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Cognitive–behavioral therapy for irritable bowel syndrome: A meta-analysis

Li Li, Lishou Xiong *, Shenghong Zhang, Qiao Yu, Minhu Chen

Department of Gastroenterology and Hepatology, The First Affiliated Hospital of Sun Yat-Sen University, Guangzhou, China

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ABSTRACT

Objective: To establish whether cognitive behavioral therapy (CBT) improves the bowel symptoms, quality of life (QOL) and psychological states of irritable bowel syndrome (IBS) patients.
Methods: Randomized controlled trials (RCTs) of CBT for adult patients with IBS were searched by using PubMed, Scopus and Web of Science. The standardized mean difference (SMD) with 95% confidence intervals (CIs) of the evidence-based outcome measures of the IBS bowel symptoms, QOL and psychological states at post-treatment and follow-up was calculated. Prespecified subgroup analysis was performed.
Results: Eighteen RCTs satisfied our inclusion criteria. In the subgroup analyses, CBT was more effective in reducing IBS bowel symptoms, QOL and psychological states than waiting list controls at the end of the intervention and short-term follow-up. When compared with controls of basic support and medical treatment, the effect sizes were found to favor CBT for the improvement of IBS bowel symptoms at post-treatment and short-term follow-up, but CBT was not superior to controls in improving QOL and psychological states. When comparing CBT with other psychological controls, the effect sizes were almost non-significant.
Conclusions: For IBS patients, CBT was superior to waiting list, basic support or medical treatment at the end of treatment but not superior to other psychological treatments. The meta-analysis might be limited by the heterogeneities and small sample sizes of the included studies.

Introduction

Irritable bowel syndrome (IBS) is a chronic, relapsing gastrointestinal symptom complex characterized by altered bowel habits and abdominal pain and discomfort, and it affects as many as 5%–20% of individuals in the population [1,2]. The prevalence of IBS is modestly higher in women, and women are more likely to exhibit the constipation-predominant subtype and less likely to meet the criteria for the diarrhea-predominant subtype than men [3]. IBS represents an economic burden on society and decreases IBS patients' health-related quality of life [4,5].

The current treatments for IBS are challenging and unsatisfactory [6]. The medical management tends to provide inadequate relief of IBS bowel symptoms [7], whereas the clinical trials of psychological therapies have demonstrated some improvements, especially cognitive behavior therapy (CBT). Notably, CBT has proven to be an effective therapy for both depression and anxiety disorders [8,9]. In regard to the treatment for patients with somatization and symptom syndromes, CBT appears to be a promising treatment [10]. Although the etiology and pathogenesis of IBS remain elusive, it is recognized that patients with IBS are more likely to suffer from coexistent mood disorder, depression and anxiety than healthy controls [11,12]. Thus, CBT might also be an effective and promising treatment strategy for IBS.

The cognitive behavioral model defines how events, thoughts, emotions, actions and physiological responses interact with each other. CBT as applied to IBS includes several main steps. The first step is to educate, which consists of the explanation of IBS symptoms and the CBT model. At the same time, the patients are encouraged to find the psychological factors that are interacting with their physical symptoms. Then, the patients and the therapist work together to identify the potential associations among their thoughts, emotions and actions with IBS symptoms. Lastly, behavioral therapy, such as stress management is applied [13].

There has been some CBT for IBS studies published, including several separate systematic reviews or meta-analyses, that address whether CBT improved the outcome in IBS [13–17]. These systematic reviews all held the view that CBT was superior to the waiting list controls. However, the evidence of CBT for IBS is controversial when compared with different types of active controls. Shen and Nahas [14] found that CBT was possibly not superior to education or psychoeducational support. In contrast, Kearney and Brown-Chang [15] concluded that CBT was

* Corresponding author at: Department of Gastroenterology and Hepatology, The First Affiliated Hospital of Sun Yat-Sen University, 58 Zhongshan II Road, Guangzhou 510080, China.
E-mail address: xionglishou@263.net (L. Xiong).

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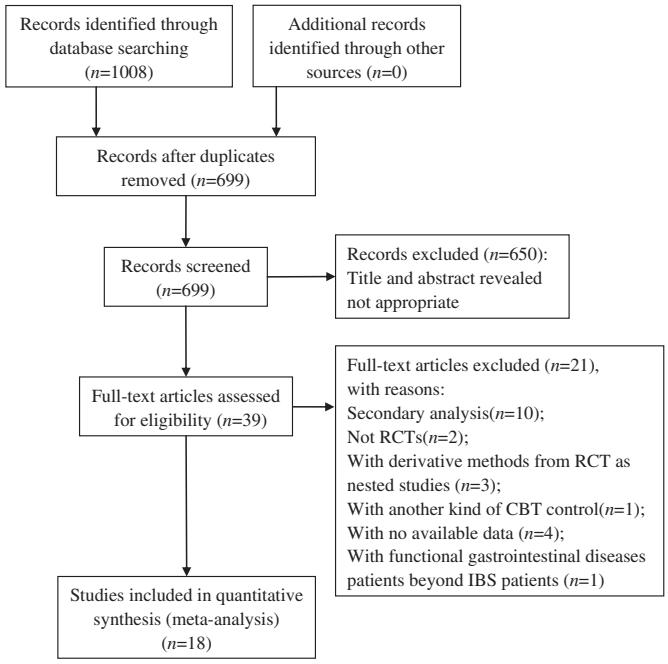

