Irritable bowel syndrome treatment: cognitive behavioral therapy versus medical treatment

Majid Mahvi-Shirazi, Ali Fathi-Ashtiani, Sayed-Kazem Rasoolzade-Tabatabaei, Mohsen Amini

Abstract

Introduction: The study aims to investigate two kinds of treatment in patients suffering from irritable bowel syndrome (IBS) and consequently compares its efficacy on improving the symptoms and mental health of patients; one with just medical treatment and another through a combination of psychotherapy and medical treatment.

Material and methods: Applying general sampling, 50 IBS patients were selected from among those who used to refer to a Gastroenterology Clinic. After physical and mental evaluations based on ROME-II scale and SCL-90-R questionnaires, the subjects were randomly superseded into: the control group with medical treatment and, the case group with a combination of medical and psychological treatments. The acquired data were then analyzed through t-test and Mann-Whitney U-test.

Results: The findings show that the mental health of patients receiving cognitive behavioral therapy along with the medical treatment was higher than those of the control group at post-test level. It was observed that the therapy reduces the disability caused by IBS. Comparatively, while the cognitive therapy and medical treatments cured 80% of the patients, those receiving cognitive therapy alone showed an extensive reduction of symptoms.

Conclusions: Considering the role of cognitive behavioral therapy, it is therefore recommend that such patients be managed by a combined team of gastroenterologists and psychologists.

Key words: irritable bowel syndrome, cognitive behavioral therapy, medical treatment, psychological status.

Introduction

Irritable bowel syndrome or IBS is a functional disorder of the gastrointestinal system and clinically it can be diagnosed with the symptoms of changes in bowel movement, pain or bloating. The IBS is prevalent among about 10% to 20% of the general population and as the most widespread disorder which is associated with psycho-social factors as compared to other gastrointestinal disorders [1]. So far as the treatment of IBS gastroenterologists usually prescribe uniform medications, the most important of them being:

• Lopramide, which minimizes diarrhea by reducing muscles contraction and fluids discharge in intestine.
needs a multi-component approach including psychological dysfunction [7]. One study shows that IBS high psychological distress and patients who have sectional study showed that IBS is accompanied by leads to different results when compared with medical therapy (CBT) along with medical treatment syndrome. Some studies show that cognitive behavioural therapy-based treatments have accompanied symptoms. As a matter of fact, the cognitive behavioural therapy reduces the disability caused by IBS; a whole, the results indicated that cognitive behavioural treatments in improving the men- tal health level of IBS patients. And thus, the study intends to answer the question whether cognitive behavioural therapy along with pharmaceutical treatment is more effective than that of medical treatment alone, in improving symptoms and men- tal health of IBS patients.

Material and methods
This is a kind of quasi-experimental study, which has been conducted on all IBS patients referred to a GI clinic. With reference to inclusion criteria for this study (an age group between 18 and 60 years, subjects without any history of mental or psychological diseases), 50 of them were selected through the assessment by a gastroenterologist and filling in the ROME-II questionnaire and then they were divided into the case and control groups. Both groups filled in SCL-90-R and demographic questionnaires under the supervision of a psychologist. To collect data, in addition to a researcher-made demographic questionnaire (age, sex, occupation, education, disease type, history of treatment, beginning of treatment and severity of symptoms), the following tools were applied.

ROME-II questionnaire (IBS symptoms index)
Based on clinical diagnostic criteria, the questionnaire was prepared with the help of a gastroenterologist and includes questions related to the presence or the absence of IBS symptoms. A high score shows the severity of the disease. This questionnaire contains 14 yes/no questions, where a patient gets one point for each of the positive responses approved by a gastroenterologist. The rest of the questions are multiple choice and patients score one point if they choose a particu-
ilar choice related to IBS. Finally, the collection of scores determines the severity of the disease. The higher the score is, the more probable the diagnosis and the severity of the IBS are. For instance, in question 1 (Are you evaluating the patient for IBS?), if the response is positive, the patient receives one point. Or in question 4 (Is there any change in the appearance or the consistency of the stool?), if the gastroenterologist approves it, the patient receives one point. It is noteworthy that the ROME-II questionnaire must be filled in by a gastroenterologist during the examination.

