Diagnosis of *Helicobacter pylori* infection in Indonesian children: comparison of *Helicobacter pylori* Stool Antigen with Enzyme-Imunoassay and a new Rapid Test.

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**Aims.** To determine the prevalence of *Helicobacter pylori* (*H. pylori*) infection in symptomatic children and to compare a new developed rapid *Helicobacter pylori* Stool Antigen (HpSA) test with a conventional Enzyme-Immuoassay (EIA).

**Methods.** A cross sectional study was carried out among 102 high school children (12-18 years) with chronic abdominal pain (without diarrhoea or fever) living in Bandung, West Java Indonesia. All faeces samples were tested by a rapid test (Coris BioConcept, Gembloux Belgium) and by a conventional EIA (Amplified IDEIA Hp StAR, OXOID, United Kingdom). A stored collection of 32 faeces samples tested positive for *H. pylori* by HpSA (EIA, Amplified IDEIA Hp StAR, OXOID, United Kingdom) was retested by both assays and also included in the analysis. As rapid test, the Coris BioConcept Pylori-strip was applied. The principle of the rapid test is based on the homogeneous membrane system technology with latex microspheres. A nitrocellulose membrane is sensitized with an antibody directed against *H. pylori*, while another antibody specific to *H. pylori* is conjugated to latex microspheres. When the strip is dipped into the liquid phase of the faecal suspension, solubilised conjugates migrates with the sample by passive diffusion and the conjugate and sample material come into contact with a monoclonal antibody directed against a specific antigen of *H. pylori*. If the sample contains this specific *H. pylori* antigen, the complex formed of *H.pylori* antigen and conjugate remains bound to the monoclonal antibody adsorbed to the nitrocellulose and a red line develops. The result is visible within ten minutes. The principle of conventional EIA test is a sandwich-type enzyme immunoassay using immunoassay amplification technology for the determination of *H. pylori* antigens in faeces. The intensity of the colour is determined spectrophotometrically.

**Result.** The overall prevalence of *H. pylori* infection among Indonesian children was 3% by EIA. There was an excellent correlation of rapid test results with EIA, except for 3 weak positive EIA samples that were negative by rapid test. Nevertheless, retesting by EIA of these three discrepant samples led to negative results. Of 32 stored faeces samples at the LUMC which were previously EIA positive tested, 25 were positive by EIA and 26 were positive by rapid test. Of 6 discrepant samples with the previous test results, all had low OD values at the first occasion and tested negative by repeated EIA. One sample was weak positive by EIA, also positive by rapid test but negative by repeated EIA. Including the results of the repeated test, the sensitivity, specificity, positive predictive value and negative predictive value of the rapid test were 96%, 98.2%, 92.3% and 99.1%, respectively.

**Conclusion.** The results demonstrate that the prevalence of *H. pylori* infection among symptomatic Indonesian children is very low and that new developed rapid test had an excellent performance.