

NON-INVASIVE BREATH AMMONIUM TEST IN DIAGNOSIS OF *HELICOBACTER PYLORI* INFECTION

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BACKGROUND: A breath test with C13 urea is recommended as a one of the main methods for diagnosis of *Helicobacter pylori* (Hp) infection. However, this method is not widely available for gastroenterological practice in general, in Belarus and Russia in particular. Therefore, it is actual and important to elaborate alternative cost-effective non-invasive methods for diagnosis of Hp infection. It is especially actual for patients, who cannot be tested by invasive methods for this reason.

AIM: To investigate the sensitivity and specificity of non-invasive breath ammonium "HELIC-test" ("Association of medicine and analytics, Saint-Petersburg, Russia) in diagnosis of Hp infection.

MATERIALS AND METHODS: Two independent studies in Russia and Belarus were performed. In Russia 171 patients with dyspepsia and in Belarus 69 patients with chronic gastritis were surveyed. Hp infection was confirmed by a histological examination of samples obtained from the antrum and corpus of stomach during endoscopy. For all patients non-invasive breath ammonium HELIC-test also was performed (fig. 1, 2, 3). Patients during at least four weeks before diagnosis did not take any medications (PPIs, antibiotics, antacids and bismuth), which could change the results of both invasive and non-invasive tests. Statistical estimation was performed in Excel for Windows XP.

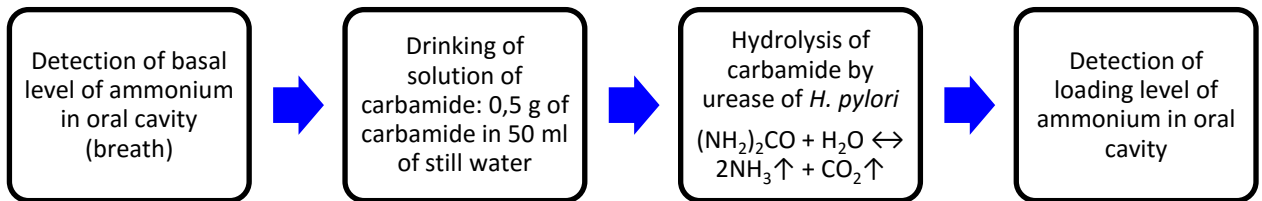


Fig. 1. Stages of "Helic-test"

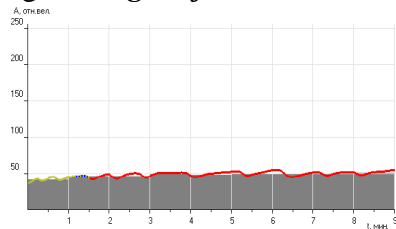


Fig. 2. Result from *H. pylori*-negative patient

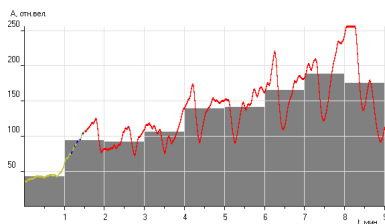


Fig. 3. Result from *H. pylori*-positive patient

RESULTS: Concordance of results of histological method and ammonium HELIC-test were high: in 87,5% and 97,1% of cases in Russia and in Belarus respectively. In Russia sensitivity of ammonium test was 92%, specificity - 93%. In Belarus sensitivity and specificity of this test were 97,22%, and 96,96% respectively.

CONCLUSIONS: Breath ammonium HELIC-test is cost-effective non-invasive method for diagnosis of Hp infection. The sensitivity and specificity of this test are high enough. Therefore, this method can be widely recommended as non-invasive test for diagnosis of Hp infection.

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