SCL-90-R questionnaire

This questionnaire contains 90 questions, which aim to evaluate psychological symptoms in 9 different aspects: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation and Psychoticism. Scoring and interpretation of the questionnaire are obtained on the basis of three co-efficient indices: the general symptom index (GSI), discomfort index and collective symptoms. The first draft of this questionnaire was introduced by Dragoi, Lithman and Cuvey in 1973 and was put to revision in 1983. The credit and admissibility of this questionnaire were reported as 0.72 to 0.90 and 0.36 to 0.73, respectively. Furthermore, sensitivity, specificity and efficiency of this test have also been reported, with high validity as 0.94, 0.98 and 0.96, respectively.

Therapy method

Cognitive behavioural therapy (CBT) was conducted for the case group during 8 consecutive weekly sessions in two months. Along with the psychotherapy sessions, IBS patients took the following conventional medications as prescribed by gastroenterologists:

- **Loperamide** was prescribed in order to reduce muscle contraction and fluid discharge in bowel/intestine as well as to minimize diarrhoea;
- **Lomotil** (diphenoxylate) was prescribed to minimize diarrhoea in the IBS patients;
- **Simticon (Malokus), Alfagalactizeoas and charcoal** to some extent reduce bloating and stretching;
- **Metoclopramide** is one of the muscle flexing medicines (Broachenitic) that with the increasing activities of intestine can help in relieving constipation and bloating;
- **Amitriptyline or nortriptyline** can help in reducing stomach ache during sleep. These medicines have many effects especially in IBS disease for overcoming diarrhoea.

The control group was placed under medical treatment alone by the same gastroenterologist. They also received medicines similar to the one given to the case group during the course of treatment. Thereafter, the two groups were also compared for reduction of IBS syndromes as well as regards the level of mental health.

In this way, at the end, all patients in both the groups were re-evaluated by the same gastroenterologist. The results acquired from these two questionnaires were compared in two stages of pre-test and post-test. To analyse the data, t-test and Mann-Whitney U test were applied.

Results

Demographic data showed 42%, 36% and 22% of symptoms in the age groups of 17-27, 28-38 and 39-48 years, respectively. The majority of patients (40%) had a high school diploma, and 30% had an associate diploma. Forty percent of the subjects were self-employed while 22% were students.

To answer the question whether CBT combined with medical treatment is more effective than medical treatment alone in managing IBS patients, initially the scores of the subjects of the two groups were calculated on the ROME-II scale at pre-test and post-test stages. Then, the mean and the standard deviation were calculated and mean differences were tested using the independent t-test (Table I).

As Table I shows, the differences between mean scores of each group in ROME-II were not signifi-

| Stages                      | Group | Mean | SD  | Lewin test | Value of t | df  | Value of p |
|-----------------------------|-------|------|-----|------------|------------|-----|------------|
|                             |       |      |     |            | F ratio    |     |            |
| Pre-test                    | Case  | 10.85| 2.13|            | 1.238      | 48  | 0.930      |
|                             | Control| 10.80| 1.78|            |            |     |            |
| Post-test                   | Case  | 4.00 | 1.83|            | 2.527      | 48  | 0.001      |
|                             | Control| 8.10 | 2.24|            |            |     |            |
| Pre-test and post-test      | Case  | 6.85 | 0.30|            | 1.672      | 48  | 0.001      |
|                             | Control| 2.70 | -0.46|           |            |     |            |
Table II. Comparison of statistical indices of SCL-90-R test between case and control groups at pre-test

| SCL-90-R scales     | Group   | Mean | SD  | Value of t | Degrees of freedom | Value of p |
|---------------------|---------|------|-----|------------|--------------------|------------|
| Somatization        | Case    | 1.62 | 0.98| 0.149      | 48                 | 0.88       |
|                     | Control | 1.65 | 0.78|            |                    |            |
| Obsessive-compulsive| Case    | 1.74 | 0.80| 0.022      | 48                 | 0.98       |
|                     | Control | 1.74 | 0.79|            |                    |            |
| Interpersonal sensitivity | Case | 1.57 | 0.73| 0.849      | 48                 | 0.40       |
|                     | Control | 1.38 | 0.72|            |                    |            |
| Depression          | Case    | 2.01 | 0.64| 1.820      | 48                 | 0.07       |
|                     | Control | 1.56 | 0.98|            |                    |            |
| Anxiety             | Case    | 1.59 | 0.96| 0.210      | 48                 | 0.83       |
|                     | Control | 1.53 | 0.92|            |                    |            |
| Hostility           | Case    | 1.55 | 0.83| 0.170      | 48                 | 0.86       |
|                     | Control | 1.60 | 1.09|            |                    |            |
| Phobic anxiety      | Case    | 0.97 | 0.70| 0.290      | 48                 | 0.77       |
|                     | Control | 0.91 | 0.79|            |                    |            |
| Paranoid ideation   | Case    | 1.86 | 0.81| 1.510      | 48                 | 0.13       |
|                     | Control | 1.48 | 0.91|            |                    |            |
| Psychoticism        | Case    | 1.40 | 0.69| 1.300      | 48                 | 0.19       |
|                     | Control | 1.16 | 0.58|            |                    |            |
| GSI                 | Case    | 1.59 | 0.57| 0.760      | 48                 | 0.44       |
|                     | Control | 1.45 | 0.69|            |                    |            |

