MODULATING THE GUT-LIVER AXIS: PROBIOTIC THERAPY FOR MASLD MANAGEMENT

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Abstract selection

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Abstract body

Introduction: Metabolic dysfunction-associated steatotic liver disease (MASLD), formerly known as nonalcoholic fatty liver disease (NAFLD), has emerged as one of the leading causes of chronic liver disease worldwide. MASLD is closely associated with components of metabolic syndrome, including obesity, insulin resistance, dyslipidemia, and hypertension. The role of gut microbiota dysbiosis in MASLD pathogenesis is increasingly recognized, with microbial imbalance contributing to systemic inflammation and metabolic disturbances.
Aims & Methods: The aim was to determine gut microbiota composition in patients with MASLD and evaluate the impact of probiotic therapy on metabolic, inflammatory, and lipid parameters. The study included 152 patients diagnosed with MASLD. Diagnosis was based on clinical, laboratory, and imaging findings, including ultrasound and steatometry, alongside cardiometabolic risk factors. Gut microbiota composition was evaluated using quantitative real-time PCR (qRT-PCR). Patients received a combined probiotic therapy containing *Saccharomyces boulardii* CNCM I-745, *Lactobacillus acidophilus* (LA-5), and *Bifidobacterium lactis* (BB-12). Changes in biochemical markers, lipid profiles, inflammatory parameters, and gut microbiota composition were assessed before and after therapy.
Results: At baseline, patients with MASLD demonstrated gut microbiota dysbiosis, characterized by an increased proportion of Firmicutes (50.3%) and Actinobacteria (15.34%), and an elevated Firmicutes/Bacteroides (F/B) index (5.02). Following probiotic therapy, significant improvements were observed: the proportions of Firmicutes and Actinobacteria decreased, the F/B index was reduced, and levels of ALT, AST, high-sensitivity C-reactive protein (hsCRP), total cholesterol, and triglycerides declined, while HDL-C levels increased. Positive correlations were identified between elevated Firmicutes and Actinobacteria and markers of cardiometabolic risk, such as hsCRP and triglycerides.
Conclusion: Gut microbiota dysbiosis is strongly associated with metabolic and inflammatory disturbances in MASLD. Combined probiotic therapy effectively corrected microbial imbalance, reduced systemic inflammation, and improved metabolic and lipid parameters. These findings support the role of microbiota-targeted interventions as an adjunctive approach in the comprehensive management of MASLD.

References

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