RESEARCH

Survey of UK and New Zealand gastroenterologists' practice regarding dietary advice and food exclusion in irritable bowel syndrome and inflammatory bowel disease

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ABSTRACT

Background This study aimed to assess the dietary advice practice of UK and New Zealand (NZ) adult gastroenterologists in inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS).

Methods A questionnaire regarding dietary advice practice was emailed or mailed to all members of the British Society of Gastroenterology (n=983) and the NZ Society of Gastroenterology (n=54).

Results 363 questionnaires were returned in the UK (response rate 37%) and 51 in NZ (94%). More respondents gave specific dietary advice to more than 25% of their patients on IBS than IBD (84% vs 27% UK, 90% vs 55% NZ; p=0.001 for both) and gave advice about dietary exclusions to more than 25% of patients on IBS than IBD (61% vs 13% UK, 77% vs 14% NZ; p<0.001 for both). They were most likely to provide dietary advice to patients with small bowel Crohn's disease, difficult to control IBD, diarrhoea predominant IBS and difficult to control IBS. The majority of respondents agreed strongly or a little that dietary exclusion was effective in the treatment of IBS, compared to the minority in IBD (71% vs 39% UK, 84% vs 43% p<0.05 for both).

Conclusions UK and NZ gastroenterologists give dietary advice more commonly to IBS than IBD patients. The majority of gastroenterologists have some confidence in the use of dietary exclusion in IBS, the converse is true in IBD. However, the advice given is largely empiric and mostly comprises the exclusion of fibre, dairy and wheat.

INTRODUCTION

In 1950 Loveless¹ and Graham *et al*² demonstrated an association between food and gastrointestinal symptoms. Since then food intolerance has

commonly been reported, and 20–45% of the adult population believe that they have adverse reactions to food.^{3–6} However, double-blind food elimination and challenge is positive in only a small proportion of these people.

It has long been thought that food intolerance plays at least some role in the production of symptoms in irritable bowel syndrome (IBS).^{7–8} The perception of food intolerance is common among patients with IBS, 20–65% of patients attribute their symptoms to adverse food reactions^{9–10} and patients commonly experiment with elimination diets or alternative therapies before seeking medical help.¹¹ It has been shown that an exclusion diet guided by the results of testing for serum IgG antibodies to foods can improve the symptoms of IBS.^{12–13}

The association between symptoms of inflammatory bowel disease (IBD) and diet has also received much attention.^{14–16} It is commonplace for patients with gastrointestinal disorders to believe that something in their diet has caused their condition.¹⁵ Some studies have claimed that food sensitivities are common in Crohn's disease and have found that when food intolerances are detected, patients on an exclusion diet maintain remission significantly longer than those on an unrestricted diet.^{14–16} However, when these patients are subjected to double-blind food challenges, food sensitivity is confirmed in only 15%.¹⁷

Despite these associations the available evidence is insufficient to make strong

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recommendations regarding the use of exclusion diets in these conditions, and current guidelines regarding IBD and IBS give very few specific recommendations regarding testing for food intolerance/allergy or the treatment of it.^{18 19} No information exists as to how commonly exclusion diets are used in practice or what forms of advice are given. This study aimed to determine what current practice regarding dietary advice, in particular advice about food exclusion, is among gastroenterologists in the UK and New Zealand (NZ).

METHODS

Subjects

This survey aimed to question the majority of adult gastroenterologists in NZ and the UK. Both countries have professional gastroenterological societies with high rates of membership by practising gastroenterologists (the British Society of Gastroenterology (BSG) and the NZ Society of Gastroenterology), although the exact proportion of gastroenterologists who are members is not known. Both societies maintain lists of active members, providing a reliable route for identification and obtaining contact details for a large body of practising gastroenterologists in each country.

Both societies also contain many members who are not practising adult gastroenterologists. All respondents were questioned regarding the nature of their practice. All but those currently practising as gastroenterologists in adult medicine were excluded from the analysis. In addition, the list of non-responders was examined for non-adult gastroenterologists by means of qualification, for example, those holding FRCS and FRCPath qualifications were excluded, and location of practice, for example, those practising only in a paediatric setting were excluded. This differentiation proved straightforward in NZ, where the number of practising gastroenterologists is lower. However, it remains probable that non-adult gastroenterologists are represented in the final numbers of non-responders in the UK audit, thus increasing the apparent non-response rate in that survey.