Table III. Comparison of statistical indices of SCL-90-R test between case and control groups at post-test

| SCL-90-R scales     | Group   | Mean | SD  | Value of t | Degrees of freedom | Value of p |
|---------------------|---------|------|-----|------------|--------------------|------------|
| Somatization        | Case    | 0.84 | 0.63| 4.90       | 48                 | 0.0001     |
|                     | Control | 1.90 | 0.81|            |                    |            |
| Obsessive-compulsive| Case    | 1.06 | 0.49| 4.34       | 48                 | 0.0001     |
|                     | Control | 1.96 | 0.83|            |                    |            |
| Interpersonal sensitivity | Case | 0.86 | 0.52| 4.04       | 48                 | 0.0001     |
|                     | Control | 1.68 | 0.80|            |                    |            |
| Depression          | Case    | 1.01 | 0.53| 3.23       | 48                 | 0.0020     |
|                     | Control | 1.80 | 0.99|            |                    |            |
| Anxiety             | Case    | 0.64 | 0.45| 4.57       | 48                 | 0.0001     |
|                     | Control | 1.69 | 0.94|            |                    |            |
| Hostility           | Case    | 0.80 | 0.64| 3.93       | 48                 | 0.0001     |
|                     | Control | 1.88 | 1.10|            |                    |            |
| Phobic anxiety      | Case    | 0.40 | 0.41| 3.94       | 48                 | 0.0001     |
|                     | Control | 1.25 | 0.89|            |                    |            |
| Paranoid ideation   | Case    | 1.00 | 0.69| 3.10       | 48                 | 0.0030     |
|                     | Control | 1.79 | 0.97|            |                    |            |
| Psychoticism        | Case    | 0.82 | 0.40| 3.56       | 48                 | 0.0010     |
|                     | Control | 1.41 | 0.66|            |                    |            |
| GSI                 | Case    | 0.83 | 0.38| 4.85       | 48                 | 0.0001     |
|                     | Control | 1.71 | 0.74|            |                    |            |
Irritable bowel syndrome treatment: cognitive behavioral therapy versus medical treatment

To test the question whether cognitive behaviorial therapy along with medical treatment improves the mental health of IBS patients more effectively than medical treatment alone, first the scores of the subjects in both the groups were calculated at pre-test and post-test stages in SCL-90-R sub-scales, the general symptom index (GSI), the mean score and the standard deviation (since GSI is the mean of the mean scores of subjects on the SCL-90-R scales, it was considered the mental health index of subjects). Then, the independent t-test for mean scores of both groups in pre-test and Mann-Whitney U-test for post-test were utilized to determine the significance of mean differences of the proposed test. (With reference to significant differences between variances on some scales, the Mann-Whitney U-test was used to reconfirm and compare the results in post-test.) The results are shown in Tables II-V.

As Tables II-V show, the differences in mean scores of each group on all sub-scales and GSI in SCL-90-R at the pre-test level were not significant, but they were significant at the post-test level. Similarly, there was a significant difference between the GSI scores of pre-test and post-test (p < 0.001) levels. This means the mental health of patients receiving CBT along with the medical treatment was higher than that of the control group at the post-test level.

