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Non invasive diagnosis of gastrointestinal disorders: GastroPanel and Fibrotest

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Clinical biochemistry of gastritis. Gold standard for the diagnosis of type and etiology of gastritis is the histological examination of gastric mucosal biopsies obtained from the antrum, the corpus and the angulus. A non invasive screening procedure able to identify subjects at high or low risk for gastritis should allow to limit un-necessary endoscopies and histological examinations especially among dyspeptics. A serological panel combining pepsinogen I and II (PGA and PGC), gastrin-17 (G17), and anti-Helicobacter pylori antibodies (anti-Hp)(GastroPanel) is actually the most reliable non invasive test to screen patients for gastritis: it has a very high negative predictive value (about 95%) and a positive predictive value of about 65%. A classification algorithm including the four biochemical parameters measured in fasting sera, allows to classify patients as having or not non atrophic or atrophic gastritis and to ascertain whether gastritis is associated or not with H. pylori infection. GastroPanel was demonstrated to be of utility in screening subjects at high risk for gastric cancer. This test, in fact, is highly sensitive (80-90%) and specific (90-100%) in identifying the precancerous chronic atrophic gastritis. Gastric corpus mucosal atrophy associates with reduced PGA levels (<25 ug/L), reduced PGA/PGC ratio (<3) and increased G17 (>10 pmol/L). On the basis of anti-Hp values, GastroPanel allows also to determine whether or not gastric atrophy is secondary to *H. pylori* infection. Its utility, however, seems limited by cases of gastric carcinoma that arise in stomachs without atrophic mucosa.

Clinical biochemistry of hepatic fibrosis. Fibrosis is a frequent, life-threatening complication of most chronic liver diseases. Non-invasive and reliable (serum-) biomarkers indicating the activity of fibrogenesis may be classified as Class I (serum components having a direct relation to the mechanism of fibrogenesis) or Class II (simple standard laboratory tests grouped into panels). Class I biomarkers comprise either secreted matrix-related components of activated hepatic stellate cells and fibroblasts and mediators of extracellular matrix synthesis or turnover. They suffer both in sensitivity and specificity. Class II biomarkers fulfil most criteria for detection and staging of fibrosis and to a lesser extent grading of fibrogenic activity. More than 20 scores are currently available, among which Fibrotest is the most popular one. Fibrotest allows to predict the presence and grade of hepatic fibrosis by employing a classification algorithm based on the serum determination of five biochemical parameters: alpha-2-macroglobulin, apolipoprotein A1, haptoglobin, g-glutamyltranspeptidase, and bilirubin. Fibrotest is highly sensitive and specific in predicting significant fibrosis (area under the ROC curve: 0.81; 95% CI: 0.78-0.84; data point from 8 studies) and liver cirrhosis (area under the ROC curve: 0.90; 95% CI: not calculable due to 2 available data point). This test has lesser accuracy in detecting early stages (mild) liver fibrosis.

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