Novel presentation of coeliac disease after following the Atkins' low carbohydrate diet

Low carbohydrate diets are currently being promoted as an effective treatment for weight reduction.1 The most popular, the Atkins’ diet, is a worldwide bestseller with over 10 million book copies sold (the earliest being Dr Atkins’ New Diet Revolution2). Two randomised clinical trials in obese patients have shown effective weight loss at six months on the Atkins’ diet compared with a low fat calorie reduced diet although the difference was not significant or sustained at 12 months.3 The Atkins’ diet recommends unlimited protein and fat intake, with carbohydrate intake initially restricted to 20 g/day (3–10% of daily calorie intake), mainly as salad greens and other non-starchy vegetables. In the longer term maintenance phase, the diet remains low in cereal grains (wheat, rye, and barley), which are toxic in coeliac disease.

We report three patients seen in the last year who sought medical advice because of symptoms noticed after stopping the Atkins’ diet, which subsequently proved to be due to coeliac disease.

Case No 1
A 46 year old woman, with coexisting treated primary hypoadrenalism and autoimmune hypothyroidism, followed the Atkins’ dietary regimen strictly as published. She described “feeling amazing” and “wide awake” on the regimen. After six months she lost 12 kg and decided to reintroduce bread. She soon noticed bloating, tiredness, and upper abdominal pain. Her physician suspected coeliac disease and initiated testing for antitiendomysial antibody (positive), with subsequent diagnostic duodenal biopsy (crypt hyperplastic partial villous atrophy). All symptoms resolved on a gluten free diet.

Case No 2
A 45 year old woman, with coexisting treated autoimmune hypothyroidism, followed the Atkins’ diet strictly as published for three months, losing 7 kg. On this regimen she described feeling “really well” and “fantastic”. On reintroducing bread she noticed symptoms of tiredness, abdominal gurgling noises, and pain, and increased flatulence. Her father was diagnosed with coeliac disease around this time. These symptoms led her to suspect coeliac disease. Subsequent tests showed positive antitiendomysial antibody and small intestinal crypt hyperplastic partial villous atrophy. Her symptoms resolved on a gluten free diet.

Case No 3
A 43 year old woman who commenced a low carbohydrate diet (cutting out bread, pasta, potatoes, and rice but including fruit and vegetables) noticed increased wellbeing on this regimen. She reintroduced some bread at one month and noticed abdominal bloating and pain, with increased tiredness. These symptoms led her to suspect coeliac disease. Her physician found iron deficiency anaemia and subsequent tests showed positive antienthombodysial antibody and small intestinal crypt hyperplastic partial villous atrophy. Her symptoms resolved on a gluten free diet except for occasional abdominal bloating.

Recent large studies (using highly sensitive and specific serological screening tests) have suggested coeliac disease is much more prevalent (~1%) in the UK population than previously recognised.4 In addition to those symptoms presenting clinically, untreated coeliac disease has silent features, including anaemia, osteoporosis, and modest increases in overall risks of malignancy and mortality.5 In a recent prospective study of seven year old children, those with positive coeliac serology were significantly shorter and lighter.6 Awareness of coeliac disease has recently been increasing, and all major UK supermarket chains now stock a varied range of gluten free products.

Symptoms induced by wheat ingestion in coeliacs are often more marked after a period following a gluten free diet than occur prior to diagnosis and treatment. Consistent with this observation, interferon γ peripheral blood T cell responses to the immunodominant A-gliadin epitope (QLQPFFQPELPPYPOS) after short term oral gluten challenge are not observed in untreated coeliac cases but are detectable in significant numbers after two weeks of a gluten free diet.7 The immunological basis of the heightened sensitivity after gluten withdrawal is unknown but intestinal immune responses to antigen are likely to be downregulated in conditions of ongoing chronic inflammation compared with those occurring in normal (treated) mucosa.

Although some individuals will have simple wheat intolerances, we conclude that the occurrence of gastrointestinal symptoms after a period following an Atkins-type low carbohydrate diet should prompt investigation for coeliac disease.

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References

Cap polyposis: an inflammatory disorder or a spectrum of mucosal prolapse syndrome?

