

The neglected role of *Blastocystis* sp. and *Giardia lamblia* in development of irritable bowel syndrome: A systematic review and meta-analysis

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Abstract:

The possible role of *Blastocystis* sp. and *Giardia lamblia* infections in the development of irritable bowel syndrome (IBS) has long been controversial. In this study, we conducted a systematic review and meta-analysis to investigate whether these protozoan infections are associated with IBS development. We systematically searched international databases for all studies that reported these protozoa in IBS patients published by May 10, 2021. Studies were included in the review if they were observational studies with confirmed patients with IBS (in case-control and cross-sectional studies) or parasitic infections (cohort studies) with an appropriate control group. Pooled odds ratios (ORs) and 95% confidence intervals were estimated using a random-effects meta-analysis model for included studies. A total of 32 papers (42 datasets), including 29 papers (31 datasets) for *Blastocystis* sp./IBS and 11 papers (11 datasets) for *G. lamblia*/IBS met the eligibility criteria. Our results indicated that the individuals with *Blastocystis* sp. infection were significantly at a higher risk of IBS development (OR, 1.78; 95%CI, 1.29–2.44). Moreover, cohort studies indicated a significant positive association between *G. lamblia* infection and IBS risk (OR, 5.47; 95%CI, 4.23–7.08); while an increasing but no statistically significant risk was observed in case-control studies (OR, 1.19; 95%CI, 0.75–1.87). Our findings suggested that *Blastocystis* sp. and *G. lamblia* infections are associated with the increased risk of developing IBS. Despite these results, further studies are needed to determine the effect of these protozoa on IBS development.

Keywords: *Blastocystis* sp, *Giardia lamblia*, Irritable bowel syndrome, Meta-analysis.