

Urea breath test: a diagnostic tool in the management of *Helicobacter pylori*-related gastrointestinal diseases.

* The urea breath test (UBT) is generally considered as a simple, non-invasive and accurate test to demonstrate *Helicobacter pylori* (*H. pylori*) infection. The principle of the test is simple. The orally given urea, isotopically labelled with ^{14}C or ^{13}C , is hydrolysed by the enzyme urease of *H. pylori* and $^*\text{CO}_2$ is expired in breath.

* *Helicobacter pylori* (*H. pylori*) is the commonest bacterial pathogen found worldwide and more than half the world population aged 40 years and above is colonized with it. The infection rate is >95 % in some African countries. At present, $^{13}\text{C}/^{14}\text{C}$ -UBT is considered the test of choice for confirmation of *H. pylori* infection. The UBT is based on the principle, that isotopically labelled urea ingested by an *H. pylori*-infected patient is rapidly hydrolysed by the microbial urease. The released $^{13}\text{C}/^{14}\text{C}\text{CO}_2$ is absorbed across the mucous layer to the gastric mucosa and hence, excreted via the systemic circulation in the breath which is collected and measured. The non-hydrolysed urea is excreted completely in the urine within 3-4 days. ^{13}C -UBT being non-radioactive, non-invasive ^{13}C -UBT can be used in pregnant women and children, and a user's license is not required.

* The UBT is simple, innocuous, easy to repeat, and among the most accurate methods of assessing **H pylori** status. It has been widely used to screen patients before endoscopy and to assess the success of therapies aimed at eradicating **H pylori**.

* The establishment of the efficacy of a breath test marks the boundary between its use in basic research and its potential use in patient diagnosis and management. To date, only the ^{13}C -urea breath test for *Helicobacter pylori* has actually made such a transition by comparison with endoscopy, biopsy, culture and histologic examination. Thus far, the test to be approved by the Food and Drug Administration is the ^{13}C -urea breath test.