We read with great interest the letter by Maunoury and colleagues (Gut 2005;54:313–14). They reported on a case of cap polyposis unresponsive to infliximab, in contrast with the successful report by Bookman and colleagues.1 Maunoury et al stated that the success with infliximab reported by Bookman et al might have been due to spontaneous regression of cap polyposis. Maunoury et al speculated that a role for tumour necrosis factor α (TNF-α) in the pathogenesis of this rare disorder was unacceptable and other mechanisms, such as abnormal colonic motility, may be important.

The pathogenesis of cap polyposis has been controversial. In particular, there have been discussions about whether cap polyposis is a specific form of inflammatory disorder or part of a spectrum of “mucosal prolapse syndrome” which is caused by abnormal colonic motility with subsequent local ischaemia and repeated mucosal trauma. We recently experienced a case of cap polyposis, highly suggestive of a role of inflammation in the progression of this disease:

A 76 year old Japanese woman was diagnosed as having cap polyposis, with typical colonoscopic findings of multiple sessile polyps covered with caps of fibrinopurulent exudates throughout the total colon. Histological findings were also compatible with the disease. She had no history of straining during defecation, and an anorectal motility study was normal. Concomitantly, she had a 5 cm villous adenoma in the sigmoid colon, and underwent laparoscopic sigmoid resection for resection of the adenoma. Follow up colonoscopy three months after surgery revealed almost complete spontaneous remission of the cap polyposis throughout the residual colon, except along the anastomotic line where there was confined progression of multiple polyps (fig 1).

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Although the polyps were located in a line on the anastomosis, the adjacent mucosa was normal. She showed no clinical symptoms at that point and so no additional treatment was performed.

Two cases of recurrent cap polyposis after colorectal resection have been reported previously, of which one was very similar to the present case in that the recurrent polyps were located only along the anastomotic line. The process of wound healing on the anastomosis is known to involve a complex network of numerous inflammatory cells and their secretory products, including TNF-α, which accelerates the wound healing process by inducing angiogenesis, fibroblast proliferation, and production of several growth factors. Therefore, progression of cap polyposis confined along the anastomotic line observed both in the present case and in the report mentioned previously may provide evidence that local inflammation plays, at least in part, a role in the progression of cap polyposis. With acceptance on this point, suppression of inflammation could be a clue to treat cap polyposis, as in the case of metronidazole whose anti-inflammatory action plays a central role in the healing of cap polyposis.6

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Conflict of interest: None declared.

References


Chronic intestinal pseudo-obstruction due to lymphocytic leiomyositis: is there a place for immunomodulatory therapy?

There is a rare cause of chronic intestinal pseudo-obstruction (CIPO) characterised by a lymphocytic infiltrate in the muscle of the intestine, which is called idiopathic lymphocytic leiomyositis. Few cases have been reported and prognosis is very poor. We present a case with a comparatively benign evolution, showing good response to immunosuppressive therapy.

The patient was a healthy 16 year old female who presented with a crisis of post-prandial bloating followed by diarrhoea and vomiting. During the following months she lost 10 kg in weight and any attempt at oral feeding resulted in severe abdominal distension and vomiting. Total parental nutrition was finally prescribed. Plain abdominal film and small bowel follow through indicated huge dilatation of the small intestine with air fluid levels.

The patient started prednisone 1 mg/kg/day and azathioprine 1 mg/kg/day. She was hospitalised for eight months during the first year due to multiple complications. Complete response was not obtained until one year later when the azathioprine dose reached 2 mg/kg/day, and budesonide 9 mg/day was added. Prednisone was then discontinued and abdominal films became normal.

Two years after diagnosis she has not needed hospitalisation or parental nutrition in the last 15 months, and has followed a normal oral diet.

Review of the world literature on CIPO associated with lymphoid infiltrates in the gut revealed only 12 cases, as shown in Table 1. A critical review could restrict the number to three, plus the present case, as true lymphocytic enteric leiomyositis.

McDonald’s6 and Arista-Nasr’s7 cases showed predominantly mucosal infiltrate with secondary extension into deeper layers.

