Helicobacter pylori, a review on the epidemiology and current diagnostic of a public health issue

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OBJECTIVES AND METHODOLOGY

The goal of this study was to review the epidemiology, pathogenesis, laboratory diagnosis methods and antibiotic treatment of H. pylori infections, a bacteria that affects approximately 50% of the world population (1). The data included on this review was supported by publications available at PubMed, Web of Science or Scopus databases, and medical gastroenterology books consulted during 2019-2020, within the context of Clinical Analysis Master thesis of FFUP.

CLINICAL MANIFESTATIONS AND VIRULENCE

H. pylori is a microaerophilic Gram-negative bacteria, responsible for 80% of stomach cancers worldwide, as well as other diseases such as gastritis, peptic ulcer and MALT lymphoma (1).

RISK FACTORS

Table 1. Risk factors associated with H. pylori infection (2,3).

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>EXAMPLE</th>
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<tbody>
<tr>
<td>Characteristics of the infecting strain</td>
<td>Combination between several virulence factors:</td>
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<td>- Urease production</td>
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<td>- Presence of flagella</td>
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<td>- Present OMP’s (External Membrane Proteins) – BabA/SabA</td>
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<td>Children and parents age and educational level</td>
<td>Younger children tend to have more physical contact with relatives/other people and less hygiene care</td>
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<td>Diet</td>
<td>Diet based on antioxidant vs. processed foods with high nitrate content</td>
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<td>Socioeconomic situation</td>
<td>Sanitation and public hygiene conditions</td>
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<tr>
<td>Genetic Host Factors</td>
<td>Genetic polymorphisms</td>
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</table>

LABORATORY DIAGNOSIS

Helicobacter pylori infection

Clarithromycin resistance limit

- < 15%
- > 15%

- PPI+CLA+AMO (or MZ) – 14 days
- Quadruple therapy with bioluminescence 
  (BIS+TZ+MZ+PPI) – 10 to 14 days
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  (BIS+TZ+MZ+PPI) – 10 to 14 days
- Simultaneous therapy (PPI+ 3 antibiotics) – 14 days

CONCLUSIONS

- High worldwide prevalence of H. pylori infection and antibiotic-resistant strains is a concerning topic.
- More epidemiologic studies of H. pylori infection, by country, are still needed, namely detailed data on genomic characterization of the most virulent strains to better understand pathogenic mechanisms, transmission routes, and reservoirs.

REFERENCES