



Title	The ^{13}C-Urea Breath Test for Detection of <i>Helicobacter pylori</i>: Potential Applications in Québec
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Aim

To examine the different methods for detecting *Helicobacter pylori* and to assess the pertinence of increasing the use of the ^{13}C -Urea breath test in Québec.

Conclusions and results

H. pylori bacteria, which is estimated to infect the stomachs of between 20% and 40% of Canadians, plays an important role in the pathogenesis of gastroduodenal disorders such as gastritis, peptic ulcers, and gastric cancers. Invasive tests such as endoscopy with biopsies can effectively detect the bacteria, but these tests are costly and uncomfortable for the patient.

Four non-invasive tests for detecting the bacteria have attracted interest. 1) The antibody test has a good negative predictive value, but also a high rate of false-positive results. 2) The stool antigen test performs well at low cost, but interest in its use is currently dampened by doubts about patient and clinician compliance and inter-laboratory variability. 3 & 4) The ^{14}C (radioactive) and ^{13}C (non-radioactive) urea breath tests achieve virtually identical results. The literature supports the superiority of these two tests over the two other non-invasive tests.

The urea breath tests are done on samples of exhaled air before and after ingestion of urea containing specially labeled carbon. The quantity of labeled carbon in a sample of exhaled air determines the presence of active *H. pylori* infection in the stomach. The radioactive ^{14}C test has to be administered in hospitals with nuclear medicine facilities. The ^{14}C and ^{13}C tests cost approximately the same to administer (between \$40 and \$120 per test), but because ^{13}C is not radioactive (requiring only a mass spectrometer for sample analysis), it can be administered much more widely. The ^{13}C test has only been offered publicly in Québec since April 2005, and is not yet well known.

Recommendations

The ^{13}C -Urea breath test should be available in healthcare institutions in all regions of Quebec. Clinicians should be informed of the availability of the test and encouraged to participate in defining its optimal use.

Method

Literature search.

Further research/reviews required

All forms of testing for *H. Pylori* should be periodically re-evaluated.