

## Therapeutic Effect of Berberine (BBR) Combined with Probiotics on Irritable Bowel Syndrome through Regulation of Inflammatory Response

Yamei WANG<sup>1#</sup>, Ying WANG<sup>2#</sup>, Xinli FENG<sup>3</sup>, Ying CHANG<sup>4</sup> & Jinhua LUO<sup>2\*</sup>

<sup>1</sup> Department of Infection Control Office, Affiliated Hospital of Hebei University,  
Hebei, Baoding, 071000, China

<sup>2</sup> Department of Integrated Traditional Chinese and Western Medicine,  
Affiliated Hospital of Hebei University, Hebei, Baoding, 071000, China

<sup>3</sup> Hyperbaric oxygen chamber, Affiliated Hospital of Hebei University,  
Hebei, Baoding, 071000, China

<sup>4</sup> Department of Gastroenterology, Affiliated Hospital of Hebei University,  
Hebei, Baoding, 071000, China

**SUMMARY.** The present study investigated the effect of berberine (BBR) combined with probiotics on the treatment of IBS and the control of inflammatory response (IR). Patients with IBS were selected as subjects and divided into two groups: BBR combined with probiotics treatment group and BBR single drug treatment group. Clinical efficacy, remission, inflammatory factors, gastrointestinal hormone levels, serum neuropeptide Y (NPY), 5-hydroxytryptamine (5-HT) levels, adverse reactions (ADs), intestinal symptoms and quality of life in 2 groups were observed. The study demonstrated that G was more effective than CG. The IL-18, IL-23, TNF- $\alpha$ , vasoactive intestinal peptide (VIP), somatostatin (SS) and 5-HT were decreased in both the groups. Motilin and NPY were higher in RG than in CG. There was no significant difference in the incidence of ADs between the two groups, but the IBS intestinal symptom Severity Scale (IBS-BSS) and IBS Quality of Life Scale (IBS-QOL) scores in RG group were lower than those in CG group. In summary, BBR combined with probiotics inhibits IR in patients with significant efficacy, which is worthy of clinical promotion.

**RESUMEN.** El presente estudio investigó el efecto de la berberina (BBR) combinada con probióticos en el tratamiento del SII y el control de la respuesta inflamatoria (IR). Los pacientes con SII fueron seleccionados como sujetos y divididos en dos grupos: grupo de tratamiento con BBR combinado con probióticos y grupo de tratamiento con un solo fármaco de BBR. Se observó eficacia clínica, remisión, factores inflamatorios, niveles de hormonas gastrointestinales, neuropeptido y sérico (NPY), niveles de 5-hidroxitriptamina (5-HT), reacciones adversas (DA), síntomas intestinales y calidad de vida en 2 grupos. El estudio demostró que G era más eficaz que CG. La IL-18, IL-23, TNF- $\alpha$ , péptido intestinal vasoactivo (VIP), somatostatina (SS) y 5-HT se redujeron en ambos grupos. Motilina y NPY fueron mayores en RG que en GC. No hubo diferencias significativas en la incidencia de AD entre los dos grupos, pero las puntuaciones de la Escala de gravedad de los síntomas intestinales del SII (IBS-BSS) y la Escala de calidad de vida del SII (IBS-QOL) en el grupo RG fueron más bajas que las del grupo GC. En resumen, BBR combinado con probióticos inhibe la IR en pacientes con una eficacia significativa, lo cual es digno de promoción clínica.

**KEY WORDS:** berberine, clinical effect, gastrointestinal function, inflammatory, irritable bowel syndrome,

# These authors contributed equally to the work.

\* Author to whom correspondence should be addressed. E-mail: jinhualuo.hu@gmail.com