

Diagnosis of helicobacter infection

The bacterium *Helicobacter pylori* is the only one of the bacteria that is marked by the WHO classification as a **class 1 carcinogen**. Its presence in the gastric mucosa positively affects the presence and development of gastritis, stomach ulcers and gastric cancer.

To diagnose *H. pylori* infection, we can use invasive and non-invasive methods.

Invasive tests

Invasive tests mainly include a biopsy of the gastric or duodenal mucosa. The collected sample can be cultivated, using a rapid urease test or PCR.

- The culture test shows the **highest sensitivity and specificity**. However, bacteria are very sensitive to oxygen, so collection and transport require special conditions.
- **The Rapid Urease Test** is based on the intensity of urease activity, which is a surface marker of the bacterium. This test is a routine demonstration in endoscopy.
- Newer tests include immunological detection of bacteria – the so-called iRUT method – and the PCR method, which detects the bacterium in biopsies and stool samples.

Non-invasive tests

Non-invasive tests include the urease breath test, which is now the gold standard, the detection of the surface antigens of the bacterium and the determination of antibodies to *H. pylori* in serum or urine samples.

- **The Urea Breath Test** (UBT) is based on the detection of urease activity. The change in $^{13}\text{CO}_2$: $^{12}\text{CO}_2$ ratio in exhaled air after cleavage of orally administered urea labelled with the stable carbon ^{13}C isotope is determined. This test is mainly used for primary diagnostics due to its high specificity and sensitivity.
- **Determination of *Helicobacter pylori* surface antigens** in the stool. This test is suitable for monitoring the course of eradication treatment.
- **Serological detection of antibodies** to *H. pylori* in serum, saliva or urine sample. The method is only used to determine antibodies and not active infections.

GastroPanel

GastroPanel is a non-invasive method, whereby by determining the levels of certain parameters we can evaluate the risk of *H. pylori* infection and the risk of developing atrophic gastritis or gastric cancer. These parameters include:

- gastrin-17
- pepsinogen I
- antibodies to *H. pylori* class IgG

Links

Related articles

- Determination of antibodies against *Helicobacter pylori*
- Carbon-13 labeled urea breath test
- Detection of *Helicobacter pylori* antigen in stool

Source

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

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