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LETTER TO THE EDITORS

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Letter: does *Helicobacter pylori* infection limit the health effects of the Mediterranean diet?

EDITORS,

In the recent thorough systematic review on the gastric microbiota in health and disease by Rajilic-Stojanovic et al, *Helicobacter pylori* infection remains the dominant risk factor for chronic gastritis, peptic ulcer and gastric adenocarcinoma.[1] While the burden of these *Helicobacter pylori*-related diseases is substantial and developing antibiotic resistance increasingly risks hampering *Helicobacter pylori* eradication, vaccine development is not, at the moment, a strategic priority of the pharmaceutical industry.[2] The recent in-depth study by Kumar et al., strongly limits the concern that eradication of the infection might increase the risk of oesophageal and proximal gastric adenocarcinoma.[3] At the same time, evidence is emerging for a role of *Helicobacter pylori* in the pathophysiology of a much wider spectrum of diseases. This statement is illustrated in the following paragraph with a few selected references.

In mice, *Helicobacter pylori* infection rapidly promotes high fat diet-induced central obesity and insulin resistance to a stage normally only obtained after a longer term high fat diet.[4] In man, *Helicobacter pylori* infection is associated with increased insulin resistance and metabolic syndrome in subjects below 50 years of age.[5] Moreover, *Helicobacter pylori* infection has been associated with increased levels of oxidised low density lipoproteins, an association that is even stronger in diabetics.[6] Oxidised low density lipoproteins modify the human adipocyte phenotype to an insulin-resistant, pro-inflammatory and pro-apoptotic profile[7] and are known to independently predict 10-year progression of subclinical carotid atherosclerosis.[8] Eradication of *Helicobacter pylori* in a multi-centre, open label, randomised trial, led to a decrease in insulin resistance, triglycerides and low density lipoproteins and to a small increase in high density lipoproteins.[9]

The Mediterranean diet provoked interest in the 1960s after the observation that mortality from cardiovascular disease in Italy, Greece and Spain was lower than that in northern Europe and the USA. Over the last 60 years, evidence for the value of the Mediterranean diet for prevention of atherosclerosis, insulin resistance, metabolic syndrome, type 2 diabetes, obesity, and some forms of cancer has accumulated. There is increasing interest in the diet internationally including in China and the USA. The potential for health care cost savings is claimed to be 55 billion dollars (range 41.8 to 68.2 billion) annually in the USA alone.[10] However, in view of the above, it appears, conceivable that the Mediterranean diet might have a more limited impact on insulin sensitivity in *Helicobacter pylori*-positive individuals. In view of the 45% prevalence of *Helicobacter pylori* infection worldwide and the 33% incidence of insulin resistance in the USA, it is important to verify whether this bacterium, or the gastritis it causes, interferes with the effects of the Mediterranean diet on insulin resistance. The potential value of this knowledge is relevant, both for disease prevention and for its economic consequences. The pharmaceutical industry and health authorities might reconsider the priority of the development of a (therapeutic) vaccine against *Helicobacter pylori* infection.[2]

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This work is dedicated to the memory of Mr Michel Richonnier (https://cancerworld.net/obituary/in-memoriam-michel-richonnier).

LINKED CONTENT

This article is linked to Rajilic-Stojanovic et al paper. To view this article, visit https://doi.org/10.1111/apt.15650

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