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Immuno-Modulatory Effect of Probiotic and Sublingual Immunotherapy in Asthmatic Children

Abstract

Sublingual immunotherapy (SLIT) effectively influences the natural course of asthma in aero-inhalant allergy. Probiotic as immunomodulator seems decreases inflammatory process induced by food allergy. But the immunopathogenesis about how both immunomodulators reducing allergy inflammation are still unclear. The objective of this study was to investigate the ability of sublingual house dust immunotherapy and probiotic in improving lung function and regulating cytokines TH2 (IL-4, IL-5), IgE, eosinophil, TH1 (IFN-gamma), and Tregulator (TGF-beta) in asthmatic children. Study design was Randomized Single Blind clinical experimental trial of 6-17 years old asthmatic children sensitive to food and aero-allergens. Informed consents were obtained prior to the Study. Sample were allocated to Group 1 receiving SLIT, Group 2 receiving probiotic, Group 3 receiving SLIT and probiotic with systematic random sampling. All parameter were evaluated on week 0 until 14. Primary outcome was FEV1 reversibility, Secondary outcome were IL-4, IL-5, IgE level, Eosinophil count, IFN-gamma and TGF-beta. Local Ethic Committee approved this study. It was found that FEV1 reversibility improved in all Groups. IgE level decreased in Group 1 and 3, slightly increased in Group 2. Eosinophil counts decreased in all Group. IL-4 and IL-5 decreased significantly in Group 3. IFN-gamma and TGF-beta increased in all Groups. In conclusion, lung function test improved in patients receiving SLIT and probiotic suggestive modulation of cytokine balance, decreasing of eosinophil and IgE. Increasing IgE titer in patients receiving probiotic was compensated by increasing IgA, suggesting achievement of new equilibrium of Th1 and Th2 profile at upper level.

Keyword : sublingual, immunotherapy, probiotic, FEV1, reversibility, cytokines, eosinophil, IgE,