**Introduction**

- **Helicobacter pylori** is a common bacterium with a prevalence of 50% in a global population. Chronic infection with *H. pylori* causes atrophic and even metaplastic changes in the stomach, with association to a peptic ulcer. There are several methods for *H. pylori* infection diagnosis.

  Recently culture technique as a diagnostic tool became less common, due to difficulties of the pathogen culture-time consuming (5-7 days). Culture and bacterial identification are mostly employed after treatment failure as they provide information on the antibiotic susceptibility profile, thereby serving an important role in empirical antibiotic treatment and management of refractive cases.

  **Purpose:** To determine and compare the efficiency of 3 methods for *H. pylori* identification directly from a biopsy: histology, culture, and molecular GenoType® HelicoDR test.

**Materials and Methods**

- 85 triplicates of stomach antrum biopsies were collected during gastroscopy for detection by culture, histology, and molecular assay.

- Molecular identification of genes encoding the resistance to clarithromycin and fluoroquinolones was performed by GenoType® HelicoDR kit (HAIN LIFE Science, Germany):
  - DNA strips, coated with specific probes, complementary to amplified nucleic acid.
  - Clarithromycin and fluoroquinolones resistance was determined by identification of point mutations in 23S rRNA gene and gyr gene, (Fig. 1).

**Results**

Table 1. Genotypes prevalence detected by GenoType® HelicoDR test in *H. pylori* strains.

<table>
<thead>
<tr>
<th>Gene</th>
<th>Fluoroquinolones</th>
<th>Clarithromycin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>gyrA87</strong></td>
<td><strong>gyrA91</strong></td>
<td><strong>23S</strong></td>
</tr>
<tr>
<td><strong>Nucleotides</strong></td>
<td><strong>WT</strong></td>
<td><strong>MUT</strong></td>
</tr>
<tr>
<td>AAT</td>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>ACC</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>56%</td>
<td>44%</td>
</tr>
</tbody>
</table>

**Methods**

- GenoType® HelicoDR kit identified more positive specimens compared to culture and histology (94.3%, 77.1%, 71.4% Fig. 2).

- Mutations encoding resistance to clarithromycin was in a higher Rate than to fluoroquinolones (68.26% vs. 20%. Table 1).

- Most common mutations encoding resistance to clarithromycin and fluoroquinolones were found in alleles A2143G and N87K (Table 1).

**Conclusions**

- GenoType® HelicoDR test detects the highest prevalence of positive specimens (94.3%).

  This result indicate on higher sensitivity of the molecular method. High rate of clarithromycin resistance was found, possibly as a result of preferable treatment in the investigated geographic area.

  ### Several kit advantages:
  - Direct identification, strain resistance characterization,
  - mixture of genotypes detection
  - no transport or storage limitations
  - **Thus it is an excellent epidemiological tool.**

  Eliminates the need for culture and susceptibility tests performance for several common antibiotics and enables optimal and specific antibiotic treatment adjustment.

  We recommend on this PCR assay for a quick and more efficient identification of *H. pylori* strains and resistance patterns.

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*Dr Avi Peretz; Principle Investigator
Tel: 797-4-6652322; 050-6288012; Aperetz@poria.health.gov.il*