

Changes in rectal sensitivity after hypnotherapy in patients with irritable bowel syndrome

Alison Prior, S M Colgan, P J Whorwell

Abstract

Fifteen patients with the irritable bowel syndrome were studied to assess the effect of hypnotherapy on anorectal physiology. In comparison with a control group of 15 patients who received no hypnotherapy significant changes in rectal sensitivity were found in patients with diarrhoea-predominant irritable bowel syndrome both after a course of hypnotherapy and during a session of hypnosis ($p < 0.05$). Although patient numbers were small, a trend towards normalisation of rectal sensitivity was also observed in patients with constipation-predominant irritable bowel syndrome. No changes in rectal compliance or distension-induced motor activity occurred in either subgroup nor were any changes in somatic pain thresholds observed. The results suggest that symptomatic improvement in irritable bowel syndrome after hypnotherapy may in part be due to changes in visceral sensitivity.

Hypnotherapy has been shown to be highly successful in the treatment of the irritable bowel syndrome.¹⁻³ Its mechanism of action, however, remains unknown. Patients with the irritable bowel syndrome are known to show exaggerated colonic responses to a wide variety of stimuli⁴⁻⁶ and also to have a lowered visceral sensory threshold to pain caused by balloon distension.⁷⁻⁹ It has been claimed that hypnotherapy may influence a number of physiological parameters not readily amenable to conscious control,¹⁰⁻¹⁴ and it is therefore possible that its effect in the irritable bowel syndrome results from a direct action on the gut. On the other hand, it is known that patients with the irritable bowel syndrome have a high incidence of psychopathology^{15,16} and it may be that improvement during hypnotherapy is secondary to its psychotherapeutic potential.

It was the purpose of the present study to perform a controlled investigation into the effect of hypnotherapy on the sensory and motor functions of the rectum in patients with irritable bowel syndrome.

Patients and methods

The study group consisted of 15 patients with the irritable bowel syndrome (14 women, one man, age range 22-46 years). Irritable bowel syndrome was defined as the presence of abdominal pain together with abdominal distension and an altered bowel habit. On the basis of a detailed history and diary card data patients with an alternating bowel habit were classified according to their predominant abnormality, so that 10 patients had diarrhoea-predominant and five

constipation-predominant irritable bowel syndrome.

All patients received a course of hypnotherapy¹ from the same practitioner consisting of ten 30 minute sessions over three months. Both before and after the course of hypnotherapy the severity of abdominal pain, distension, and bowel habit disturbance was scored on a 0-10 scale which was totalled to give a symptom severity score with a maximum of 30. Patients also completed the Hospital Anxiety and Depression questionnaire,¹⁷ which allows a score to be calculated to detect the presence of appreciable anxiety or depression.

Anorectal manometry was performed before and after the course of hypnotherapy to assess the sensory and motor characteristics of the rectum. Without bowel preparation a multi-lumen polyvinyl catheter (Mui Scientific Ltd) with sideholes at 1, 4, and 14 cm from the anal verge was placed in the rectum. This was perfused with water at 0.4 ml per minute (Arndorfer Medical Specialities Inc) and connected to water filled transducers. A 5 cm latex balloon was attached to the catheter between 6 and 11 cm with a side hole at 8.5 cm linked to an air filled transducer. After a basal period of at least 15 minutes the rectal balloon was serially inflated with air at intervals of 1 minute in 20 ml increments up to 100 ml and then in 50 ml increments up to the sensation of discomfort. In order to provide a control for the second part of the posthypnotherapy assessment (see below) the study was repeated after a rest period of 15 minutes. After hypnotherapy the subject was restudied first in the waking state and then, after 15 minutes, following induction of hypnosis.

The following measurements were derived from the manometric recordings: (a) The balloon volumes required to elicit sensation of gas, stool, urgency of defecation, and discomfort. (b) The rectal compliance (calculated from the volume: pressure relation). (c) The presence or absence of repetitive rectal contractions during balloon distension.

In addition to the anorectal manometry, patients were also asked to place their right hand into cold water (2°C) and the time taken until discomfort was felt was noted. This was performed before and after the course of hypnotherapy to assess whether any change in rectal sensitivity after hypnotherapy reflected a generalised change in pain threshold or was limited to the gut.

Anorectal manometry was also performed on two occasions, separated by a similar period as in the study group, on 15 control subjects with the irritable bowel syndrome (14 women, one man, age range 18-49 years). This was to ensure that any changes observed after hypnotherapy did

Department of Medicine,
University Hospital of
South Manchester,
Manchester M20 8LR
Alison Prior
S M Colgan
P J Whorwell

Correspondence to:
Dr P J Whorwell.

