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Clinical Note

Atrophic gastritis — a disease with significant clinical impact

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Atrophic gastritis (inflammation and atrophy of the mucosa of the stomach) develops slowly over several years and may result in a variety of secondary diseases. It often remains undiagnosed because of its unspecific or even non-existent symptoms. Until recently, atrophic gastritis was believed to be irreversible, but most recent research indicates that it is curable and that the atrophy can be reversed if *Helicobacter pylori* infection (the most common cause of the atrophic gastritis) is treated in good time[1-4]. If atrophic gastritis is diagnosed and treated, the risk of gastric cancer and peptic ulcer decreases. However, if left undiagnosed, atrophic gastritis may result in dementia, as well as an increased risk of polyneuropathy, heart attacks and stroke due to the malabsorption of vitamin B_{12} and consequent abnormalities in the metabolism of homocysteine and methionine in extragastric tissues and cells[5-13]. Previously, the only means of diagnosing atrophic gastritis was gastroscopy and the histological examination of endoscopic biopsy specimens. However, a test has now been developed that allows the easy screening and diagnosis of *H. pylori* infection and atrophic gastritis. Developed by the Finnish company **Biohit** and its scientific collaborators, the GastroPanel test allows the evaluation of risk factors for gastric cancer and peptic ulcers from a simple blood sample.

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H. pylori infection is one of the most common chronic infections. In the majority of the global population, the infection causes severe diseases related to the gastrointestinal tract[14,15]. It is thought that about half of the global population is infected with *H. pylori*, and while all these are likely to suffer from related gastritis, approximately 20% may suffer from peptic ulcer[16,17]. In half of the infected cases, the gastritis will progress over several years into atrophic gastritis, considerably increasing the risk of gastric cancer[18,19]. Approximately 10% of the patients suffering from *H. pylori*-caused gastritis will develop severe atrophic gastritis of the corpus[20-22]. These patients also face an increased risk of suffering from diseases related to deficiency of vitamin B_{12}[23].

In accordance with the Maastricht 2000 consensus, patients suffering from *H. pylori* should be treated in order to avoid severe complications[24]. Moreover, patients suffering from severe gastric conditions should be diagnosed and gastroscopy performed at an early asymptomatic stage. Approximately 4–6% of the patients belonging to this group have been diagnosed as suffering from gastric cancer or its pre-malignant phase[20].

Screening

The GastroPanel assay can test for the serum levels of Pepsinogen I and II, Gastrin-17 and *H. pylori* IgG antibodies. Combined with the GastroSoft computer program, it is intended to help general practitioners and gastroenterologists to diagnose *H. pylori* infection and atrophic gastritis in clinical practice when endoscopy with gastric histology is not, or cannot, be done. GastroPanel results are also valuable in the screening and identification of patients at risk of diseases related to *H. pylori* infection and atrophic gastritis, such as gastric cancer and peptic ulcer. Based on the symptoms and results of the assays, the GastroSoft program suggests whether there is an increased risk and likelihood of reflux disease and Barrett's oesophagus. They also help to identify (with high accuracy) those patients with normal and healthy gastric mucosa.

The system helps to differentiate between cases of functional dyspepsia and more severe organic disease caused by and related to atrophic gastritis. The early diagnosis and correct treatment of atrophic gastritis decreases the risk or prevents the development of gastric cancer, peptic ulcer and other diseases related to *H. pylori* infection and atrophic gastritis.

The system enables diagnosis of *H. pylori* infection and atrophic gastritis from a blood sample and can also help in the assessment of patients' risk of developing gastric cancer and peptic ulcer[6,25,26]. For these purposes, the levels of Pepsinogen I and II[26-32], Gastrin-17[27,33] and *H. pylori* antibodies are measured from a blood sample. On the basis of the results, it is possible to determine whether the patient suffers from gastritis or atrophic gastritis and in which part of the stomach the changes are located (antrum, corpus or both[6,13,25]). Patients