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More accurate diagnosis of irritable bowel syndrome by the use of 'non-colonic' symptomatology

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Abstract

The criteria now used in an attempt to distinguish irritable bowel syndrome from organic gastrointestinal disease rely almost entirely on symptoms of colonic origin. 'Non-colonic' symptoms, however, arising either from elsewhere in the gut or of a more general nature, are common in irritable bowel syndrome and may have even better diagnostic potential. The prevalence of these non-colonic features was assessed in 107 patients with the irritable bowel syndrome and 295 subjects with other gut disorders. Gastrointestinal type non-colonic symptoms are useful in differentiating irritable bowel syndrome from inflammatory bowel disease but, with the exception of early satiety, are not helpful when there is gastro-oesophageal or biliary disease. More general 'non-colonic' features, such as lethargy and backache, are much commoner in irritable bowel syndrome than in all the organic gastrointestinal diseases studied and have good discriminant function. Multiple logistic regression analysis identified certain features that had a particularly significant independent risk for irritable bowel syndrome. These were lethargy (relative risk 6·7), incomplete evacuation (RR 5·2), age under 40 (RR 2·1), backache (RR 2·0), early satiety (RR 1·8), and frequency of micturition (RR 1·8). These relative risks can be multiplied together to give an overall risk when more than one of these features is present in a patient. Until a diagnostic test is available more confident diagnosis of irritable bowel syndrome can be achieved by identifying symptoms that have good discriminant function. The results of this study indicate that the non-colonic features of irritable bowel syndrome may be especially valuable in this respect.

Unfortunately, the diagnosis of irritable bowel syndrome is totally dependent upon clinical criteria.[1] Thus in many cases varying degrees of uncertainty remain and this led Manning and colleagues to examine the discriminant value of particular symptom patterns.[2] They showed that certain gastrointestinal features occurred significantly more commonly in patients with irritable bowel syndrome than in patients with other organic bowel disorders, although their control group was heavily biased to proximal gastrointestinal disease. With the exception of distension, however, the features identified were primarily colonic in nature and, although these symptoms have been widely adopted, their sensitivity has recently been questioned particularly in separating irritable bowel syndrome from other colonic conditions.[3–5]

In 1986 we showed that, compared with healthy control subjects, patients with irritable bowel syndrome suffer from a wide variety of symptoms of a more general nature and these seem to originate outside the colon and possibly outside the bowel altogether.[6] More recently we have shown that these 'non-colonic' features can be particularly intrusive and are frequently rated as the worst symptom of the disorder.[7]

It is possible that these non-colonic features may have diagnostic potential and it was the purpose of this study to assess whether they could be used to discriminate irritable bowel syndrome from other gastrointestinal disorders with which it is frequently confused.

Patients and methods

A total of 402 subjects attending the gastroenterology outpatient department were entered into the study. Five organic disease groups were defined. Crohn's disease and ulcerative colitis were diagnosed using colonoscopy and biopsy or contrast radiology as appropriate. Patients with inflammatory bowel disease but in whom a specific diagnosis of ulcerative colitis or Crohn's disease could not be made were not included in the study. All cases of peptic ulceration or oesophagitis were endoscopically confirmed. Gall stones were diagnosed by ultrasound or oral cholecystography.

The diagnosis of irritable bowel syndrome was based on the presence of abdominal pain, abdominal distension, and an abnormal bowel habit with normal laboratory investigations. All irritable bowel syndrome patients had a gastroscopy, abdominal ultrasound, and colonoscopy or barium enema together with other investigations as appropriate. Although possibly a subgroup of irritable bowel syndrome, patients with 'painless diarrhoea' were not included.

In order to determine the prevalence of the non-colonic symptoms listed in Table I, all patients entered into the study were interviewed using a standard questionnaire. Patients were assessed by the same investigator who was unaware of the clinical diagnosis.

STATISTICAL ANALYSIS

Comparisons of the prevalence of each symptom in the irritable bowel syndrome and the five disease groups were performed using χ^2 tests. Multiple logistic regression analysis was carried out to determine the symptoms that had independent associations with the presence of irritable bowel syndrome. For each of these symptoms the relative risk of having irritable bowel syndrome and its associated 95% confidence interval were computed.

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TABLE I *Prevalence of non-colonic symptoms in each disease group (% with symptom)*

Symptom	Irritable bowel syndrome	Ulcerative colitis	Crohn's disease	Peptic ulceration	Gall stones	Reflux oesophagitis	Overall
1. Nausea	67	28***	24***	35***	64	60	43***
2. Dysphagia	16	6	10	10	21	33***	16
3. Heartburn	52	34***	36***	40	54	86***	48
4. Dyspepsia	60	50	34***	50	56	76	52
5. Early satiety	65	28*	45*	27*	46*	45*	39***
6. Flatus	78	76	74	57*	76	79	72
7. Incomplete evacuation	76	32***	19***	28***	38***	29***	30***
8. Lethargy	88	34***	53***	40***	53***	45***	46***
9. Headaches >1 week	45	16***	23***	12***	28***	29	22***
10. Back pain	81	60**	40**	48**	69	60**	56***
11. Bad breath	65	46**	26**	42**	50**	64	45**
12. Urinary frequency	56	26**	21***	25***	38***	36***	30***
13. Urgency of micturition	36	24	13*	30	35	38	28

Irritable bowel syndrome *v* disease group: *p<0·05; **p<0·01; ***p<0·001.

