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Commentary

Helicobacter pylori eradication: Not only early consequences

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A lot of physicians treating *Helicobacter pylori (Hp)*-positive patients with extra-alimentary disorders as well as gastroenterological symptoms have often deliberated: "to kill or not to kill *Hp*?" Today, evidence-based indications for starting *Hp* eradication are available in the Maastricht V/Florence Consensus Report [5]. However, clinical decisions are not always easy. Sometimes, *Hp* eradication is demanded by a patient who read on the internet that *Hp* infection is a first-class carcinogen. Other times, the physician loses patience and recommends *Hp* eradication as a desperate therapy for a difficult patient with functional dyspepsia or heartburn resistant to the standard treatment, expecting the patient either to change doctors or to experience symptom relief. However, the study by Chen et al. [1] shows that recommending 14-day bismuth-containing quadruple therapy may not only eradicate *Hp*, but could also change gut microbiota (examined using 16S rRNA sequencing in stool samples). They found that induced enteral dysbiosis can be maintained as much as 8 weeks after beginning therapy with antibiotics. However, it should also be taken into consideration that changes in gut microbiota after *Hp* eradication are not only the result of antibiotics acting, but can also be due to long-lasting alterations in saliva secretion, gastric acidity, gastric motility, mucosal immunological response, changes in metabolic pathways and the loss of a direct effect of *Hp* infection on other microorganisms living in the human digestive tract [3]. We now know that these effects of *Hp* eradication last longer than 8 weeks. The effects may potentially affect the course of several diseases related to gut dysbiosis (e.g. inflammatory bowel disease, food allergies, and diabetes mellitus), as well as the absorption of nutrition and drugs. However, long-term clinical complications of dysbiosis other than pseudomembranous colitis induced by *Hp*-eradicative therapy need confirmation in further study. In my opinion, confirmation of late *Hp*-eradication complications, e.g. sub forms of changes in the prevalence of clinical end-points, would have similar practical importance to identifying the effects of diabetogenic statins, which induced physicians to be more cautious in recommending lipid-lowering drugs in individuals with primary prevention of cardiovascular disorders as an indication.

However, the study by Chen et al. [1] shows not only the potential unfavorable action of quadruple eradicative therapy, but also points to an effective method of patient protection against undesirable symptoms and dysbiosis associated with antibiotic therapy, which is the supplementing of 14-day bismuth-containing quadruple therapy with *Clostridium butyricum*, bacteria that produce a butyrate, short fatty-acid modulating inflammation response and protective enteric barrier [2]. The authors found that this supplementation also improved the ratio of favorable-to-detrimental bacteria in gut microflora, although its effect on *Hp*-eradication rate did not reach statistical significance. In the light of still ineffective trials on vaccinations for the prevention of *Hp* contamination [6], the use of alternative therapies that could improve antibiotic activity, modulate inflammatory response, and improve enteric barrier integrity in supporting *Hp*-eradicative therapy seems to be reasonable [3,4]. Such treatment mainly consists of probiotics (e.g. *Lactobacillus acidophilus, L. gasseri, L. reuteri, Saccharomyces boulardii, Bifidobacterium spp., B. clausii*), fermented food (e.g. milk, cucumber, or cabbage) and/or phytomedicines, e.g. with traditional Chinese medicines, berberine, green tea, catechins, cranberry juice, garlic extract, propolis, and sialic acid [3,4,8,10]. However, an evaluation of the clinical outcomes of the use of these substances requires further study. It also seems to be worth performing both basic and clinical research on the usefulness of prebiotics (e.g. fiber, fructo-oligosaccharides, galacto-oligosaccharides, inulin, pectins, rhamnose, lactose, polyphenols, polyols), protozoa, fermented food, as well as diets rich or poor in fermented products or fermentable oligosaccharides, disaccharides, monosaccharides and polyols (high or low FODMAP) as media for improving the eradication rate and reducing the side effects of *Hp* eradication.

The study by Chen et al. [1] left some important questions unanswered. As stated above, the later clinical consequences of *Hp* eradication, e.g. risk of diabetes mellitus, autoimmune diseases, inflammatory bowel disease should be further explained. As this study showed that *Hp* eradication may be harmful in some patients, it also seems reasonable to evaluate in detail the eradication of which strain of *Hp* (*cagA-positive* or *vacA-positive*) is associated with the most favorable clinical outcome and the most detrimental clinical consequences. Such evidenced data might help in the individualization of *Hp*-eradicative therapy, as well as in the observation of its potential complications. Before exploring these questions, every physician ought, before recommending *Hp*-eradicative therapy, to take into consideration that such therapy may evoke not only early but also later and long-lasting complications related to enteric dysbiosis [4,7]. This seems to be the key message of the articles by Chen et al. [1] and Yildiz et al. [9].

Disclosure

The author declared no conflicts of interest.

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