Molecular methods for detection of *Helicobacter pylori* infection: could they be the gold standard?

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*Helicobacter pylori* colonizes the gastric mucosa of more than half of the world’s human population. This bacterium plays a significant role in the pathogenesis of several diseases of the digestive system, such as chronic gastritis, peptic ulcer disease and gastric adenocarcinoma.

Since the discovery of *H. pylori* by Marshall and Warren, in 1983, numerous methods for detecting the presence of the bacterium in the gastric mucosa have been developed\(^1\). Traditionally, diagnostic methods may be classified as invasive, which require endoscopy to obtain biopsies of gastric tissues, and noninvasive. The invasive methods include histology, urease test, culture and molecular methods; while the noninvasive methods include serology, urea breath testing, stool antigen testing and molecular methods.

Although there are several available diagnostic methods for detecting *H. pylori*, each one of them has its own usefulness and limitations. The choice of diagnostic test to determine *H. pylori* infection status depends on the sensitivity, specificity, reproducibility, clinical condition, cost, and rapidity of the results. There is need for a reference method to be used as gold standard to find patients truly infected\(^2\).

Nowadays, studies show that the polymerase chain reaction (PCR) may be slightly superior to other diagnostic methods for detection of *H. pylori* from different clinical samples, such as gastric biopsy, gastric juice, stool, saliva and dental plaque; and to verify the bacterium eradication after treatment\(^3\). The need for a limited amount of bacteria enables PCR to recognize infection when other tests are negative due to low bacterial density. The conserved genes used for detection of *H. pylori* are *urease A* (*ureA*), *urease C* (*ureC*), 16S rRNA, 23S rRNA and *hsp60*.

Recently, Fadilah et al. (2016)\(^6\) recommended adding multiplex PCR method in routine diagnosis of *H. pylori* infection. They showed that this method increases the detection of *H. pylori* in samples with non-culturable *H. pylori* organisms and mild inflammation where it is undetectable by other methods. Furthermore, in this issue of Jornal Brasileiro de Patologia e Medicina Laboratorial (JBPML), Nevoa et al. (2017)\(^7\) evaluated the use of PCR in *H. pylori* detection and compared it with the rapid urease test. The authors found that the rate in the detection of *H. pylori* by the molecular method was significantly higher when compared to the rapid urease test.

Enjoy this study!

**REFERENCES**