**Table IV.** Results of statistical indices of Mann-Whitney U test for comparing GSI difference between case and control groups at post-test

| Subscale                | Group      | X     | S     |
|-------------------------|------------|-------|-------|
| Somatization            | Case       | 15.48 | 309.50|
|                         | Control    | 32.18 | 965.50|
| Obsessive-compulsive    | Case       | 16.23 | 324.50|
|                         | Control    | 31.68 | 950.50|
| Interpersonal sensitivity| Case      | 16.33 | 326.50|
|                         | Control    | 31.62 | 948.50|
| Depression              | Case       | 18.13 | 362.50|
|                         | Control    | 30.42 | 912.50|
| Anxiety                 | Case       | 15.50 | 310.00|
|                         | Control    | 32.17 | 965.00|
| Hostility               | Case       | 16.60 | 332.00|
|                         | Control    | 31.43 | 943.00|
| Phobic anxiety          | Case       | 16.98 | 339.50|
|                         | Control    | 31.18 | 935.50|
| Paranoid ideation       | Case       | 18.05 | 361.00|
|                         | Control    | 30.47 | 914.00|
| Psychoticism            | Case       | 17.55 | 351.00|
|                         | Control    | 30.80 | 924.00|
| GSI                     | Case       | 14.95 | 299.00|
|                         | Control    | 32.53 | 976.00|

**Table V.** Results of Mann-Whitney U test for comparing GSI difference between case and control groups at post-test

| SCL-90-R subscales     | Mann-Whitney U | Value of Z | Value of p   |
|------------------------|----------------|------------|--------------|
| Somatization           | 99.500         | –3.974     | 0.0001       |
| Obsessive-compulsive   | 114.500        | –3.679     | 0.0001       |
| Interpersonal sensitivity| 116.500     | –3.640     | 0.0001       |
| Depression             | 152.500        | –2.924     | 0.0030       |
| Anxiety                | 100.000        | –3.970     | 0.0001       |
| Hostility              | 122.000        | –3.537     | 0.0001       |
| Phobic anxiety         | 129.500        | –3.391     | 0.0010       |
| Paranoid ideation      | 151.000        | –2.957     | 0.0030       |
| Psychoticism           | 141.000        | –3.157     | 0.0020       |
| GSI                    | 89.000         | –4.179     | 0.0001       |

The present study indicates that the CBT combined with the medical treatment was more effective than the medical treatment alone in reducing IBS symptoms. The control group, which only received medical treatment, showed a reduction of symptoms but the level was not significant. In other words, patients receiving combination therapies (CBT plus medical treatment) gained lower scores in ROME-II clinical indices. This shows that IBS symp-
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Furthermore, the results also show that the mental health level of subjects suffering from IBS improved consequently under CBT combined with medical treatment than those under medical treatment only. With regards to the results of t-test and Mann-Whitney U-test after CBT, the case group enjoyed a higher health score than the control group. Mean scores showed that the mental health of the control group, who received only medical treatment, did not change, i.e. mean differences were not statistically significant; however, the case group enjoyed a better health score than the control group. The case group under CBT had a higher health score at the post-test level than at the pre-test. These results are in line with some previous studies [5, 6]. According to Boyce et al. [6], because of the biopsychosocial model of interaction between gut function and emotion in IBS, psychological therapies are intended to break the negative feedback loop between emotion and gut function, in order to reduce symptoms. According to them, attention must be paid to a number of elements in the psychological approaches including a detailed assessment, psycho-education, support, and reassurance. The results of cognitive therapy and hypnotherapy have been reviewed several times and thus it seems they were quite effective compared to placebo and their effect lasted for nearly 4 years [4].

In one of his studies, Taylor compared patients suffering from IBS with marked concealed awareness with those with mild concealed aggressiveness and concluded that the first group had a poorer prognosis when they received the medical treatment alone (without psychotherapy) [13]. Boyce and Gilcharist also showed that patients’ depression and anxiety significantly decrease with the treatment [6]. Overall it can be said that the increase in mental health of IBS patients was due to the effect of the cognitive behavioural therapy combined with the medical treatment. It is therefore necessary that patients follow psychologists’ advice all the time. Also, they have to take medication prescribed by gastroenterologists, as well. This is the only way one can be hopeful for a desired level of patients’ health.

In conclusion, to sum up, cognitive behavioural therapy combined with medical treatment can reduce IBS symptoms and improve patients’ mental health. Therefore, it is necessary that patients be referred to psychologists for psychotherapy while they are under medical treatment.

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The current study has shown that in the case group different IBS symptoms were reduced when under medical treatment (when medicines were being administered to IBS patients) combined with cognitive behavioural therapy, compared to medical treatment alone, with the reason these two methods are performed through experimental methods. As such, it seems that the two methods of CBT and medical treatment show a better cure, especially in IBS treatment, when combined together. In other words, together, these two methods are complete treatment.

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