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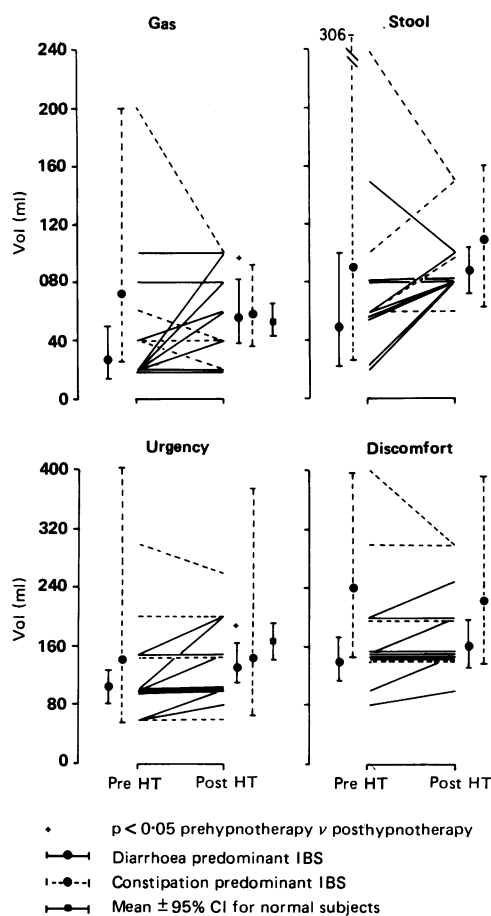


Figure 1: Rectal sensitivity before and after hypnotherapy (HT). IBS=irritable bowel syndrome.

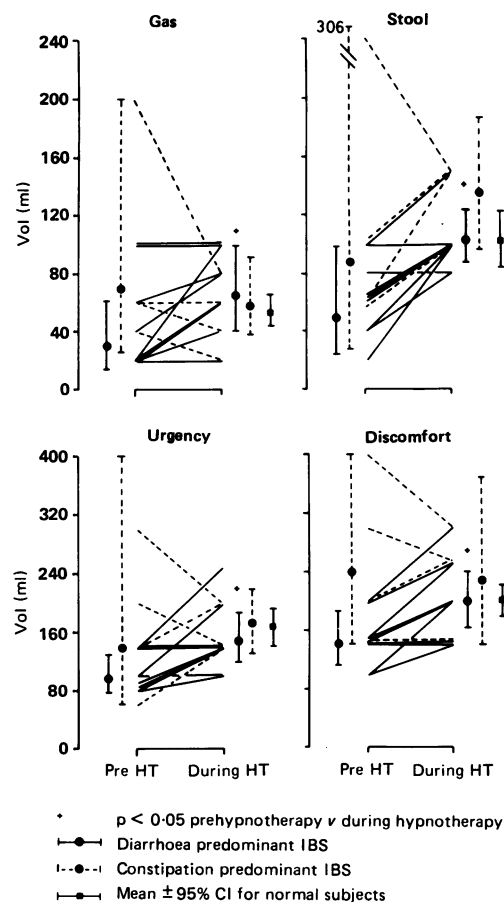


Figure 2: Rectal sensitivity before and during hypnotherapy (HT). IBS=irritable bowel syndrome.

not simply reflect variations in rectal motor and sensory characteristics occurring either because of poor reproducibility of the technique or patient familiarity with the procedure.

The data obtained are expressed as means with 95% confidence intervals. A number of the continuous variables were found to have a positively skewed distribution and were therefore converted to natural logarithms. Group comparisons were performed using the paired *t* test.

Results

Hypnotherapy resulted in a significant improvement in symptoms with a fall in the overall symptom score from 23.5 to 9.6. Thirteen of the 15 patients in the study group rated their symptoms as much improved. Two subjects failed to respond to treatment and also did not attend for repeat anorectal manometry. The physiological assessment of anorectal function therefore includes only hypnotherapy responders.

The effect of the course of hypnotherapy on rectal sensitivity is summarised in Figure 1. In patients with diarrhoea-predominant irritable bowel syndrome a decreased rectal sensitivity occurred after hypnotherapy which was significant for the sensations of gas and urgency. This was most pronounced in patients who could initially tolerate only small rectal balloon volumes (Fig 1). During hypnosis the results for rectal sensitivity in the diarrhoea-predominant group were similar to those noted after the course of hypnotherapy but were of a greater magnitude, reaching significance for all sensations (Fig 2).

