

Abstract

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Bachelor's thesis

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Title: *Helicobacter pylori* and current knowledge in treatment

This work is based on the pathogenic *Helicobacter pylori* which plays an important role in many gastroduodenum diseases. The aim of this work is summarizing the information of the *Helicobacter pylori* and presenting some actual knowledge of its treatment.

Helicobacter pylori is a gram-negative microaerophilic spiral bacillus that lives under the layer of mucosae, area of neutral pH, and it causes an inflammatory changes on gastric epithelium. Half of the population worldwide is infected. It is important to find a suitable therapy for succesful treatment. Until recently the first-line treatment was the standard triple combination clarithromycin/metronidazole, amoxicilline and PPI. However the effectiveness of this combination has been reduced in the most countries to a level lower than recommended eradication rate (< 80 %). The cause of the failure was resistance to clarithromycin/metronidazole. Bismuth quadruple therapies are effective in the most countries. They are used as the first-line treatment and also as rescue therapy after failure of the standard triple therapy. Bismuth quadruple therapies were also recommended according to the instructions of the Maastricht V Florence Consensus Report 2016, Toronto Consensus Report 2016 and Kyoto Global Consensus.

The use of vonoprazane-based dual therapy (> 93,8 %) or vonoprazane-based triple therapy (> 90 %) achieves a high rate of eradication. The new studies further research high-dose dual therapy (93,5 %) and quintuple therapy. The effectiveness of the therapy with probiotics is also the subject of many studies. Probiotics have a beneficial effect on microbiome recovery and on minimizing side effects which are the rule during demanding therapies. Studies often have encounterpatients who do not adhere to treatment due to side effects.

The most important problem of treatment is an antibiotics resistance. Resistance is regionally variable. Resistance to clarithromycin, metronidazole and levofloxacin is high in the most countries. The new strategies are looking for an antibiotics which could be a suitable compensation. The new possibilities are seen in the using of rifabutin, furazolidone, sitafloxacin or cefuroxime as a compensation of amoxicilin for penicillin-resistant patients. Resistance to amoxicillin and tetracycline is insignificant on the other hand.

Key words: *Helicobacter pylori*, treatment, resistance, epidemiology, gastritis