Figure 1 Full thickness biopsy of the small intestine with haematoxylin-eosin. The section shows a normal mucosal layer of jejunum without atrophy or excessive amounts of round cells. The muscularis mucosae is also normal. In contrast, the muscularis propria shows a heavy lymphocytic infiltrate (haematoxylin-eosin). Insert: immunohistochemical stain for CD8 lymphocytes in the muscularis propria.

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Our case showed a particularly affected muscle with a respected mucosa. In Rigby's case,1 the muscular layer seemed to show fibrosis rather than inflammation. Our case showed a homogenous lymphocytic T infiltrate which is different from the polymorphic clinical response continues.

We believe that only the cases presented by Nezelof,2 Ruuska,3 and perhaps Mann's fourth case, are truly similar to ours. The lymphocytic infiltrate was similar and there were degenerative changes of the smooth muscle. Clinically, these three cases shared a very poor prognosis: two patients died and one was on parenteral nutrition, despite immunosuppressive therapy. This treatment was employed in at least two of the patients. Our case had a better outcome, with azathioprine and budesonide allowing discontinuation of prednisone.

In CIPO, if full thickness biopsies4 are typical of lymphocytic leiomyositis, based on what little information is available, it is reasonable to start high dose steroids and another form of immunosuppression. Based on our case, we would recommend budesonide 9 mg/day and azathioprine 2 mg/kg/day while tapering off conventional steroids, if clinical response continues.

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UK guidelines for management of acute pancreatitis: is it time to change?

The incidence of acute pancreatitis is increasing in the UK,1 with a current hospital admission rate of 95 per year per 100 000 population. However, there has only been a marginal decrease in the overall one year case fatality rate, from 12.7% in 1975–86 to 11.8% in 1987–98.2 Gall stones and alcohol are the main aetiological factors for acute pancreatitis.3 Nearly 25% of episodes of acute pancreatitis are severe4 and approximately 45% of these are due to gall stones.2

The UK guidelines for the management of acute pancreatitis were formulated and released by the British Society of Gastroenterology (BSG) in 1998.5 MEDLINE, EMBASE, and the Cochrane databases were searched to find recent evidence in the management of acute pancreatitis. The search terms included pancreatitis (MeSH), sphincterotomy-endoscopic (MeSH), cholangiopancreatography - magnetic - resonance (MeSH), acute NEAR (text), and MRCP (text), ERCP AND sphincterotomy (text).

A management plan, modified from the BSG guidelines in light of the new evidence available since its release in 1998, is presented in fig 1. Firstly, acute pancreatitis is stratified according to severity. Glasgow-Imrie scoring together with C reactive protein are recommended by the BSG for stratification of severity of acute pancreatitis.6 However, with the availability of one stop tests, such as urinary trypsinogen activation peptide,7 and with the likelihood of mild acute pancreatitis transforming into severe acute pancreatitis being rare,8 severity stratification of pancreatitis can now be performed on admission.

The next step is to determine aetiology. Imaging to find etiology should be performed within 24 hours, in contrast with the BSG recommendations of a CT scan between three and 10 days. The rationale behind imaging within 24 hours is to facilitate early endoscopic retrograde cholangiopancreatography (ERCP) and sphincterotomy, as there is strong evidence that ERCP and sphincterotomy performed less than 72 hours decreases the complication rate in acute severe gall stone pancreatitis.9 This imaging, within 24 hours during the acute resuscitation phase, is made possible because of the shorter time to perform spiral computed tomography (CT) of the abdomen,10 which has a high sensitivity and specificity in diagnosing choledocholithiasis.11 The aetiology is still unknown after the CT scan, a magnetic resonance cholangiopancreatogram (MRCP) may be performed, as this has a higher sensitivity than the CT scan in the diagnosis of choledocholithiasis.12

A simple calculation based on the incidence of pancreatitis (9.8 per year per 100 000 population),1 the incidence of severe pancreatitis (approximately 25%),1 and the incidence of gall stones as the aetiological factor in acute severe pancreatitis (45%) reveals that severe acute gall stone pancreatitis has an incidence of approximately 1.1

Table 1 Clinical and histological features of our present case and cases in the literature