Sensitivity analysis

In this study the responses from early versus late respondents, which also made up the groups offered versus not offered an incentive, and also email versus conventional mail respondents, were analysed for significant differences in their replies to any question.

Statistical methods

Sensitivity analysis comparing mail rounds was performed by calculating the 95% CI for each response within each mail round. CI were compared between rounds to examine for statistically significant differences in response between mail rounds. Assessment of questionnaire test-retest reliability was performed in a pilot study using Pearson's correlation coefficient (*r*) for continuous variables and by calculating Phi (*f*) for

dichotomous variables. Paired proportions were compared using the McNemar test.

Web-based survey data were collected using the tool provided by the UK-based online market and research systems provider Problemfree Ltd at their website <http://www.Freesurveysonline.com>. The survey used can be viewed in the online supplementary information. Data were collated in Microsoft Excel 2003. Statistical analysis was carried out using SPSS V.14.0.

RESULTS

Pilot study (UK)

In a pilot study to assess questionnaire design and reliability 14 gastroenterologists were emailed and requested to complete an online survey. Eight (57%) replied to the initial request, of whom six (43%) replied to a request to repeat the survey 4 weeks later. In the light of their comments the questionnaire was modified. The responses of the six respondents to both questionnaire rounds were used to assess the reliability of the survey, by comparing each item.

Four items considered in the final analysis were shown to be unreliable using these criteria. These questions were:

1. Physicians please indicate the percentage of time spent in gastroenterology versus medicine.
2. Please indicate which patients with IBS you are most likely to give or send for dietary advice: difficult to control IBS?
3. If you do ask patients to exclude foods please indicate the types of foods: yeast?
4. Please indicate which patients with IBS you are most likely to give or send for dietary advice: constipation predominant?

UK and NZ national surveys

Data collection occurred between October and December 2007 in the UK and April and July 2008 in NZ. In the UK there were three email invitations at intervals of approximately 6 weeks. A single conventional mailout was made to all BSG members who had no email address listed or whose listed email address was non-functioning. In addition, following all email rounds, all BSG members who did not respond to email requests were sent a conventional mail request. Eighty-nine potential subjects were excluded because a response was received stating they were not eligible for the survey. This included non-adult gastroenterologists, retired gastroenterologists, deceased members, members with no clinical practice and members on maternity leave. Two members responded declining to participate and were excluded.

In NZ there were five email mailings at intervals of approximately 2 weeks. Two conventional mailouts were made to all NZ Society of Gastroenterology members who had not responded 2 weeks after the final email round. The two mail rounds were separated by approximately 4 weeks. Fifty-five potential

subjects were excluded because a response was received stating they were not eligible for the survey. This included non-adult gastroenterologists, retired gastroenterologists, deceased members, members not currently practising or practising outside of NZ.

This gave a total of 983 potential respondents in the UK, 834 of whom appeared to have functioning email addresses. Following a response rate of only 17% to the first email round it was evident that response rates were likely to fall below predicted and an incentive (entry in a prize draw) was offered. In total, there were 363 replies, constituting 37% of the 983 potential respondents identified (figure 1).

In NZ there was a total of fifty-four potential respondents, all of whom appeared to have functioning email addresses. After five email rounds a total of forty-three members had responded. The remaining eleven were sent a mail-out reminder letter, to the first round of which six replied and to the second round, two. Therefore, in total there were fifty-one replies, constituting 94% of the fifty-four potential respondents identified (figure 1).

Sensitivity analysis

UK early versus late respondents, which also made up the groups offered versus not offered an incentive, were not found to differ significantly in their replies to any question, nor were email versus conventional mail respondents.

Because of the high response rate for the NZ survey, non-response bias is very unlikely and sensitivity analysis was not required.

Respondent demographics

In the UK the median percentage of time spent in gastroenterological practice was 80% (range 5–95%) compared to 93% (range 10–100%) in NZ.

In the UK 98.6% of respondents and in NZ 96% of respondents had access to dietetic services, equal numbers having access to general dietetic services and specialist gastroenterological dietetic services in the UK, but the greater proportion (67%) having access to general dietetic services versus specialist gastroenterological dietetic services (29%) in NZ. Respondents were asked the dietetic resource (in hours) allocated to their service and the median was 6 h (range 0–100) in the UK and 4 h (range 0–20) in NZ but 172 UK and 30 NZ respondents did not answer this question.

