

## Clinical Update

### Detecting *Helicobacter pylori* infection

Braden B, Yeuber G, Dietrich C, Caspary W, Lembcke B. Comparison of new faecal antigen test with <sup>13</sup>C-urea breath test for detecting *Helicobacter pylori* infection and monitoring eradication treatment: prospective clinical evaluation. *BMJ* 2000;320:148.

#### Background

The <sup>13</sup>C-urea breath test is currently the best noninvasive method for detecting *Helicobacter pylori* infection. Serological methods are less appropriate, especially for monitoring efficacy of treatment, because antibodies are present for months after the bacteria has been eradicated.

#### Question

What is the clinical validity of a newly developed immunoassay for detecting *H. pylori* antigens in fecal specimens?

#### Design

This prospective study compared the results of the new antigen test for *H. pylori* in feces with results of the <sup>13</sup>C-urea breath test for detecting infection and monitoring treatment efficacy. Ninety subjects with dyspepsia (46 men and 44 women, age range 18–82) were screened with both tests. In addition, 115 participants (62 men and 53 women, age range 18–78) with positive breath test results were treated with triple therapy, and at least 4 weeks after

treatment ended were retested with both tests.

#### Results

Of the 51 dyspeptic patients with positive breath test results, 47 had positive fecal antigen tests (sensitivity 92.2%, 95% confidence interval [CI] 81.1–97.8); 38 of the 39 participants with negative breath test results were also negative on the *H. pylori* antigen test (specificity 97.4%, 95% CI 86.5–99.9). Of the 115 *H. pylori* positive patients treated with triple therapy, 92 subsequently had negative breath test results; there were 5 false-positive and 2 false-negative antigen tests, resulting in a sensitivity of 91.3% and specificity of 94.6%. The results for the 205 participants showed that the overall sensitivity and specificity of the antigen fecal test with reference to the breath tests were 91.9% and 95.4% respectively.

#### Commentary

These results suggest that the new immunoassay has good sensitivity and specificity when compared with the

urea breath test, although it was not clear how the 2 false-negative immunoassay tests were detected among the patients with negative breath test results. The recognized gold standard for the detection of *H. pylori* is histology from endoscopic biopsy, and the sensitivity (97.9%) and specificity (98.0%) of the urea breath test is very good when compared with histology.<sup>1</sup> Given the ease of use and the validity of the urea breath test, as well as patient reluctance to collect fecal samples, the utility of this fecal test is not apparent, although it does appear to offer economic benefits. The authors report the new test is cheaper than the urea breath test, but its cost-effectiveness was not evaluated.

#### Clinical Implications

Compliance and cost-effectiveness need to be studied before the clinical utility of this new test can be determined. — *Erica Weir, CMAJ*

#### Reference

1. Bazzoli F, Cecchini L, Corvaglia L, Dall'Antonia M, De Giacomo C, Fossi S, Casali LG, et al. Validation of the <sup>13</sup>C-urea breath test for the diagnosis of *Helicobacter pylori* infection in children: a multicenter study. *Am J Gastroenterol* 2000;95(3):646-50.

### New hope in stroke rehabilitation

For the first time, research has shown that stroke victims who undergo intense rehabilitation not only recover some movement but also alter how their brain works in the long term (*Stroke* 2000;31:1210). Researchers at the University of Alabama at Birmingham claim they are on the brink of a revolution in rehabilitation.

Researchers found that 13 chronic stroke patients who had lost the use of an arm regained some movement after 12 days of intense therapy. For 6 hours daily, the subjects' good arm was tied down and therapists helped them perform arm movements, such as picking up objects or spooning food, with their weakened arm. Subjects reported that a "switch [eventually] flipped" and they were able to perform tasks that were previously impossible.

Scans of the subjects revealed that

before rehabilitation, the area of the cortex that controls hand movement was much smaller on the brain's stroke-damaged side. After treatment, the area almost doubled in size. Six months later, motor performance remained high and the size of the cortical area in both hemispheres was nearly identical.

Not only does this offer hope for stroke patients, but it is also further proof that the brain adapts better after injury than scientists once thought. — *Barbara Sibbald, CMAJ*