Inflammatory Bowel Illness and Anxiety are both Associated with a Bidirectional Risk

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Abstract

Although anxiety and depression are linked to Inflammatory Bowel Disease (IBD), the extent and direction of the risk are not unknown. Using population representative data, this study estimates the risk of anxiety or depression following an IBD diagnosis as well as the risk of IBD in people who already have anxiety or depression.

MEDLINE and Embase were used to conduct a systematic literature search, and we included cohort studies from unselected studies reporting the risk of anxiety or depression in patients with IBD or the risk of IBD in patients with anxiety or depression. We performed subgroup meta-analysis using the Random Effect Model to determine risk by IBD subtype and IBD with pediatric onset, and we calculated pooled Hazard Ratios (HR) for anxiety and depression in IBD. There were nine studies altogether, seven of which looked at the prevalence of anxiety or depression among more than 150,000 IBD patients. Following an IBD diagnosis, meta-analysis revealed an elevated risk of both anxiety (HR: 1.48, 95% CI: 1.29-1.70) and depression (HR: 1.55, 95% CI: 1.35-1.78). IBD risk was found to be two times higher in two trials involving over 400,000 people who had depression.

Keywords: Epidemiology • Depression anxiety • Inflammatory bowel disease • Gut-brain axis

Introduction

The chronic, relapsing intestinal disorders known as Inflammatory Bowel Disorders (IBD), which include Crohn's Disease (CD) and Ulcerative Colitis (UC), are typically identified in the early stages of adulthood. Chronic gastrointestinal tract inflammation causes patients to have lifelong symptoms, and both the course of the disease and the response to treatment can be unpredictable. According to a recent meta-analysis, anxiety and depression symptoms are frequently experienced by patients with IBD, with a combined prevalence of anxiety symptoms of 31.1% and depression symptoms of 25.2%. The quality of life may be negatively impacted by psychiatric comorbidities. While IBD can be challenging to treat on its own, studies indicate that patients with co-occurring anxiety and depression may be more susceptible to a severe illness course.

In patients with IBD, bidirectional signaling between the gastrointestinal system and the central nervous system through the gut-brain axis may increase the risk of developing these psychiatric comorbidities, even though anxiety and depression are common comorbidities in many chronic diseases, including heart disease and multiple sclerosis. The vagal nerve, humoral signaling via pro-inflammatory cytokines, and alterations in the gut microbiota are some of the mechanisms at work. Despite the observed co-occurrence of IBD, anxiety, and depression, it is unclear how the illnesses interact, how they occur in order, or how great a risk.

We conducted a comprehensive literature search for studies evaluating the risk of anxiety or depression in patients with IBD and, conversely, the risk of IBD in patients with anxiety or depression using PRISMA reporting guidelines. We examined Medline and Embase for all pertinent English-language articles written between 1991 and July 2022. (inflammatory bowel disease OR ulcerative colitis OR crohn disease OR IBD) AND (depression OR anxiety) were utilized as both topic headings and search phrases. All terms were looked up as both exploded subject headings and key words. All publications chosen for inclusion in the final analysis underwent a manual reference list search, along with any identified pertinent reviews. The inclusion and exclusion criteria were established before the literature search. We included published, unselected cohort studies that met the criteria of being population-based (i.e., including all patients with the disease under study in a specific geographic area over a specified calendar period) or covering more than 50,000 people (therefore deemed to be representative for the typical patient with the disease). To be able to quantify the pooled risk across all IBD patient types and not just selected groups, such as those who were sick enough to be included from a tertiary referral centre, we decided to only include unselected cohorts.

The risk of anxiety or depression in IBD patients as well as the risk of anxiety or depression in IBD patients had to be reported by studies. Studies were disqualified if the result was not stated clearly, if there was no control group that did not have IBD, anxiety, or depression, or if the cohort was chosen based on therapy or illness severity. Only the most recent study was included when it was discovered that other studies had used the same cohort, in order to prevent data duplication. Initial title and abstract screening was carried out independently by two writers (TB and RE), and any disagreements were resolved before a decision was made. We gathered information on outcomes as well as other data from each of the included trials.

The main result was an estimation of the risk of anxiety or depression in patients with IBD or anxiety or depression in patients with IBD. We made the assumption that CD and UC patients collectively represented the IBD population in studies where risk estimates for anxiety or depression were not provided for IBD overall. We then used the risk estimates provided for anxiety and depression in CD and UC, along with their respective standard errors, to calculate a pooled IBD risk estimate. The risk of anxiety or depression by illness subtype (CD and UC) and the risk of CD or UC in patients with anxiety or depression were the secondary outcomes.

The Newcastle-Ottawa Scale, a frequently used, reliable, and previously assessed instrument for evaluating the quality of non-randomized studies in meta-analyses, was used to rate the included research. Each study received a score between 0 and 9, with up to four points awarded for selection (exposed and non-exposed cohorts, determining exposure, and demonstrating that the outcome of interest was absent at the start of the study), two for comparability, and three for outcome (how it was assessed, sufficiency of follow-up time, and appropriateness of follow-up); see Supplementary Box 1 for the scoring criteria. Authors TB assigned the scores, which were then examined by RE.

We found nine studies to include in this systematic review for the bidirectional risk of anxiety and depression in IBD. Following an IBD diagnosis, anxiety and depression risk rose, according to seven population-based studies. Neither one nor any population-based cohort studies examined the risk of IBD in patients with anxiety or depression. The two trials revealed a roughly 2-fold heightened risk of IBD after depression.

A meta-analysis of six of these unselected cohort studies, which included 151,908 IBD patients and 4,869,239 control subjects, found that patients with IBD had a 1.5-fold higher incidence of anxiety and depression. There was no difference in risk between males and women, and the elevated risk was seen in both juvenile and adult populations as well as in individuals with CD and UC.

When pediatric patients were excluded from the meta-analysis, the risk of anxiety among CD patients fell. This may be due to the fact that anxiety frequently manifests in childhood or early adulthood, and the timing of the two disorders' diagnoses may be the source of this. But in UC patients, where anxiety risk was comparable in both adult and juvenile populations, we did not observe the same pattern. This supports the idea that IBD and anxiety and depression may interact, and that these illnesses may mutually exacerbate one another either directly or through overlapping disease processes.

Conclusion

This systematic review and meta-analysis demonstrates that patients with IBD are more likely than non-IBD individuals to have anxiety and depression, and that those who experience depression may also be more likely than non-depressed people to get IBD after their depression. These findings suggest an association between depression and Inflammatory Bowel Disease (IBD), which has a number of molecular explanations involving the gut-brain axis. Future studies should concentrate on the etiology of this reciprocal association, the temporal relationship between IBD and anxiety, depression, and other psychiatric conditions in the same population, and the prevalence of psychiatric conditions over the course of an IBD patient's lifetime.

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