Forty-nine per cent of UK and 31% of NZ respondents were involved in a specialist IBD clinic, whereas only 8.5% in the UK and 18% in NZ were involved in a specialist IBS clinic. Overall, UK respondents saw similar numbers of IBS and IBD outpatients, the majority of respondents seeing between 20 and 60 IBS and IBD patients in a month. NZ respondents reported seeing greater numbers of IBS than IBD patients. However, the majority of respondents saw fewer IBD (20–40 per month) and IBS (fewer than 20 per month) patients than UK respondents.

Figure 1 Number of responses received at each UK (left figure) and New Zealand mail round.

Figure 2 Percentage of irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD) patients given dietary advice.

Dietary advice

Clinicians reported giving specific dietary advice to patient with IBS more commonly than IBD. The majority of respondents (84% UK, 90% NZ) reported giving advice to more than 25% of patients with IBS, whereas this was much lower in IBD (27% UK, 55% NZ; $p < 0.001$ for both comparisons) (figure 2). The proportion of patients sent for dietetics referral was similar for both groups of patients, the majority of respondents reporting that they refer less than 25% of IBD and IBS patients to see a dietitian.

Respondents were also more likely to give advice specifically about dietary exclusion to IBS than IBD patients. The majority of respondents reported giving advice to more than 25% of their IBS patients (61% UK and 77% NZ) compared to the majority who reported giving advice about dietary exclusion to less than 25% of their IBD patients (87% UK and 86% NZ; $p < 0.001$ for all comparisons). The foods respondents most commonly advised patients to avoid were similar for IBD and IBS, fibre being common in both. Wheat and dairy exclusion were also commonly recommended in both conditions; however, these recommendations were more common in IBS than IBD (66% vs 20% UK, 45% vs 14% NZ for wheat

($p < 0.001$ for both comparisons); 70% vs 45% UK, 55% vs 26% NZ for dairy ($p < 0.001$ for both)). NZ respondents also commonly recommended sugar avoidance (47% vs 20% for IBS vs IBD; $p < 0.001$) (figure 3).

Respondents reported being most likely to give dietary advice to, or send for dietary advice, patients with small bowel Crohn's disease (84% UK, 71% NZ of respondents), difficult to control IBD (46% UK, 59% NZ), diarrhoea predominant IBS (59% UK, 49% NZ) and difficult to control IBS (59% UK, 69% NZ).

When asked whether participants agreed that dietary exclusion was an effective strategy in IBD, responses were mixed, with only a small proportion agreeing strongly. When asked the same question on IBS the majority of respondents reported either agreeing strongly or agreeing a little (figure 4).

A low utilisation of allergy testing was reported in both IBD and IBS. In both conditions the majority of respondents reported no or very little (0–25% of patients) use of allergy testing (UK: 97% in IBD and 89% in IBS; NZ: 82% in IBD and 89% in IBS). When allergy tests were used they were most commonly 'open food exclusion and rechallenge' and radioallergosorbent test (table 1).

Figure 3 Foods recommended to inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS) patients for exclusion.

Figure 4 Response to the question ‘do you think dietary exclusion is an effective strategy’ for inflammatory bowel disease (IBD) and irritable bowel syndrome (IBS) patients.

DISCUSSION

This is the first study to examine the attitudes of gastroenterologists to dietary manipulation in IBD and IBS. The BSG membership list is likely to have included the majority of UK gastroenterologists. However, it will also have included a number of non-practising and non-gastroenterologist members, who are unlikely to have replied, thus contributing to the high non-response rate. This was not the case for the NZ survey.

Although the response rate for the UK survey was low at 37% it is still a large survey of 363 UK gastroenterologists. This sample size is comparable to the sample size of previous such surveys including that of Eaden *et al*²⁰ in 2000, who reported a response rate of 83% of UK gastroenterologists with a sample size of 341. We believe our sample is likely to be representative of gastroenterological practice in the UK because of its size and the fact that sensitivity analysis showed no significant difference in demographics or responses between early and late email responders, email and conventional mail responders, nor responders offered an incentive and those not. The questionnaire was shown to be reliable using test–retest methods in a pilot study. The questionnaire’s validity is supported by the comparability of responses between the two countries.

This is the first such survey of gastroenterologists conducted using email. It could, therefore, be argued that this contributed to the poor response rate in the UK. However, the first round response rate to a conventional mail questionnaire sent to UK gastroenterologists gave an identical response rate, suggesting this was not the case.

