antigen test for the diagnosis of childhood Helicobacter pylori infection: a multicenter Japanese study. *Am J Gastroenterol.* 2003, vol. 98, no. 2, p. 296-300, ISSN 0002-9270 (Print), 1572-0241 (Electronic). PMID: 12591044 (http://www.ncbi.nlm.nih.gov/pubmed/12591044).
- LEODOLTER, A. Comparison of two enzyme immunoassays for the assessment of Helicobacter pylori status in stool specimens after eradication therapy. *Am J Gastroenterol.* 2002, vol. 97, no. 7, p. 1682-6, ISSN 0002-9270 (Print), 1572-0241 (Electronic). PMID: 12135018 (http://www.ncbi.nlm.nih.gov/pubmed/12135018).
- CHANG, MC. Quantitative correlation of Helicobacter pylori stool antigen (HpSA) test with 13C-urea breath test (13C-UBT) by the updated Sydney grading system of gastritis. *Hepatogastroenterology.* 2002, vol. 49, no. 44, p. 576-9, ISSN 0172-6390 (Print). PMID: 11995501 (http://www.ncbi.nlm.nih.gov/pubmed/11995501).
- ODAKA, T. Evaluation of the Helicobacter pylori stool antigen test for monitoring eradication therapy. *Am J Gastroenterol.* 2002, vol. 97, no. 3, p. 594-9, ISSN 0002-9270 (Print), 1572-0241 (Electronic). PMID: 11922552 (http://www.ncbi.nlm.nih.gov/pubmed/11922552).
- KONSTANTOPOULOS, N. Evaluation of the Helicobacter pylori stool antigen test (HpSA) for detection of Helicobacter pylori infection in children. *Am J Gastroenterol.* 2001, vol. 96, no. 3, p. 677-83, ISSN 0002-9270 (Print), 1572-0241 (Electronic). PMID: 11280533 (http://www.ncbi.nlm.nih.gov/pubmed/11280533).
- VAN DOORN, OJ. Helicobacter pylori Stool Antigen test: a reliable non-invasive test for the diagnosis of Helicobacter pylori infection in children. *Eur J Gastroenterol Hepatol.* 2001, vol. 13, no. 9, p. 1061-5, ISSN 0954-691X (Print), 1473-5687 (Electronic). PMID: 11564956 (http://www.ncbi.nlm.nih.gov/pubmed/11564956).
- LEODOLTER, A. Validity of a Helicobacter pylori stool antigen assay for the assessment of H. pylori status following eradication therapy. *Eur J Gastroenterol Hepatol.* 2001, vol. 13, no. 6, p. 673-6, ISSN 0954-691X (Print), 1473-5687 (Electronic). PMID: 11434593 (http://www.ncbi.nlm.nih.gov/pubmed/11434593).
- ODERDA, G. Usefulness of Helicobacter pylori stool antigen test to monitor response to eradication treatment in children. *Aliment Pharmacol Ther.* 2001, vol. 15, no. 2, p. 203-6, ISSN 0269-2813 (Print), 1365-2036 (Electronic). PMID: 11148438 (http://www.ncbi.nlm.nih.gov/pubmed/11148438).
- VAIRA, D. Noninvasive antigen-based assay for assessing Helicobacter pylori eradication: a European multicenter study. The European Helicobacter pylori HpSA Study Group. *Am J Gastroenterol.* 2000, vol. 95, no. 4, p. 925-9, ISSN 0002-9270 (Print), 1572-0241 (Electronic). PMID: 10763939 (http://www.ncbi.nlm.nih.gov/pubmed/10763939).