In the constipation-predominant subjects there was a tendency for rectal sensitivity to move towards normal values both after the course of hypnotherapy and during hypnosis. Patient numbers in this subgroup were small, however, and the changes were not significant (Figs 1 and 2). Rectal compliance and distension induced motor activity were unaffected by hypnotherapy in both the diarrhoea and constipation-predominant patients (Table I).

Before hypnotherapy five patients scored within the normal range on the Hospital Anxiety and Depression questionnaire¹⁷ and 10 patients had evidence of anxiety or depression, or both. Of the 13 patients who completed the course of hypnotherapy, eight had initially scored positively for anxiety or depression, or both. Of these, three were much improved psychologically after hypnotherapy and the remainder showed mild or moderate improvement. There was no correlation between any improvement in psychopathology and a change in visceral sensitivity.

The course of hypnotherapy had no effect on the length of time that subjects could tolerate hand immersion in cold water (prehypnotherapy 23.4 seconds, posthypnotherapy 25.3 seconds).

In the control group of 15 patients with the irritable bowel syndrome who did not receive hypnotherapy no changes in rectal sensory or motor parameters occurred when manometry was repeated on the same day or on a second study day nine to 12 weeks later (Table II). The changes observed in rectal sensitivity in the study group can therefore be attributed to

TABLE I Anorectal motor parameters before, after, and during hypnotherapy (HT) (Means and 95% confidence intervals)

	Pre HT	Post HT	During HT
Rectal compliance (ml/cm H ₂ O):			
Diarrhoea	6.1 (3.4-10.9)	5.1 (3.4-7.4)	5.1 (3.5-7.3)
Constipation	7.5 (4.3-13.4)	9.7 (5.0-18.6)	7.3 (4.8-11.2)
Rectal motor activity (% repetitive contractions):			
Diarrhoea	44	52	44
Constipation	20	20	20

TABLE II Rectal sensory and motor parameters in control subjects on different study days (Means and 95% confidence intervals)

	Day 1	Day 2	p value
Rectal sensation (ml):			
Gas	41 (22-75)	41 (27-63)	NS
Stool	75 (43-133)	83 (57-122)	NS
Urgency	140 (101-194)	124 (83-186)	NS
Discomfort	191 (138-263)	172 (124-239)	NS
Rectal compliance (ml/cm H ₂ O)	5.8 (3.5-9.6)	5.3 (3.6-7.9)	NS
Rectal motor activity (% repetitive contractions)	23	15	NS

hypnotherapy and not to poor reproducibility of the technique or tolerance due to familiarity with the procedure.

Discussion

The present study has shown that significant changes in the sensory characteristics of the rectum occur in patients with the irritable bowel syndrome both after a course of hypnotherapy and during a session of hypnosis. It is of interest that hypnotherapy seemed to produce a trend towards normalisation of visceral sensitivity (Figs 1 and 2). This was most pronounced in the patients with diarrhoea-predominant irritable bowel syndrome who initially had particularly low sensation thresholds. The desensitisation shown seemed to affect only visceral thresholds as somatic tolerance to a painful stimulus was unchanged after hypnotherapy.

One explanation for the changes noted in visceral sensitivity could be that they are simply reflecting psychological changes in the patients with irritable bowel syndrome. In the present study two thirds of the study group initially scored positively for anxiety or depression, or both, which is similar to that noted previously,^{15 16} and the course of hypnotherapy was associated with a decrease in psychopathology. No correlation was observed, however, between improvements in psychological scores and changes in visceral sensitivity.

The pathophysiological abnormalities which lead to the symptoms of the irritable bowel syndrome remain unclear. The increased visceral sensitivity found in the large⁷⁻⁹ and small intestine^{18 19} in some patients with the irritable bowel syndrome may contribute to their perception of pain. In addition, an increase in rectal sensitivity might also contribute to the symptoms of urgency and frequency of defecation seen in many patients with diarrhoea-predominant irritable bowel syndrome.

Therefore, the decrease in visceral sensitivity induced by hypnotherapy in patients with diarrhoea-predominant irritable bowel syndrome may well be related to the improvement in their symptoms. Hypnotherapy also induces an improvement in well being by increasing coping capacities, and may therefore decrease perceived stress. This may also contribute to the symptomatic improvement in patients with the irritable bowel syndrome, particularly those in whom stress is an exacerbating factor.

The present study suggests therefore that hypnotherapy might operate by a variety of mechanisms in patients with the irritable bowel syndrome. In those with visceral hypersensitivity it seems to alter the perception of rectal sensation, although the mechanism by which this is achieved is unknown. Modification at a cortical level or more locally along afferent pathways are possibilities. This does not, however, explain the symptomatic improvement in all subjects and hypnotherapy is probably also acting in a non-specific psychotherapeutic sense.

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