Access to dietetic support was almost universal. This is in keeping with the recent UK national audit of IBD services.²¹ In that study 204 of 207 sites reported access to gastrointestinal dietetic support, with a median number of dietetic hours per week of eight (range 0–24).

This survey clearly demonstrates that practice regarding dietary manipulation in the UK and NZ differs between IBD and IBS, and that practice in NZ and the UK is very similar. Patients with IBS are more likely to be given dietary advice by gastroenterologists and are more likely to be given advice regarding dietary exclusion than IBD patients. Both groups of patients are equally likely to be sent for dietetic consultation and receive allergy testing, although the rates of utilisation of both are low.

When allergy testing was used this was most commonly ‘open exclusion and rechallenge’ and radioallergosorbent test. It must be noted that both in the UK and NZ other testing services are not routinely available in the public healthcare setting. In addition, the National Institute for Health and Clinical Excellence guidelines on the management of IBS in primary care state, ‘There are no objective tests available to identify food intolerance and few to confirm food allergy’.²² Those patients most likely to receive dietary advice are those with small bowel Crohn’s disease, difficult to control IBD, diarrhoea predominant IBS and difficult to control IBS.

Since the information for this study was collected, the avoidance of fermentable sugars for the treatment of IBS has gained a lot of interest.²³ This approach and the use of breath testing to detect malabsorption

Table 1 Percentage of respondents recommending each allergy test

	UK IBD (%)	UK IBS (%)	NZ IBD (%)	NZ IBS (%)
OFER	14	23	14	29
RAST	14	18	4	14
Skin prick	4	6	4	6
Yorktest IgG	3	8	NA	NA
Skin patch	0	0	2	4

IBD, inflammatory bowel disease; IBS, irritable bowel syndrome; NA, not available in NZ; OFER, open food exclusion and rechallenge; RAST, radioallergosorbent test.

of ingested sugars was not directly addressed in this study as it was not considered to be in common use at the time. In addition, this strategy was not mentioned by respondents when open responses were requested in the survey. In order to promote the inter-respondent reliability of the survey, direct questions were asked regarding the types of foods respondents asked patients to avoid. In addition, respondents were asked to list any foods not already included in the questionnaire, thus reducing the chance of bias from 'leading' questions.

Regarding dietary manipulation, patients have a high perception of benefit, while medical evidence is mixed and thus practice is highly variable. That said, doctors' practice in both the countries included in this study was broadly similar. Our data suggest that there is a role for dietary manipulation and exclusion in the modern care of IBD and IBS, particularly IBS, but that the advice given is largely empiric and mostly comprises the exclusion of fibre, dairy and wheat. Particularly in IBS the level of confidence in this approach is high. These results would suggest that further research in this area is likely to be supported and utilised by the gastroenterological community.

What is already known on this topic

- ▶ The perception of food intolerance is common among patients with IBS and IBD
- ▶ Patients commonly experiment with elimination diets or alternative therapies before seeking medical help
- ▶ Current evidence is insufficient to make strong recommendations regarding the use of exclusion diets in these conditions
- ▶ No information exists as to how commonly exclusion diets are used in practice or what forms of advice are given.

What this study adds

- ▶ This is the first study to examine the attitudes of gastroenterologists to dietary manipulation in IBD and IBS.
- ▶ This survey clearly demonstrates that practice regarding dietary manipulation in the UK and NZ differs between IBD and IBS, and that practice in NZ and the UK is very similar.
- ▶ Patients with IBS are more likely to be given dietary advice by gastroenterologists and are more likely to be given advice regarding dietary exclusion than IBD patients.
- ▶ The advice given is largely empiric and mostly comprises the exclusion of fibre, dairy and wheat.

How might it impact on clinical practice in the foreseeable future

- ▶ This study suggests that there is a role for dietary manipulation and exclusion in the modern care of IBD and IBS, particularly IBS
- ▶ This study suggests that further research in this area is likely to be supported and utilised by the gastroenterological community.

Contributors SJI: designed and conducted the survey and drafted the manuscript; AVE: contributed to the design of the survey and edited the manuscript.

Competing interests None.

Ethics approval Ethics approval was received from the UCL/UCLH combined ethics committees.

