SHORT REPORTS

Decrease in pancreatic steatorrhoea by positioned-release enzyme capsules

Oral pancreatic enzyme supplements used in treatment of pancreatic steatorrhoea are partly inactivated by acid and pepsin in the stomach. When given by mouth in a therapeutic dosage 22% of trypsin and only 8% of lipase is active at the ligament of Treitz. Many attempts have been made to protect oral pancreatic enzyme supplements by raising gastric pH with antacids, reducing gastric acid T. and pepsin output with H2-receptor antagonists, or by providing an enteric coating resistant to acid and pepsin, but few have been successful.

The optimal site for enzyme release from an enteric coated preparation is in the pyloric antrum or the proximal duodenum. A "positioned-release" capsule (Duocap, Biorex Laboratories Ltd, London) designed to release its contents there, was developed for another drug. The original idea for the use of Duocaps to administer pancreatic enzymes was suggested by Professor J Kohn (Department of Biochemistry, University of Surrey). An uncontrolled study of five patients showed a significant decrease of steatorrhoea when treated with pancreatic enzymes in Duocaps compared with the preparation normally taken. The present study was designed to measure the effectiveness of delivering enzymes in Duocaps in a controlled trial.

Patients, methods, and results

In a double-blind crossover study outpatient patients receiving their normal diets took pancreatin BPC 320 mg three times daily before main meals, either in a Duocap or in a gelatine capsule of identical appearance for two weeks, followed by the other formulation for a further two weeks. Allocation was randomised in groups of four. Total daily intake was lipase 19 050 BP units, protease 1330 BP units, and amylase 22 860 BP units. Other supplements were stopped and not replaced. To synchronise enzyme release with meals Duocaps were given half an hour before, and standard capsules at the start of, the meal. Patients completed a diary noting time of taking the capsules, frequency and nature of bowel actions, symptoms, and their diet.

In the last three days of both two-week periods patients collected their stools for measurement of faecal fat. Throughout both weeks during which three-day collections were made the patients were asked to keep to exactly the same diet. Stools were weighed and stored at -20°C before analysis in batches in one laboratory using Anderson's modification of the Van de Kamer method.

Thirteen patients, including 10 men (mean age 50-8 years, range 16-68 years) with steatorrhoea due to confirmed pancreatic insufficiency, were studied. Mean pre-study faecal fats were 102±15 mmol/24 h. Five had alcoholic pancreatitis, five idiopathic chronic pancreatitis, and three had had surgery or trauma. All were clinically stable. Eight ate low fat diets, one a diabetic diet, and the remainder ate freely.

Faecal fat output while the patients were taking the two formulations is shown in the figure. The mean output with the control capsules was 194±8± 28 mmol/24 h compared with 151±9±30 mmol/24 h with Duocaps (p<0.05; n=13). There was no difference between those taking Duocaps in the first study period or the second. Faecal wet weight was reduced slightly with Duocaps compared with the control capsules (from 502±97 to 486±112 g/24 h; not significant; n=13). The mean number of stools per day was 2±8 with control capsules and 2±6 with Duocaps (not significant; n=13).

Mean body weight was unchanged (63±4 to 63±6 kg with control capsules and Duocaps respectively). Symptoms were minimal and the same with the two treatments. Patients' preferences were divided equally between the two formulations.

Comment

Mean daily faecal fat output was decreased by 43 mmol (22%) when pancreatic replacement enzymes were taken in Duocaps compared with standard capsules. The small daily dose of lipase (<20 000 BP)
units) was chosen so that any benefit could be clearly demonstrated. Most patients had been on much higher doses previously. It is interesting that the sign of steatorrhoea returned.

The significant reduction in steatorrhoea caused only a small and insignificant decrease in faecal wet weight and stool frequency which may reflect the low dosage used. The use of positioned-release capsules (whatever their mode of action may be) to deliver enzyme supplements resulted, however, in a significant reduction in steatorrhoea.

Pancreatic BPC in Duocaps and control gelatin capsules was supplied by Biorex Laboratories Ltd, London N1, whose help we gratefully acknowledge. Correspondence should be addressed to: Dr R H Taylor, Department of Gastroenterology and Nutrition, Central Middlesex Hospital, London NW1 7NS.


