COMMENTARY
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Are There Great Savings with Rapid Urease Test by One-Plus-One?

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See "United Rapid Urease Test Is Superior than Separate Test in Detecting *Helicobacter pylori* at the Gastric Antrum and Body Sepcimens" by Sung Woon Moon, Tae Hyo Kim, Hyeon Sik Kim, et al., on page 392-396

Helicobacter pylori infection is found in more than 50% of humans, and the infection rate among adults in South Korea exceeds 60%.[1] For that reason, guidelines have been established for the management of *H. pylori* including the diagnostic method, determining who should be treated, and the recommended treatment.[2-4] In regions with low *H. pylori* prevalence, a test-and-treat strategy is usually recommend for those with dyspeptic symptoms but without so-called "alarm symptoms" such as weight loss, dysphagia, nausea, and vomiting. In that situation, noninvasive testing using the urea breath test (UBT), which shows high sensitivity (88% to 95%) and specificity (95% to 100%), is recommended along with a stool antigen test that shows similar diagnostic accuracy.[2] However, the "endoscope-and-treat" approach is recommended in regions with high prevalence of *H. pylori* and high incidence of gastric cancer such as in South Korea. When endoscopy is performed, a biopsy-based test, such as the rapid urease test (RUT), histological evaluation, and *H. pylori* culture can be performed to confirm the current infection. The RUT is the most sensitive and specific of these tests (sensitivity, 85% to 97%; specificity, 92%).[4]

The RUT is based on detecting activity of the urease enzyme, which breaks down urea to ammonia, increasing the pH of the medium. The CLOtest™ (Delta West Ltd., Bentley, Australia) is the most frequently used commercially available RUT kit and provides results within 24 hours. Previous studies have evaluated the optimal site and number of gastric mucosal biopsy specimens for more rapid and accurate diagnosis,[5,6] and found that the sensitivity of RUT could be improved by increasing the number of biopsy specimens and obtaining these specimens from the corpus greater curvature, where atrophic changes rarely occur until the late stages of gastric atrophy. Another advantage of this strategy is that it reduces the time required for test results. Several ultra-rapid kits for RUT that have recently been made available have been reported to provide more sensitive results in a much shorter time, which enables their use in outpatient clinics.[7,8]

In a paper published in *Clinical Endoscopy*, Moon et al.[9] compared the efficacy of RUT when tissues are evaluated separately versus when they are combined. The authors included 214 patients (with or without nonulcer dyspepsia symptoms) who underwent screening by esophagogastroduodenoscopy. One test evaluated used two RUT kits to evaluate the antrum and body tissue specimens separately, and the second test evaluated two tissue specimens together using a single RUT kit (one-plus-one). The authors suggested that the overall positivity for *H. pylori* in the test that evaluated tissues separately (64%) was lower than that of the test that evaluated combined tissues (69.2%). In addition, a correlation was found between the time required for a positive RUT result and *H. pylori* density, as assessed by hematoxylin and eosin (H&E) staining. The authors concluded that the combined test is more accurate, as well as less expensive.

Several limitations of this study should be considered before we accept this conclusion. First, no additional tests were used to confirm *H. pylori* status. The UBT could have been used to detect patchy distribution and relatively low density of *H. pylori*. The mean age of the participants was 53.6 years (standard deviation, 11.6), indicating that histological changes including atrophy and intestinal metaplasia would provide a hostile mucosal environment for *H. pylori*.

Furthermore, the histologic examination consisted of H&E

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staining rather than using Giemsa stain or Warthin-Starry silver stain, which are preferred for *H. pylori* detection. As a result, the correlation between histology and RUT results may be less meaningful. Moreover, *H. pylori* density grading may not be an accurate method for determining the relationship between histology results and the time interval for positive conversion of RUT. The RUT kit used in this study is relatively new, and no study has reported its sensitivity, specificity, or accuracy. In this study, the main difference between the test evaluating tissues separately and the test evaluating combined tissues was the results from 11 subjects who had negative results when tissues were evaluated separately but positive results when tissues were combined. Without information about RUT accuracy and a comparison with a gold standard test, it is difficult to know which result (evaluating tissues separately or combined) is correct. The authors' conclusion assumes that the kit has very high specificity for detecting *H. pylori*.

Despite those limitations, the study confirmed that the RUT should be performed by combining specimens obtained from the antrum and corpus. This approach may reduce the cost of testing and increase the sensitivity of *H. pylori* detection in patients who undergo upper endoscopy. Further studies are needed to compare the efficacy of this approach with UBT in South Korea, where endoscopic mass screening for gastric cancer is now in effect.

Conflicts of Interest

The author has no financial conflicts of interest.

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