TITLE: IMBALANCE OF *BACTEROIDES* AND *BIFIDOBACTERIUM* SPECIES IN THE GUT MICROBIOTA FROM HASHIMOTO'S THYROIDITIS PATIENTS

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ABSTRACT:
Intestinal dysbiosis have been associated with autoimune diseases development, including Hashimoto's thyroiditis (HT). The aim of this study was to evaluate presence of specific bacteria in stool samples from HT patients, and correlate this data with diet, clinical data, and inflammatory cytokines. This study was approved by the Research Ethics Committee from Barretos Cancer Hospital (Process nº 1.359 / 2017) and HT patients and control subjects assigned the informed consent and answered the questionnaire about lifestyle and dietary habits. Stool samples were requested for the characterization of the intestinal microbiota by real-time PCR, and the serum was used for cytokine quantification by flow cytometry. Data were analyzed by Pearson's Chi-square test, Mann-Whitney U test, and Spearman's correlation. Forty patients with HT, aged 23 and 82 years (48,9 ± 13,3) and 53 controls, aged 18 and 79 years (45,6 ± 16,7), were included. We observed significant differences (P<0,05), between patients and controls, regarding consumption of vegetables, fresh fruits, dairy products, carbohydrates, animal-derived proteins, saturated fats, canned foods, hot drinks and probiotics. The relative expression units (REU) of *Bacteroides* spp. were significantly increased (P<0,0001) in HT patients, and the REU of *Bifidobacterium* spp. were decreased (P=0,005) in patients, when compared with controls. We found an inverse correlation between animal-derived protein consumption and the REU of *Bacteroides* spp., which includes saccharolytic bacteria. We found no significant differences in serum concentrations of IL-2, IL-4, IL-6, IL-10, IL-17A, TNF and IFN-γ between patients and controls, however, correlations between IFN-γ concentrations and *Prevotella* spp. and *Clostridium leptum* abundances, and between TNF concentrations and *Roseburia* spp. and *Clostridium leptum* abundances. We concluded that there are differences in the composition of the intestinal microbiota between HT patients and controls. In addition, dietary habits play an important role in determining the composition of the microbial community in the human intestine.

Keywords: Hashimoto's thyroiditis, gut bacteria, dieta, intestinal dysbiosis.

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