<table>
<thead>
<tr>
<th>Sex/age (y)</th>
<th>Histological features</th>
<th>Treatment</th>
<th>Evolution</th>
<th>True lymphocytic intestinal leiomyositis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present case</td>
<td>F 16</td>
<td>Lymphocytic infiltrate in muscularis propria</td>
<td>Steroids and later budesonide. Azathioprine Steroids</td>
<td>Mild symptoms, oral nutrition 2 y later</td>
</tr>
<tr>
<td>Nezelof</td>
<td>M 6 mo</td>
<td>Mononuclear infiltrate in muscularis propria</td>
<td>Steroids</td>
<td>Death 4 y later</td>
</tr>
<tr>
<td>Ruuska</td>
<td>M 2</td>
<td>Predominant T lymphocytic infiltrate</td>
<td>Steroids, azathioprine, ciclosporin</td>
<td>Total PN</td>
</tr>
<tr>
<td>Mann</td>
<td>M 47</td>
<td>Chronic inflammatory infiltrate + fibrosis of longitudinal muscle</td>
<td>NR</td>
<td>Death 2 y later</td>
</tr>
<tr>
<td>Rigby</td>
<td>F 27</td>
<td>Predominant fibrosis of the circular layer</td>
<td>Immunosuppression</td>
<td>Oral diet plus gastrostomy feeds. Alive at 21 months</td>
</tr>
<tr>
<td>Ginies</td>
<td>F 6 mo</td>
<td>Very polymorphic infiltrate: lymphocytes, plasmaocytes, histiocytes, and eosinophils</td>
<td>Steroids</td>
<td>No (probably B lymphocytes)</td>
</tr>
<tr>
<td>McDonald cases 1/2/3/4</td>
<td>F 51/F 21/ F 29/F 18</td>
<td>Mucosa predominantly affected</td>
<td>Cyclophosphamide and steroids/stereoids/ Steroids/ciclosporin</td>
<td>Mild symptoms at 9 y/PN one year later/NR/NR</td>
</tr>
<tr>
<td>Arista-Nair cases 1/2/3/4</td>
<td>F 23/F 29/ F 23</td>
<td>Mucosa predominantly affected</td>
<td>Cyclophosphamide/taxol, tetracycline, PE/tetracycline, steroids, chemotherapy</td>
<td>Death from inanition/death from inanition/alive, severe inanition</td>
</tr>
</tbody>
</table>

M, male; F, female; NR, not reported; PN, parenteral nutrition; PE, pancreatic enzymes.
per year per 100 000 population. In a NHS trust with a catchment population of 500 000, it is only five additional emergency ERCP with sphincterotomies annually. This appears to be a feasible option. However, if ERCP with sphincterotomy cannot be performed within 72 hours in a hospital, patients should be transferred early (after stabilising the vital signs) to a hospital where such facilities are available.

In conclusion, a review of the UK guidelines is recommended following evidence that morbidity is less in early ERCP and sphincterotomy (<72 hours) in severe gall stone pancreatitis. Also, because of the accuracy of MRCP in the diagnosis of choledocholithiasis and the new one stop tests available for severity stratification of acute pancreatitis on admission, we recommend one stop tests for severity stratification of pancreatitis and imaging within 24 hours of admission in acute pancreatitis in order to find the aetiology so that ERCP and sphincterotomy can be performed within 72 hours.

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References


RANK ligand and osteoprotegerin: emerging roles in mucosal inflammation

We read with interest the study by Byrne and colleagues (Gut 2005;54:79–86) outlining the significant therapeutic opportunities provided by manipulation of the RANK/RANK ligand (RANKL)/osteoprotegerin (OPG) system using recombinant Fc-OPG. There are, however, a number of physiological effects of OPG that were not discussed and which demonstrate the depth of influence of the RANK/RANKL/OPG system on both inflammatory disease and possibly immune surveillance mechanisms. These additional actions may provide both novel therapeutic approaches in inflammatory disease and point to other clinical effects of the Fc-OPG construct.

