RESEARCH ARTICLE

Blastocystis sp. in Irritable Bowel Syndrome (IBS) - Detection in Stool Aspirates during Colonoscopy

Nanthiney Devi Ragavan¹, Suresh Kumar¹*, Tan Tian Chye¹, Sanjiv Mahadeva², Ho Shiaw-Hooi²

¹ Department of Parasitology, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia, ² Department of Medicine, Faculty of Medicine, University of Malaya, 50603, Kuala Lumpur, Malaysia

* suresh@um.edu.my

Abstract

Blastocystis is one of the most common gut parasites found in the intestinal tract of humans and animals. Its' association with IBS is controversial, possibly as a result of irregular shedding of parasites in stool and variation in stool detection. We aimed to screen for Blastocystis in colonic stool aspirate samples in adult patients with and without IBS undergoing colonoscopy for various indications and measure the interleukin levels (IL-8, IL-3 and IL-5). In addition to standard stool culture techniques, polymerase chain reaction (PCR) techniques were employed to detect and subtype Blastocystis. All the serum samples collected were subjected for ELISA studies to measure the interleukin levels (IL-8, IL-3 and IL-5).

Among 109 (IBS n = 35 and non-IBS n = 74) adults, direct stool examination and culture of colonic aspirates were initially negative for Blastocystis. However, PCR analysis detected Blastocystis in 6 (17%) IBS and 4 (5.5%) non-IBS patients. In the six positive IBS patients by PCR method, subtype 3 was shown to be the most predominant (3/6: 50%) followed by subtype 4 (2/6; 33.3%) and subtype 5 (1/6; 16.6%). IL-8 levels were significantly elevated in the IBS Blasto group and IBS group (p < 0.05) compared to non-IBS and non-IBS Blasto group. The level of IL-3 were seen to be significantly higher in than IBS Blasto group and IBS group (p < 0.05) compared to non-IBS. Meanwhile, the IL-5 levels were significantly higher in IBS Blasto group (p<0.05) compared to non-IBS and non-IBS Blasto group. This study implicates that detecting Blastocystis by PCR method using colonic aspirate samples during colonoscopy, suggests that this may be a better method for sample collection due to the parasite's irregular shedding in Blastocystis-infected stools. Patients with IBS infected with parasite showed an increase in the interleukin levels demonstrate that Blastocystis does have an effect in the immune system.