Abstract

*Helicobacter pylori* in Health and Disease: Its Contribution to Gastrointestinal Disorders and Systemic Metabolic Effects †

Andriy Cherkas 1,*, Serhii Holota 2,3, Mariia Lopachak 4 and Ostap Yatskevych 1,*

1 Department of Internal Medicine #1, Lviv National Medical University, 79010 Lviv, Ukraine
2 Department of Pharmaceutical, Organic and Bioorganic Chemistry, Lviv National Medical University, 79010 Lviv, Ukraine; golota_serg@yahoo.com
3 Department of Organic Chemistry and Pharmacy, Lesya Ukrainka Eastern European National University, 43021 Lutsk, Ukraine
4 Department of Physical and Colloid Chemistry, Ivan Franko Lviv National University, 79005 Lviv, Ukraine; lopachak1999mashka@gmail.com
* Correspondence: cherkasandriy@yahoo.com (A.C.) ; yaoya@ukr.net (O.Y.); Tel.: +38-095-169-1911 (A.C.)

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**Abstract:** *Helicobacter pylori* is one of the most common human infections worldwide and it is estimated that more than half of global population is affected. This microorganism induces oxidative stress in gastric mucosa and causes chronic gastritis, duodenal peptic ulcer, gastric cancer, and as reasonably suspected a number of extragastric diseases [1,2]. Our research was focused on both local (on the level of gastric mucosa) and systemic effects of *H. pylori* positivity in patients with duodenal peptic ulcer and healthy volunteers. It was shown that increased accumulation of 4-hydroxynonenal (HNE) persists even despite *H. pylori* eradication [3,4]. We performed an interventional study to evaluate effects of Amaranth oil on accumulation of HNE-histidine adducts in gastric mucosa of patients undergoing routine anti-*H. pylori* treatment. It was demonstrated that Amaranth oil supplementation provided significant improvement of gastric mucosa morphological pattern and also had a positive effect on heart rate variability [5]. In a separate study we demonstrated that *H. pylori* in apparently healthy sedentary young male subjects is associated with higher heart rate, sympathetic activity and insulin resistance, however, we detected no changes in parameters reflecting inflammatory profile, metabolic parameters or oxidative stress [6–8]. In summary, there is a growing evidence of systemic metabolic effects of *H. pylori* infection not only in patients with overt gastrointestinal disorders, but also in apparently asymptomatic healthy subjects. Thus *H. pylori* status should be seriously considered in human studies focusing on both pharmacological and non-pharmacological approaches.

**Keywords:** *Helicobacter pylori*; oxidative stress; gastric mucosa; metabolic syndrome; insulin resistance; amaranth oil

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References