Work published by our own group studying the interleukin 2 deficient mouse model of inflammatory bowel and bone disease, using identical doses of Fc-OPG to Byrne et al, demonstrated the effects on gut inflammation, dendritic cell (DC) numbers, and macrophage (Mo) activation, as analysed by both colonic histology and flow cytometry. In the April issue of Gut, Moschen and colleagues (Gut 2005;54:479–487) showed that OPG can be demonstrated on both DC and Møs, also indicating that the molecule has the potential to influence these cells. These observations are in keeping with previous publications which have outlined the role of the RANK/RANKL/OPG system in DC survival, function, and the development of antigen specific memory T cell responses. Hence modulation of inflammatory responses in the gut using Fc-OPG could theoretically provide both direct treatment for gut inflammation alongside the associated bone loss described by Byrne et al. OPG has also been shown to influence TRAIL mediated signalling which may also impact on the DC microenvironment, preventing DC death, but more significantly has shown effects in prevention of TRAIL induced apoptosis in a number of tumour types.

These findings highlight the fact that OPG can significantly influence survival of different cell types and the full extent of the actions of Fc-OPG in vivo are undoubtedly still yet to be shown.

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Synbiotic therapy for ulcerative colitis

We read with interest the article by Furrie and colleagues (*Gut* 2005;54:242–9). While we believe this approach represents a very interesting advance in our understanding of aspects of the disease, we believe the synbiotic cocktail should be further validated formally. Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally? Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally? Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally? Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally? Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally? Can we be reassured that the conclusions drawn from these results would have been the same if the synbiotic cocktail had not been previously validated formally?

In the period between enrolment in the trial and initiation of the test treatment, one patient in the placebo group went into spontaneous remission (SCAI 0, modified Baron score 0) and so no longer fulfilled the entry criteria for the study. However, this subject still appears to have been included in the evaluation of the response to placebo and hence may have skewed the results for this group.

The authors reported a significant reduction in expression of mRNA for human beta-defensins 2–4 and the inflammatory cytokines tumour necrosis factor alpha and interleukin 1alpha in mucosal biopsies. It is of course possible that these changes might be associated with subsequent clinical, sigmoidoscopic, and in some cases clinical improvement, and we would question whether the data presented convincingly show initiation of the resolution of inflammation stated in the title. We agree with the authors that a much larger scale randomised controlled clinical trial of this synbiotic cocktail is needed, using conventional and well validated measures of response, before we can draw firm conclusions about its efficacy (or safety).

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References

Deranged smooth muscle alpha-actin expression as a biomarker of intestinal pseudo-obstruction

We read with interest the article by Knowles and colleagues (*Gut* 2004;53:1583–9) in which the authors concluded that immunostaining of the adult jejunum with smooth muscle alpha-actin (ASMA) may be a valuable biomarker of chronic intestinal pseudo-obstruction (CIPO). We recently published a similar study in which 17 archival formalin fixed, paraffin wax embedded samples of small intestine and 12 samples of large intestine were immunostained with ASMA, desmin, and smooth muscle myosin heavy chain, using the same antibody for ASMA as Knowles and colleagues. In two of the three cases investigated in our study, ileal samples were examined from patients with clinical evidence of intestinal pseudo-obstruction. We found that both of these CIPO cases and all 15 control ileal samples showed weak or absent ASMA expression within the inner circular layer of the muscularis propria, with an identical pattern to that identified within the case and control ileal samples examined by Knowles et al.

Knowles et al found that 24% of CIPO cases showed absent or weak ASMA expression in the circular, muscle ASMA expression within the jejunum while this pattern was not identified in any control jejunal samples. However, in the ileum, absent or weak ASMA expression was universal in their controls and present in 69% of CIPO cases.

It is possible that absent or weak inner circular muscle ASMA expression within the jejenum may represent a biomarker of CIIP. However, the universal incidence of this phenomenon within the ileum in both studies and its presence at this site in a greater proportion of controls than cases, according to Knowles et al, indicates that ASMA expression should be interpreted with caution in these patients. In particular, although Knowles et al suggest that this phenomenon may be a biomarker of CIIP when identified within the jejunum, a definitive study of the geographical variation in ASMA expression within the muscularis propria of the small intestine is now indicated to determine the precise significance of this finding. The observation that manometric studies have shown pressure tracing patterns more suggestive of a neural defect than a primary muscular abnormality in most CIIP patients casts further doubt on the biological significance of apparent alterations in ASMA expression.

