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PYtest- DIAGNOSING H. PYLORI

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What is H. pylori?

Helicobacter pylori (H. pylori) is a bacteria, which lives only in the lining of the stomach and is one of the most common chronic infections in humans. The importance of H. pylori was unrecognized until 1982, when an Australian physician, Dr. Barry Marshall, discovered that the germ was almost always present in patients with gastritis (inflammation of the stomach) and ulcers. Doctors now believe that H. pylori is associated with most stomach ulcers and almost all duodenal ulcers.

H. pylori causes inflammation of the stomach lining and weakens the natural protection against stomach acid, which may then cause an ulcer. If stomach acid is reduced with medication, an ulcer may heal, but tends to come back once the medication is stopped. However, if H. pylori is treated successfully with antibiotics, an ulcer can be permanently cured. This means that ulcer medication may no longer be needed.

Does H. pylori always cause ulcers?

H. pylori does not always cause ulcers to form but almost always produces inflammation of the stomach lining. Some people with H. pylori infection do not have symptoms, but many report nausea, gas, bloating, and burning stomach pain. These symptoms occur twice as often in people with H. pylori compared to those who are not infected. Doctors believe that H. Pylori may be responsible for many of these symptoms.

How common is H. pylori?

H. pylori infection occurs throughout the world, in every part of society, and in every age group. About 30% of the United States' population has the infection, which is more common with advancing age (50% will have it by age 60) and is rare in children. Once infected with H. pylori, a person usually continues to carry the germ unless certain medications are used to cure the infection.

How did I get it and can I spread it? H. pylori appears to be passed from person-to-person. It is more common in spouses of infected patients than in general population. It is also common in places where sanitation is poor and where crowded living conditions exist. It is not clear exactly how a person gets H. pylori, but it may be through swallowing infected food or water. H. pylori is not found naturally in animals, so pets do not seem important in the spread of the infection. Careful personal hygiene (through hand

washing, use of separate personal items such as eating utensils, glassware, etc.) probably is the best way to reduce person-to-person spread of H. pylori.

How is H. Pylori infection diagnosed?

There are several very accurate ways to determine the presence of H. pylori:

1. Blood tests can be used to determine the presence of antibiotics to the bacteria. These tests tell if a person has ever had the bacteria infection but do not tell if the infection is active.

2. A biopsy of the stomach can be used to determine the presence of H. pylori. A biopsy is obtained during an examination of the stomach with a flexible scope. The biopsy is examined by a pathologist under a microscope to look for the presence of H. pylori, or more easily by the CLOtest®. This slide test checks for the presence of an enzyme (urease) produced by H. pylori. A simple color change in the CLOtest confirms that H. pylori is active in the stomach.

3. The urea breath test (i.e., the PYtest®) is the only diagnostic test that can determine the presence of H. pylori without the use of a scope. It is safe, accurate, easy to perform, and much less expensive than a scope and biopsy for diagnosis.

How does the PYtest work?

The PYtest capsule contains sugar beads coated with small amounts of a chemical called urea. Urea is naturally found in the human body, and the amount in the capsule is much smaller than the head of a pin. The urea in the PYtest has been "labeled" with a naturally occurring radioactive tracer called carbon-14, so it can be detected after it is taken into the body.

After the capsule is swallowed, it takes about three minutes to dissolve in the stomach. If the ^{14}C-urea comes into contact with the H. pylori, it is immediately broken down into "C-carbon dioxide and ammonia. The carbon dioxide enters the blood stream and is exhaled by the patient.

Ten minutes after ingesting the capsule, a breath sample is collected in a balloon. The breath sample is analyzed; if enough of the ^{14}C is present, the patient has H. pylori.

If H. pylori is not present, the ^{14}C-urea simply washes through the stomach and is passed in the urine.

What risks are involved with the PYtest?

There have been no adverse reactions to the PYtest capsule. Although the PYtest does contain a tiny amount of radiation, it is no more than an average person receives every day (background radiation).

What instructions must I follow before taking the PYtest?

- You must not eat or drink for at least six hours before your test. If you have taken any antibiotics in the past month, please let your physician know before taking this test. The test will need to be postponed until you have been off antibiotics for one month.

- If your physician has been giving you a medication called Prilosec, Prevacid, or Carafate, please do not take it for two weeks prior to your test. Consult your health care professional for additional advice.

- If you have taken Pepto Bismol, you will need to wait one month before taking this test.

- Although the radiation dose is extremely small, the test has not been sufficiently tested in children or

pregnant women. If there is a possibility you may be pregnant, you may choose not to have this test unless you have a negative pregnancy test.

Where is the PYtest performed and how long will it take?

The test will take approximately ten minutes. You will be instructed to swallow the PYtest capsule with a small amount of water and then blow into a balloon after 10 minutes. You may resume all normal activities and eat immediately after the test. Results should be available within a few days of completing the test or sooner if analysis is done where your test was performed.