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Probiotic supplementation improves tolerance to *Helicobacter pylori* eradication therapy - a placebo-controlled, double-blind randomised pilot study

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Background: *Helicobacter pylori* (Hp) is the major cause of chronic gastritis, and a risk factor for peptic ulcer and gastric cancer. Aim: In this study we investigated the effect of probiotic supplementation on the tolerance and efficacy of Hp eradication treatment in a randomised, double-blind, placebo-controlled trial.

Methods: A total of 338 volunteers were screened for Hp infection. The eligibility criteria were met by 47 subjects whose Hp infection was verified at the outset and re-evaluated after the treatment by the ¹³C-urea breath test and by EIA serology. The subjects were randomised to receive probiotic therapy (*Lactobacillus rhamnosus* GG, *Lactobacillus rhamnosus* LC750, *Bifidobacterium breve* Bb99 and *Propionibacterium freudenreichii* ssp. *shermanii* JS) or a placebo during Hp eradication and for three weeks following the treatment, and recorded their daily symptoms in a standardised diary.

Results: When the frequencies of new or aggravated symptoms were evaluated, no significant differences were found between the two groups for individual symptoms. However, the probiotic group showed less treatment related symptoms as measured by the total symptom score change ($p=0.038$) throughout the Hp eradication therapy in contrast to the placebo group. The Hp eradication rate was non-significantly higher in the group receiving probiotic therapy (91% vs. 79%, $p = 0.42$). In this group the recovery of probiotic bacteria in the faeces increased significantly ($p < 0.001$).

Conclusions: In this pilot study, probiotic supplementation did not diminish significantly the frequency of new or aggravated symptoms during Hp eradication. However, our data suggest an improved tolerance to the eradication treatment when also the symptom severity was taken into account. Furthermore, the results show that probiotic bacteria are able to survive in the gastrointestinal tract despite the intensive antimicrobial therapy.