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Conflict of interest: None declared.

Reference

Inflammatory biomarkers predict relapse in IBD

After reading the paper presented by Costa et al (*Gut* 2005;54:364–8) and the additional commentary by Pardi and Sandborn (*Gut* 2005;54:321–2), we would like to underscore the potential importance of biomarkers to assess intestinal inflammation and we would like to add to a clarification on the faecal calprotectin assay.

We agree with Pardi and Sandborn that other serological markers have not demonstrated clinical utility as predictors or monitoring tools of inflammatory bowel disease (IBD) activity. Studies are emerging to support the sensitivity and clinical utility of more selective and specific non-invasive markers of intestinal inflammation, such as faecal calprotectin. As we deepen our understanding of the molecular basis of IBD, we may find that the degree of inflammation and its role in recurrence differs between Crohn’s disease and ulcerative colitis. This is an important question raised in both articles.

When comparing the Costa study with the earlier paper by Tibble and colleagues, one must ensure that the patient populations for each of the two disease states are equivalent. Disease activity was assessed at this site in a disease activity index (CDAI), a test that is highly subjective and correlates poorly with inflammatory activity assessed by In111 labelled white cells and endoscopic indices, both objective markers of disease activity. It is also clear from a recent analysis by Sands and colleagues that there is wide variation in how researchers apply the parameters of the
CDAI. Saverymuttu, who compared the excretion of In111 labelled leucocytes and found that the CDAI underestimated the degree of inflammation in 89% of patients with a CDAI <150 (that is, in clinical remission). This suggests that the CDAI does not necessarily reflect the inflammatory component of IBD.

In the Costa study (an unusually high) 71% of Crohn’s patients had small intestinal disease alone, with only 31% having ileocolitis or colitis. These values are compared with 47% and 53%, respectively, in the Tible study. Thus we see different cohorts of Crohn’s being evaluated in the two, apparently similar, studies. Given the significant variability in CDAI, lack of correlation of CDAI with inflammation, and unmatched patient cohorts, it is not surprising that there is a difference in the results of the Costa study in comparison with Tible’s previous trial.

Both studies (Tible and Costa) demonstrate the clinical utility of faecal calprotectin in predicting remission in ulcerative colitis. Neither study makes clear the ability of biomarkers to predict remission in small bowel Crohn’s. CDAI as a marker of remission adds further confusion. The level of inflammatory biomarkers may vary anatomically, based on neutrophilic flux, chemotaxis, surface area, and disease process. Saverymuttu found higher levels of In111 labelled leucocytes among large bowel Crohn’s compared with Crohn’s in the small bowel. Assessment of calprotectin as a predictor of relapse in small intestinal Crohn’s is an issue for future investigation, utilising objective evaluation of intestinal inflammation.

Finally, in addition to potential selection bias in the specificity and predictive value of calprotectin in small bowel Crohn’s disease, there is also an important misunderstanding regarding assay performance that should be clarified. The studies published by Tible and colleagues and most studies reported before 2003, evaluated faecal calprotectin using an earlier stool extraction process. The anti-calprotectin antibodies used in the earlier assay came from the same source. Eurospital has since developed an ELISA kit using the new extraction procedure and known calprotectin standards. The updated extraction process gives a five times higher yield during extraction of faecal calprotectin but does not change the performance of the kit in any other way. Thus the results in the Costa study should be effectively compared with a calprotectin cut off point of 290 mg/l, correcting Pardi and Sandborn’s puzzlement regarding the decline in NPY differences as the calprotectin cut off point “appeared” to decrease. Effective translation of values from the older calprotectin literature will help to clarify any confusion about the meaning of a given value.

The new extraction process effectively removes nearly 100% of the calprotectin protein from the cytosol of neutrophils, thus maximising its sensitivity and reproducibility as a marker of intestinal inflammation.2

Pin microphone use of these biomarkers as a clinical end point in future studies of the natural history and treatment of IBD.1 The role of inflammatory biomarkers in mucosal healing will be an important parameter for effective treatment of IBD.4 We thank the authors for their commitment to, and input in, this important effort.

