Diagnostic accuracy of a home-made rapid urease test for detecting Helicobacter pylori infection on gastric biopsy

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Introduction
Biopsy urease test is a useful tool for diagnosis of Helicobacter pylori (HP) infection. We developed a low-cost home-made rapid urease test (RUT) as an alternative to commercial kit for detection of HP infection.

Objectives
To evaluate the accuracy of a home-made RUT for diagnosis of HP infection using histology as the gold standard.

Methodology
Patients undergoing upper gastrointestinal endoscopy were prospectively enrolled in this study. The endoscopy procedure was performed by endoscopists of the Department of Medicine. Biopsy specimens were obtained from the gastric antrum and subjected to the home-made RUT and histologic examination to determine the HP status. The results of the RUT were read at 24 hours. Histopathological examination using hematoxylin and eosin served as the gold standard test for the diagnosis of HP infection.

Result
Results A total of 556 patients were recruited from January to September 2014. There were 277 (49.8%) male patients. The mean age was 65.6 +/-16.1 years. Endoscopic evaluation showed peptic ulcers in 109 cases (19.6%) and gastric or duodenal erosions in 83 cases (14.9%). Gastritis or duodenitis were found in 265 cases (47.7%). Normal endoscopic finding was noted in 16 cases (2.9%). The prevalence of HP
infection was 17.1% based on histology. Of 95 cases diagnosed with HP infection, 52 patients were positive with the home-made RUT. Overall sensitivity and specificity of the home-made RUT were 54.7% and 98.7%, respectively. The positive predictive value was 89.3%, the negative predictive value was 91.4% and overall accurate rate was 91.3%. Conclusion Our home-made RUT has a high specificity but a low sensitivity. The exclusive use of RUT for the diagnosis of HP infection cannot be recommended in our endoscopy suit. Additional biopsy should be taken during endoscopy and proceeded with histological examination when RUT is negative.