S2-2

Immunomodulatory Effects of Lactic Acid Bacteria in Patients with Perennial Allergic Rhinitis

Ming Fuu Wang MD[a], Hsiao Chuan Lin MD[b] Ying Yu Wang[c], and Ching Hsiang Hsu MD, PhD[a]

From the [a]Division of Allergy, Immunology, and Rheumatology; the [b]Division of Infection, Departments of Pediatrics, China Medical University Hospital, Taichung, Taiwan; the [c]Departments of Research, GenMont Biotec Inc., Tainan, Taiwan

Background : Lactic acid bacteria can alleviate the disease severity of atopy and, prevent the development of allergies, possibly via their ability to modulate the immune response.

Objective : We aimed to examine the clinical efficacy, safety, and immunological effects of *Lactobacillus paracasei-33* (LP-33) in patients with mite-induced perennial allergic rhinitis.

Methods : In this randomized, double-blind, placebo-controlled study, sixty subjects were assigned to the LP-33 group (n = 40) and the placebo group (n = 20), based on consumption of yogurt with or without LP-33 for 12 weeks. Relative changes of symptom scores after intervention were used for primary outcome measure. We also assessed the changes of immunological parameters, including interferon (IFN)-γ, interleukin (IL)-4, and total serum immunoglobulin (Ig) E at enrolment and after 12 weeks of treatment.

Results : Consumption of LP-33 fortified fermented milk demonstrated significant improvement in symptom control (P<0.05) during the intervention and follow-up period. LP-33-treated subjects had a significant increase in IFN-γ level (33.77 ± 6.93 pg/mL v.s. 41.05 ± 8.75 pg/mL, P = 0.001) and reduction in IgE level (732.53 ± 229.20 IU/mL v.s. 579.96 ± 125.99 IU/mL, P = 0.032). All subjects did not report any adverse side effects.

Conclusion : Patients consumed LP-33-fortified fermented milk had significantly less symptoms of allergic rhinitis. The working mechanisms were probably due to the immunomodulatory effects of probiotics. This may further provide a novel and safe approach to perennial allergic rhinitis.

Key words : *Probiotic, Allergic rhinitis, Lactobacillus paracasei*