References


Colitis evolving into ulcerative colitis

We observed the development of ulcerative colitis (UC) in a 37 year old young woman with clinical and histological features of lymphocytic colitis (LC) after a period of six years. Seven years ago, the patient was admitted to our gastroenterology unit complaining of watery diarrhoea (>26 stools/day). She had never smoked and she was not taking any drugs affecting gastrointestinal secretion or motility. Laboratory tests, including autoimmune antibody and upper endoscopy, were normal. Parasitological and bacteriological faecal stools were negative. Biopsies of the jejunum did not show a pattern of coeliac disease. Colonoscopy with terminal ileoscopy was macroscopically normal. Ten biopsy specimens were taken from the rectum, revealing the histological pattern of LC (intraepithelial lymphocytes >100/100 epithelial cells, inflammation in the lamina propria, and surface epithelial changes consisting of degeneration). 5-ASA therapy (2.4 g/day) was administrated for 24 weeks. Within the first two weeks of treatment the patient experienced clinical remission (<2 stools/day). At the end of therapy colonoscopy showed normal mucosa and no histological changes. A follow up colonoscopy shows that the patient continues to be in remission.

Conflict of interest: Declared (the declaration can be viewed on the Gut website at http://www.gutjnl.com/supplemental).

References

with intermediate or late stage disease, under which conditions any aggressive forms of therapy are less likely to succeed. As the clinical presentation of HCC is tremendously heterogeneous, it is necessary to consider all known predictive factors, from early to advanced stages, in building an ideal staging system to fit all patient populations.

**Response to steroid therapy of sclerosing cholangitis after duodenopancreactectomy due to autoimmune pancreatitis.**

Autoimmune pancreatitis is a chronic inflammation of the pancreas due to autoantibodies that target the exocrine portion of the pancreas. This condition is often associated with other autoimmune diseases such as pernicious anemia, Hashimoto's thyroiditis, and cryoglobulinemia.

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In summary, the BCLC system contains treatment derived parameters and may work well in areas where HCC is diagnosed at a relatively early stage, whereas the CLIP or Okuda system would only prevail in patients of a patient who, after a cholecystectomy, may develop bile duct injury, resulting in biliary stricture or cirrhosis. Therefore, it is not surprising that BCLC is better that its competitors in an appropriate study environment.

In summary, the BCLC system contains treatment derived parameters and may work well in areas where HCC is diagnosed at a relatively early stage, whereas the CLIP or Okuda system would only prevail in patients

autoimmune processes (episode of tenosynovitis in the shoulder of our patient), and good response to steroids that would reveal an autoimmune aetopathogenesis. Our group would include the possibility of exclusive biliary tract involvement, as was the case with our patient, after the stress of surgery. Taniguchi and colleagues reported relapse of autoimmune pancreatitis after cephalic duodenopancreatectomy although they do not refer to alterations in the biliary tract. Toosi and colleagues reported the appearance in two of their patients of post-surgical sclerosing cholangitis although only after biopsy of the pancreatic head. The appearance of sclerosing cholangitis after duodenopancreatectomy has not been reported previously. The short period of biliary involvement and the progression maintained in the biliary involvement led us to suspect an inflammatory process similar to that of autoimmune pancreatitis. Neither therapy nor its duration have been well defined, and this can be seen in the different regimens used both for autoimmune pancreatitis and autoimmune pancreatocholangitis. Erkelens and colleagues used prednisolone 0.5–1 mg/kg/day, followed by maintenance doses for six months. Some patients also received, albeit exceptionally, azathioprine at 50 mg/day, and this was used temporarily until resolution of the biliary endoprosthesis process. The results were satisfactory, although no therapeutic protocol has been defined. This disparity in criteria is manifested in other studies, such as that of Toosi and colleagues who used ursodeoxycholic acid at 750 mg/24 h with almost complete return to a normal clinical and radiological picture. Other authors, such as Kojima and colleagues, maintained treatment according to the clinical-radiological changes, using a loading dose of 40 mg/24 h, with maintenance doses of 5 mg/24 h. Taniguchi and colleagues used prednisolone at 30 mg/24 h for one month, followed by 25 mg/24 h for nine months with satisfactory evolution. Kamisawa and colleagues, on the other hand, used a loading dose of prednisolone of 30–40 mg/24 h and maintenance doses of 5 mg/24 h until clinical check-up. Based on the hypothesis of an excessive fibro-inflammatory response in our patient, we started therapy with prednisolone 1 mg/kg for four weeks, with progressive reduction to 10 mg/24 h over the following four weeks. The maintenance dose was continued for a further two months, with analytical, radiological, and clinical resolution of the process.