Fig. 1. Flow diagram for the assessment of studies identified in the meta-analysis.

possibly better than education and support. Hutton [13] stated that the effect of CBT was at least as great as the medical treatment for IBS. In recent meta-analyses, Ford et al. [16] concluded that CBT was superior to waiting list controls or physicians' "usual management" in IBS, and Zijdenbos et al. [17] also found that CBT was better than usual care or waiting list in improving symptoms and quality of life but was not superior to placebo. The evidence for the efficacy of CBT might be positive in treating IBS in these reviews [13–17]. However, these recent systematic reviews arrived at disparate conclusions, especially regarding the evidence of CBT for IBS being controversial when compared with active controls other than waiting list controls, and the validity of CBT follow-up has not been established. Finally, several important RCTs published after 2009 were not included in these previous meta-analyses. In this meta-analysis, we attempt to address these discrepancies and provide an up-to-date conclusion to establish the efficacy of CBT for IBS.

Methods

Study selection

To identify the relevant studies, we conducted a search of PubMed, Scopus, the Cochrane Library and Web of Science up to December 31, 2013. The keywords used for IBS and CBT are presented in Appendix A. Randomized controlled trials (RCTs) examining the effects of CBT in adult patients with IBS were eligible for inclusion (see inclusion criteria below).

For the full-text reading and final evaluation, we only included studies published in English. Conference abstracts were not included in our analysis because of the limited data available. Two reviewers (Li & Zhang) independently selected studies that met the predetermined inclusion criteria, and all potentially relevant papers were obtained and evaluated in detail. Any disagreement between investigators was resolved by discussion until consensus.

Manuscripts were included if they met the following criteria: (a) adult participants (over the age of 16 years old) with underlying IBS; (b) studies with randomized controlled research design and the cross-over study with available data of post-treatment outcomes; (c) treatment arm with CBT (self-management CBT, CBT delivered through face-to-face, telephone or web-based, CBT organized by group or individual format, etc.; these types of CBT have been identified as having the same effect as conventional CBT [18,19]); (d) adequate controls (waiting list, physician's usual management, medical treatment or psychological treatment, etc.); and (e) measurable outcomes reported.

The exclusion criteria for the meta-analysis were as follows: (a) not RCT, (b) duplicated trials that included articles that used subsamples from larger studies, (c) studies that used other form of CBT as controls and (d) studies with insufficient data, unless in the studies the authors were able to provide adequate data. After inclusion and excluded, 18 studies remained for analysis (see Fig. 1).

Data collection and methodological quality

Two of our authors subsequently collected the data from the articles meeting the inclusion criteria separately including the following items: author and year, country of origin, mean age, female (%), diagnostic criteria, intervention (method, operator, duration and length of follow-up),control categories, primary outcome measures, secondary outcome measures, intent-to-treat (ITT) data and the Cochrane Collaboration Depression and Anxiety Neurosis Review Group's (CCDAN) scale score [20] (see Table 1). We calculated data such as mean age and female percentage of patients from the manuscripts as far as possible. The outcome measures that were related to our meta-analysis were extracted. The methodological qualities and the risk of bias in individual studies were independently evaluated by the two researchers using the CCDAN scale, which consists of 23 items [21]. The description of the CCDAN scale and the quality scores of each item of the included studies are presented in Appendix B.

Outcome assessment

The primary objective of this study was to evaluate the effect of CBT compared to controls on IBS bowel symptom severity. The effect measurements included almost all the available scales at present, such as The Composite Primary Symptom Reduction (CPSR) Score [22], Irritable Bowel Syndrome Severity Scoring System (IBS-SSS) [23], Bowel Symptom Severity Scale (BSSS) [24], Gastrointestinal Symptom Rating Scale—IBS version (GSRS-IBS) [25], IBS symptom score [26,27], abdominal pain and Rome II scores [28,29]. The secondary outcomes of this study included improvement of IBS QOL scores and psychological states as evaluated by the Hospital Anxiety and Depression (HAD) Scale [30,31], Montgomery Åsberg Depression Rating Scale—Self report (MADRS-S) [32], Beck Depression Inventory (BDI) [33] or health depression score [34]. All evaluations were finished after cessation of treatment, at short-term follow-up and at long-term follow-up with the available data.

Data synthesis and statistical analysis

We included all studies about CBT for IBS compared to controls. The variations of the controls might be a source of the heterogeneity of the meta-analyses. To sort out the sources of the potential heterogeneity, all analyses of the outcomes were classified into subgroups according to the specific types of the controls. The first subgroup included the studies with the symptom-monitoring and waiting list control groups, which included nine trials [19,34–41]. We combined the studies with the control groups of "treatment as usual", "routine clinical care", "standard care" and "self-help support group" as the second subgroup, which included four studies [28,36,42,43], as all of these controls allowed the patients to receive basic support from the gastroenterologist or a "fact sheet" for IBS. The third subgroup included three studies

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