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REFERENCES

- 1 Loveless M. Milk allergy: a survey of its incidence: experience with masked ingestion test. *J Allergy* 1950;21:489.
- 2 Graham D, Wolf S, Wolf H. Changes in tissue sensitivity associated with varying life situations and emotions: their relevance to allergy. *J Allergy* 1950;21:478.
- 3 Crowe SE, Perdue MH. Gastrointestinal food hypersensitivity: basic mechanisms of pathophysiology. *Gastroenterology* 1992;103:1075–95.
- 4 Shanahan F. Food allergy: fact, fiction, and fatality. *Gastroenterology* 1993;104:1229–31.
- 5 Young E, Stoneham MD, Petrukevitch A, *et al.* A population study of food intolerance. *Lancet* 1994;343:1127–30.
- 6 Burr ML, Merrett TG. Food intolerance: a community survey. *Br J Nutr* 1983;49:217–19.
- 7 Sicherer SH. Clinical aspects of gastrointestinal food allergy in childhood. *Pediatrics* 2003;111:1609–16.
- 8 Crespo JF, Rodriguez J. Food allergy in adulthood. *Allergy* 2003;58:98–113.
- 9 Nanda R, James R, Smith H, *et al.* Food intolerance and the irritable bowel syndrome. *Gut* 1989;30:1099–104.
- 10 Dainese R, Galliani EA, De Lazzari F, *et al.* Discrepancies between reported food intolerance and sensitization test findings in irritable bowel syndrome patients. *Am J Gastroenterol* 1999;94:1892–7.
- 11 Smart HL, Mayberry JF, Atkinson M. Alternative medicine consultations and remedies in patients with the irritable bowel syndrome. *Gut* 1986;27:826–8.
- 12 Atkinson W, Sheldon TA, Shaath N, *et al.* Food elimination based on IgG antibodies in irritable bowel syndrome: a randomised controlled trial. *Gut* 2004;53:1459–64.
- 13 Zar S, Mincher L, Benson MJ, *et al.* Food-specific IgG4 antibody-guided exclusion diet improves symptoms and rectal compliance in irritable bowel syndrome. *Scand J Gastroenterol* 2005;40:800–7.
- 14 Jones VA, Dickinson RJ, Workman E, *et al.* Crohn's disease: maintenance of remission by diet. *Lancet* 1985;2:177–80.
- 15 Crowe SE. Gastrointestinal food allergies: do they exist? *Curr Gastroenterol Rep* 2001;3:351–7.
- 16 Riordan AM, Hunter JO, Cowan RE, *et al.* Treatment of active Crohn's disease by exclusion diet: East Anglian multicentre controlled trial. *Lancet* 1993;342:1131–4.
- 17 Pearson M, Teahon K, Levi AJ, *et al.* Food intolerance and Crohn's disease. *Gut* 1993;34:783–7.
- 18 Spiller R, Aziz Q, Creed F, *et al.* Guidelines for the management of Irritable Bowel Syndrome. *Gut* 2007;56:1770–98.
- 19 Carter MJ, Lobo AJ, Travis SP. Guidelines for the management of inflammatory bowel disease in adults. *Gut* 2004; 53(Suppl. 5):V1–16.

- 20 Eaden JA, Ward BA, Mayberry JF. How gastroenterologists screen for colonic cancer in ulcerative colitis: an analysis of performance. *Gastrointest Endosc* 2000;51:123–8.
- 21 UK IBD Audit 2nd Round (2008) Report, 2008 The UK IBD Audit Steering Group on behalf of Association of Coloproctology of Great Britain and Ireland British Society of Gastroenterology British Society of Paediatric Gastroenterology, Hepatology and Nutrition Clinical Effectiveness & Evaluation Unit, Royal College of Physicians of London National Association of Colitis and Crohn's Disease. [http://old.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/IBD/Pages/UK-IBD-Audit-2nd-Round-\(2008\).aspx](http://old.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/IBD/Pages/UK-IBD-Audit-2nd-Round-(2008).aspx). (accessed 26 September 2012).
- 22 Irritable bowel syndrome in adults: diagnosis and management of irritable bowel syndrome in primary care, 2008. Published by the National Institute for Health and Clinical Excellence. www.nice.org.uk/CG061 (accessed 26 September 2012).
- 23 Gibson PR, Shepherd SJ. Evidence-based dietary management of functional gastrointestinal symptoms: the FODMAP approach. *J Gastroenterol Hepatol* 2010;25:252–8.