
Abstract

BACKGROUND:
The role of probiotics in the treatment of atopic dermatitis (AD) remains controversial. A recent systematic review of the available evidence called for further clinical trials with new probiotic formulations.

OBJECTIVE:
To assess the clinical efficacy and impact of Lactobacillus acidophilus DDS-1, Bifidobacterium lactis UABLA-12 with fructo-oligosaccharide on peripheral blood lymphocyte subsets in preschool children with moderate-to-severe AD.

METHOD:
Randomized, double-blind, placebo-controlled, prospective trial of 90 children aged 1-3 years with moderate-to-severe AD who were treated with a mixture of L. acidophilus DDS-1, B. lactis UABLA-12 with fructo-oligosaccharide at a dosage of 5 billion colony-forming units twice daily for 8 weeks versus placebo. The primary outcome measure was the percentage change in Scoring of Atopic Dermatitis (SCORAD) value. Other outcome measures were changes in Infant Dermatitis Quality Of Life (IDQOL) and Dermatitis Family Impact (DFI) scores, frequency and amount of topical corticosteroid used, and lymphocyte subsets in peripheral blood measured by laser flow cytometry.

RESULTS:
At the final visit, the percentage decrease in SCORAD was 33.7% in the probiotic group compared with 19.4% in the placebo group (p = 0.001). Children receiving probiotic showed a greater decrease in the mean [SD] SCORAD score than did children from the placebo group at week 8 (-14.2 [9.9] vs -7.8 [7.7], respectively; p = 0.001). IDQOL and DFI scores decreased significantly from baseline by 33.0% and 35.2% in the probiotic group and by 19.0% and 23.8% in the placebo group, respectively (p = 0.013, p = 0.010). Use of topical corticosteroids during the 8-week trial period averaged 7.7 g less in probiotic patients (p = 0.006). CD3, CD16, and CD22 lymphocyte subsets remained unchanged, whereas the percentage of CD4, and the percentage and absolute count of CD25 decreased, and the percentage and absolute count of CD8 increased in the probiotic group at week 8 (p < 0.007 vs placebo). There was a significant correlation between CD4 percentage, CD25 percentage, CD25 absolute count, and SCORAD values (r = 0.642, r = 0.746, r = 0.733, respectively; p < 0.05) in the probiotic group at week 8.

CONCLUSION:
The administration of a probiotic mixture containing L. acidophilus DDS-1, B. lactis UABLA-12, and fructo-oligosaccharide was associated with significant clinical improvement in children with AD, with corresponding lymphocyte subset changes in peripheral blood. The efficacy of probiotic therapy in adults with AD requires further investigation.