Abstract

Introduction: It is known that the HLA genotype can explain about a 40% of the genetic risk of celiac disease (CD), thus, other genetic predisposing factors as well as factors that subtly modulate T cell activation and differentiation need to be studied. This includes environmental factors that are currently believed to impact on the immune system and gut microbiota development. Aim: To assess the associations between early environmental factors (EEF), lymphocyte subsets, and intestinal microbiota composition in infants at familial risk for CD. Study design: Prospective observational study. Subjects: Fifty-five 4 month-old infants with at least a firstdegree relative suffering CD. Infants were classified according to type of delivery, mother’s antibiotic intake during pregnancy and during labor, milk-feeding practices, early infections and antibiotic intake, rotavirus vaccine administration, and allergy incidence within the first 18 months of life. Methods: Lymphocyte subsets and gut microbiota composition were studied at the age of 4 months. Results: Formula feeding and infant’s infections were associated with higher CD3+, CD4+, CD4+CD38+, CD4+CD28+ and CD3+CD4+CD45RO+ counts (P<0.01). Infant’s infections were also associated with higher CD4+CD25+, CD4+HLA-DR+ and NK cell counts (P<0.01). Cesarean delivery and rotavirus vaccine administration were associated with lower percentage of CD4+CD25+ cells. Infant’s antibiotic intake was associated and correlated with lower counts of Bifidobacterium longum and higher counts of Bacteroides fragilis group. Conclusions: Infant’s infections and antibiotic intake in the first 4 months of life are the EEF more strongly and/or frequently associated to lymphocyte subpopulations and microbiota composition, respectively, in infants at risk of CD.

Keywords