

IMPACT OF PROBIOTICS ON GUT MICROBIOTA AND METABOLOME DURING HIGH-DOSE DUAL THERAPY WITH VONOPRAZAN AND AMOXICILLIN AS *HELICOBACTER PYLORI* RESCUE THERAPY: A PROSPECTIVE, MULTICENTER, RANDOMIZED CONTROLLED STUDY

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Poster

Stomach & H. Pylori

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A randomized trial using multi-omics approaches examined how timing of *Bacillus subtilis* and *Enterococcus faecium* probiotic administration affects gut microbiota and metabolome in patients receiving vonoprazan-amoxicillin high-dose dual therapy for refractory *Helicobacter pylori* infection.

KEY POINTS

- Four treatment groups were compared: probiotics after dual therapy, probiotics concurrent with dual therapy, dual therapy alone, and probiotics before dual therapy, with fecal samples analyzed at baseline, week 4, and week 12.
- Probiotic supplementation had minimal impact on microbial diversity or small intestinal bacterial overgrowth but significantly altered metabolic activity and the probiotic-microbiota-metabolite axis.
- At week 4, beta diversity separation ($P=0.009$) was driven by *Bacillota*, *Blautia*, *Ruminococcus* sp., and *Phocaeicola* sp., while week 12 showed distinct patterns in concurrent probiotic and dual-therapy-alone groups ($P=0.011$) distinguished by *Escherichia coli* and *Faecalibacterium prausnitzii*.
- Multi-omics integration revealed time-dependent coordination with early metabolic compensation at week 4 involving *Bifidobacterium*-mediated amino acid and bile acid homeostasis, and late-stage recovery at week 12 with upregulated anti-inflammatory metabolites and mucosal repair markers in the dual-therapy-alone group.

- Concurrent probiotic administration with high-dose dual therapy was identified by the investigators as appearing most effective in promoting metabolic responses that may support anti-inflammatory, immune regulatory, and mucosal repair processes.

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