TABLE II *Patient details*

Group	Irritable bowel syndrome	Ulcerative colitis	Crohn's disease	Peptic ulceration	Gall stones	Reflux oesophagitis	Overall
Men (n)	22	28	30	40	23	25	146
Mean (SD) age (years)	43·6 (12·3)	43·0 (13·7)	33·4 (14·6)	49·4 (14·3)	61·5 (11·3)	42·0 (15·6)	45·5 (16·4)
Women (n)	85	22	32	20	58	17	149
Mean (SD) age (years)	39·4 (12·1)	47·8 (16·0)	41·3 (16·8)	53·6 (13·2)	50·6 (14·0)	55·3 (14·3)	49·1 (15·4)
Total	107	50	62	60	81	42	295

Results

The patient details are outlined in Table II. The prevalence of each non-colonic symptom in irritable bowel syndrome and the other five organic disease categories can be divided into gastrointestinal and non-gastrointestinal symptoms and these seem to have different discriminant functions.

The upper gastrointestinal features (1–5, Table I) will accurately separate irritable bowel syndrome from colonic inflammatory disease, but are not so useful for the other disorders. Incomplete evacuation is particularly good at discriminating irritable bowel syndrome from all five organic disease groups. The non-gastrointestinal features (8–13, Table I) are also useful in distinguishing irritable bowel syndrome from all other disease categories, with lethargy, backache, frequent headaches, and urinary frequency being particularly significant.

Those non-colonic features of particular value in assessing the relative risk of irritable bowel syndrome are given in Table III. When two or more of these symptoms are present the relative risk estimates can be multiplied together. Thus for a patient, who by currently accepted criteria may have irritable bowel syndrome, the presence of lethargy, backache, and early satiety would result in an estimated relative risk of 6·7×2·0×1·8 – that is, 24 – making irritable bowel syndrome much more likely than organic disease.

TABLE III *Relative risk of specific clinical features for irritable bowel syndrome v organic gastrointestinal disease*

Feature	Relative risk	95% confidence interval
1. Lethargy	6·7	3·4 to 13·3
2. Incomplete evacuation	5·2	2·9 to 9·2
3. Age less than 40 years	2·1	1·2 to 3·8
4. Backache	2·0	1·1 to 3·8
5. Early satiety	1·8	1·1 to 3·2
6. Frequency of micturition	1·8	1·0 to 3·1

For each feature present the relative risks can be multiplied together to give an overall risk for irritable bowel syndrome.

As there were not comparable numbers of men and women in each of the disease categories, the data were reanalysed to assess whether sex alone influenced the results. The discriminant value and relative risk of all the non-colonic symptoms in diagnosing irritable bowel syndrome, apart from those relating to urinary function, seemed to be independent of gender. There were insufficient numbers of outpatients with colonic cancer to allow them to be included as a separate group for statistical analysis but there was a trend for fewer non-colonic symptoms in these patients.

Discussion

This study shows that the diagnosis of irritable bowel syndrome can be made substantially more secure by the recognition of the 'non-colonic' features of this condition. These non-colonic features can be divided into those that have an apparent gut origin and those of a more general nature. Thus a patient with upper and lower gastrointestinal symptoms is much more likely to have irritable bowel syndrome than inflammatory bowel disease, which would be in accord with the current concept of irritable bowel syndrome being a diffuse disorder of gut motility.[8–10] With the exception of early satiety, upper gastrointestinal type symptoms do not help in the differentiation of gastro-oesophageal or biliary disease from irritable bowel syndrome. The more general non-colonic features, however, are much more common in irritable bowel syndrome than any type of organic gastrointestinal disease studied, and this seemed to be independent of the sex of the patient. In addition, we have previously shown that none of the symptoms are related to psychopathology,[6] which is relatively common in hospital outpatients with irritable bowel syndrome.[11 12]

A multivariate evaluation of the data was used to assess the diagnostic potential of individual symptoms independent of any association with each of the other features. This indicated that several symptoms common in irritable bowel syndrome seemed to be strongly associated with another symptom and thus did not have high independent relative risk. Those clinical features which were found to be independently associated with irritable bowel syndrome can be used to aid diagnosis in a patient suspected of having irritable bowel syndrome by calculating an overall relative risk for this diagnosis (Table III).

Until recently the 'Manning criteria' have been extensively used in order to try to diagnose irritable bowel syndrome more positively.[2] Although relatively effective in separating irritable bowel syndrome from upper gastrointestinal disorders, because of the high dependence on colonic type symptomatology their performance in differentiating irritable bowel syndrome from other colonic disease is disappointing and it is this very difficulty that is a particularly common clinical problem. Talley and colleagues, in a recent reappraisal of the Manning criteria,[3] found incomplete evacuation a colonic symptom of useful discriminant value for irritable bowel syndrome, and this was confirmed in our study.

Another drawback of previous studies investigating irritable bowel syndrome symptomatology was the tendency, because of relatively low numbers, for the patients with organic disease to be combined into a single group for purposes of comparison and not divided into specific disease entities.[2 3 5 13] It was the particular aim of this study to avoid this problem by investigating large numbers of patients and carefully allocating them to five diagnostic categories from which it is often difficult to differentiate irritable bowel syndrome.

A more positive and confident approach to the diagnosis of irritable bowel syndrome not only leads to fewer unnecessary investigations but also greatly facilitates the management of this condition which both patient and doctor find so frustrating. The results of this study indicate that if non-colonic symptoms were routinely recorded irritable bowel syndrome could be more accurately differentiated from other gastrointestinal disorders.

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