(accepted 27 August 1982)

Unusual presentation of anorectal carcinoma

Ischiorectal abscesses are common and require hospital admission for incision and drainage under general anaesthesia. Their association with an underlying carcinoma in the rectum or anal canal has not been previously reported and we describe two cases which illustrate this association.

Case reports

Case 1—A 58-year-old woman was admitted to hospital with a two-day history of pain in the perianal region that was becoming progressively more severe. Examination revealed a hot tender swelling of the left ischiorectal fossa. She had a fever (38.7°C) and her white cell count was 13.6 x 10^9/L. Under general anaesthesia a deeply sited ischiorectal abscess cavity was deroofed. Digital examination of the anal canal showed an indurated posterior wall from which a biopsy sample was taken. Histological examination showed a moderately differentiated squamous-cell carcinoma.

Case 2—A 63-year-old man was admitted to hospital with a right ischiorectal abscess. He had noted a change in bowel habit in the previous few months. He had no fever and had a white cell count of 13.9 x 10^9/L. The abscess was deroofed, and rectal examination under the anaesthetic revealed an ulcerating lesion 6 cm on the right lateral wall. Biopsy confirmed that this was an adenocarcinoma.

Comment

Carcinoma of the colon may present as an abdominal wall abscess, due to the direct spread of the colonic neoplasm to the anterior abdominal wall.1 Posterior perforation may occur and present as a retroperitoneal abscess. A left perinephric abscess has been described as the presenting feature in cases of carcinoma of the descending colon.3 Squamous-cell carcinoma of the anal canal presenting as a groin abscess which complicated metastatic lymph nodes has been described in two cases.4 Carcinoma complicating an anal fistula is well recognised, though most anorectal abscesses are not associated with anal fistula5 and fistulas were not found in our patients.

Our experience emphasises the need to perform a thorough local examination at the time of incision of an anorectal abscess with biopsy of any suspicious lesions.

Requests for reprints should be addressed to Mr I A Donovan.


Tetanus after allogeneic bone-marrow transplantation

We report a case of tetanus, an uncommon medical emergency, after allogeneic bone-marrow transplantation complicated by radiation-induced pneumonitis.

Case history

A 30-year-old army sergeant received a bone-marrow transplant from his brother who showed HLA and mixed-lymphocyte-culture compatibility, for the treatment of a granulocytic sarcoma after local radiotherapy to the presenting tumour mass.1 Six years earlier he had sustained an open, compound fracture of the left tibia and fibula while on army exercises. A pin and plate had been inserted after several hours’ delay. At the time booster anti-tetanus and benzylpenicillin had been administered and union subsequently achieved. Bone-marrow transplantation was performed after he had received cyclophosphamide 120 mg/kg and total body irradiation. Cyclosporin A was given as prophylaxis against graft-versus-host disease.2 Engraftment was achieved, and two episodes of graft-versus-host disease were controlled by infusions of methylprednisolone. On day 54 after transplantation a coarser team developed and over 24 hours dysarthria, dysphagia, and abdominal cramps ensued. Painful muscular twitchings and increased extensor tone were present. Clonic spasms precipitated by examination, in association with trismus and a reduced dental gap, were noted. Tetanus was diagnosed clinically. Treatment included sedation with diazepam 30 mg intravenously, benzylpenicillin 2 MU four-hourly, and 1250 U human antitetanus immunoglobulin. Assisted ventilation was required, and one episode of hypertension occurred but required no active treatment. Despite intensive measures progressive hypoxia developed in association with acute renal failure. Sustained hypotension and bradycardia developed and he died 14 days after the onset of tetanic symptoms.

Necropsy disclosed radiation-induced pneumonitis and widespread hypoxic changes throughout the cerebral cortex. Acute tubular necrosis was seen in the kidneys. No organisms were cultured from the lungs or the site of the old fracture around the pin and plate.

Comment

Tetanus is an uncommon medical emergency that has a good prognosis for full recovery provided that it is diagnosed.3 The patient referred on here would have received full immunisation against Clostridium tetani during his active service, and we postulate that the immunosuppression used for bone-marrow transplantation eradicated this immunity. No spores or bacilli of C tenui were found at the old fracture site, but it is possible that dormant spores may reside in the body for long periods. We suggest that spores were incorporated into the wound site before surgery and that oxygenation to the tissues around the plate became compromised after transplantation, permitting...