Calprotectin and IBD

Costa and colleagues (Gut 2005; 54: 364–8) recently reported a study describing the ability of faecal calprotectin to predict relapse in the following year in patients with inflammatory bowel disease (IBD). They concluded that a calprotectin level >150 μg/g was predictive of relapse in Crohn’s disease (CD) and in ulcerative colitis (UC), but was not as effective in predicting relapse in UC. Unfortunately, we believe that the authors failed to demonstrate these two points. If faecal calprotectin >150 μg/g was clearly predictive of relapse in UC patients, this was not the case in CD (p = 0.07 and p = 0.31 for the likelihood ratio test in univariate and multivariate analyses, respectively). This may be due to the method used to determine the cut off value for calprotectin. Firstly, the receiver operating curve (ROC) method did not provide any cut off value for CD as the curve was not different from the diagonal and the confidence interval of the area under the curve included 0.5 (0.40–0.77). Secondly, the ROC curve method was not appropriate as it does not take into account the time to relapse, in contrast with the proportional hazards model used to test the predictive value of calprotectin. Classical methods related to time to relapse should have been preferred. The assertion, both in the title and in the text, that calprotectin was a stronger predictive marker of relapse in UC than in CD was not statistically tested by the authors. This assertion probably came from the high value for the hazard ratio in UC, compared with that in CD, but these values are misleading because of the exponential transformation of the coefficient in the proportional hazard model. When roughly calculating these coefficients and their standard error, the figures are much less convincing. In the univariate analysis the results are 1.39 (0.76) for CD and 2.35 (0.75) for UC, and the comparison between these two estimates gives a p value of 0.28 (p = 0.15 with estimates from the multivariate analysis). These disappointing results may be the consequence of a lack of power due to the relatively small number of patients.

Another important point is that the analysis was based on the assumption that the biomarker is able to predict relapse with the same strength whether the relapse occurs early after evaluation or later during follow up. If this is true it means that the calprotectin level is a characteristic of the...
Author's reply

We thank Lemann and Mary for their comments on our article (Gut 2005;54:364–8). We appreciate their careful reading of the text, and their questioning of the validity of our study gives us a unique opportunity for further articulating our findings.

We agree that other methods could be used instead of the receiver operating curve (ROC) to assess a cut off value for calprotectin. As Lemann and Mary noted however, the chosen cut off value of 150 μg/l proved to be optimal in ulcerative colitis (UC) patients. In our opinion, no unique cut off value, however carefully chosen, could improve on the prediction of relapse in Crohn’s disease (CD) patients. Perhaps assessment based on a continuous, rather than a binary, score might provide a somewhat better alternative. Evaluation of predictive models of time to relapse, if worthwhile, would require a larger sample size and it was beyond the scope of our study.

Also, we agree with Lemann and Mary that only calprotectin and CD activity index (CDAI) were found to be independently correlated with time to relapse in UC and CD, respectively. Nevertheless, the important role of smoking habit and UC disease should have been explicitly referred to as confounding. The proportionality of the hazard over time was evaluated to some extent as part of testing the interaction terms for all of the variables. As acknowledged in the letter, the power of this analysis was however limited.

We disagree with Lemann and Mary if they wish to downplay the remarkable difference between the diagnostic groups. Firstly, we strongly disagree that a calprotectin level >150 μg/l is predictive of relapse in UC, but is more effective in predicting relapse in UC.

References

