

UNCERTAINTIES PAGE

Should we treat uncomplicated symptomatic diverticular disease with fibre?

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This is one of a series of occasional articles that highlight areas of practice where management lacks convincing supporting evidence. The series adviser is David Tovey, editor in chief, the Cochrane Library. To suggest a topic for this series, please email us at uncertainties@bmj.com

Diverticular disease is a common gastrointestinal condition in older age groups. The prevalence is increasing with the ageing of our population, and diverticular disease in younger age groups also seems to be increasing.¹ Among those affected, 10-25% will develop symptoms.² Although diverticular disease and irritable bowel syndrome share the symptoms of pain and variable bowel habit, the proportion of cases of diverticular disease that meet strict criteria for irritable bowel syndrome varies from 14% to 51%,^{3 4} the lower figure being no different from the incidence in those with no diverticulosis. NHS patient information websites and leaflets and the standards committee of the American Society of Colon and Rectal Surgeons recommend fibre for recurrent, short lived, non-inflammatory abdominal pain and for preventing diverticulitis; the standards committee estimates the success of fibre in preventing recurrence of diverticulitis as >70%.

However, although low intake of fibre is associated epidemiologically with an increased risk of developing diverticulosis, the recommendations for fibre as a treatment are based on weak evidence that is old, largely observational, and uncontrolled.^{2 5} Although Painter's case series of 70 patients with diverticular disease who took two teaspoons of bran three times a day showed excellent resolution of symptoms, it lacked any control and so is unconvincing.⁶ There is also no good evidence for the amount or type of dietary fibre needed, and clinical experience suggests that bran fibre and green vegetables may worsen symptoms in some patients. This fits with data from randomised controlled trials in irritable bowel syndrome showing that bran increases flatulence⁷ and may well do the same in diverticular disease. Another randomised controlled trial in irritable bowel syndrome shows that soluble fibre is better than bran in improving symptom severity,⁸ so if laxative

effects are desirable in an individual patient, psyllium or ispaghula would be preferable.

What is the evidence of the uncertainty?

We searched the Cochrane Library, PubMed, Medline, and ClinicalTrials.gov. We identified systematic reviews and randomised controlled trials that assessed the efficacy of fibre in treating uncomplicated symptomatic diverticular disease, in any language and with at least single blinding. We based this work on our previous systematic review in *Clinical Evidence*.⁹

In the first double blind randomised controlled trial in patients with symptoms of diverticular disease, participants took either fibre supplements or placebo for three months.¹⁰ The study reported a marked placebo effect at one month, which disappeared at three months, with significantly improved symptoms in those taking fibre supplements. However, the study had only 18 participants. In a further double blind randomised crossover trial, 76 patients with recently diagnosed diverticular disease received (a) bran crispbreads (active treatment) and placebo wheat powder (6.99 g of fibre each day), (b) ispaghula (as a drink) (active treatment) and placebo wheat biscuits (9.04 g of fibre each day), or (c) placebo powder and biscuits (2.34 g of fibre each day) for 16 weeks.¹¹ Fifty eight patients completed the study, with 18 withdrawing for social reasons (bran 4, ispaghula 3, placebo 2), unrelated disease (bran 1, ispaghula 1, placebo 1), diarrhoea (bran 0, ispaghula 2, placebo 1), constipation (bran 0, ispaghula 0, placebo 1), or recurrent diverticulitis (bran 1, ispaghula 0, placebo 1). Analysis of scores at 16 weeks found significantly less straining and increased stool frequency, and stool softening and wet stool weight were noted for both active versus placebo treatments ($P < 0.001$, confidence intervals not reported). However, no significant difference (P scores not reported) was found among treatments for pain scores, lower bowel symptom score, or general symptom score.

Is ongoing research likely to provide relevant evidence?

A search of the ClinicalTrials.gov database showed no trials on the use of fibre to prevent or treat symptoms of uncomplicated diverticular disease. One of the problems is that the underlying aetiology of symptoms and causes of recurrent pain and diverticulitis are not fully understood. The logic for high fibre diet was to achieve a reduction in colonic pressures. However, although increased intraluminal pressure and phasic motility has been correlated with symptoms,¹² recent data show that motility was similar between patients with diverticular disease and controls, but patients with symptoms of diverticular disease have lower thresholds for pain during colonic distension than those without symptoms,¹³ suggesting that treatments aimed at reducing visceral hypersensitivity might be more successful. Abnormalities of nerve structure and neurochemicals,¹⁴ changes in intestinal microflora, and low grade intestinal inflammation may underlie visceral hypersensitivity.¹⁵

Trying to understand and identify potential targets in these complex interactions is important in developing better treatments. Fibre supplements may have a role by improving stool bulk and changing the microflora. Given the high cost of clinical trials, however, a for-profit organisation is unlikely to undertake a trial of dietary fibre, which is not patentable. Currently, companies are more interested in developing acceptable and patentable microflora and immunological modifying treatments, such as probiotics, antibiotics, or mesalazine. Several trials are already under way, including a mechanistic randomised controlled trial of mesalazine in symptomatic diverticular disease (SAG44), evaluation of the effectiveness of *Lactobacillus reuteri* in uncomplicated diverticular disease, and evaluation of efficacy of mesalazine in prevention of acute diverticulitis (SAG37).

What should we do in the light of uncertainty?

We should inform patients of the lack of evidence for the use of fibre in symptomatic diverticular disease. In our practice we warn patients that although increasing fibre may relieve constipation, it may also increase flatulence and may aggravate pain in some people. Conversely, for those patients who already take a lot of fibre it may be worth reducing fibre intake. However, as obesity has been linked to increased risk of symptoms of diverticular disease,¹⁶ a diet containing more fibre

is often of lower energy density and may aid weight loss and improve symptoms. With several studies due to be published soon, more effective treatments may be available in the near future.

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Recommendation for further research

Population—Patients with symptomatic diverticular disease* (with pain duration of three days a month for three months or more); patients with acute diverticulitis. † Subgroups could include adults aged >40 years and <40 years (as incidence of symptomatic diverticular disease in those aged <40 years has been reported to be increasing¹)

Intervention and outcome—Fibre (different types), probiotics, antibiotics, and anti-inflammatory medications (such as mesalazine) alone or in combination

Comparison—Active agents should be compared with placebo. Outcome measures should include:

- Effect on patients' symptoms, including pain, bloating, frequency of stool, and urgency*
- Effect on recurrence of diverticulitis† or development of complicated disease. This may involve long term studies owing to the low incidence of recurrence or complications
- Mechanistic effects (through identification of underlying molecular and physiological changes in groups who do and do not benefit from treatment)

*Symptoms of irritable bowel syndrome overlap with symptoms of patients who have diverticular disease. Study participants should be assessed on the basis of published criteria (such as the ROME III criteria¹⁷), to allow subgroup analysis of those who do and do not meet criteria for irritable bowel syndrome

†Clinical and radiological criteria should be used for diagnosing diverticulitis or complicated disease. Such criteria include abdominal tenderness located to the left iliac fossa, fever, raised white blood count or raised C reactive protein, and computed tomography evidence of wall thickening, diverticula, pericolic fat stranding with or without diverticular complications such as abscess, fistula, or perforation with free intra-abdominal gas