reduces the amplitude of miniature end plate potentials. One possibly analogous case in man has been described, in which a patient noted weakness within 24 hours of beginning penicillamine, improving immediately when the drug was stopped.² Equally this binding suggests a mechanism for antigenic alteration of acetylcholine receptor and loss of tolerance.

Carbocysteine is structurally similar to penicillamine, and people with a low capacity for producing sulphoxides of carbocysteine may be similarly unable to metabolise penicillamine. Poor sulphoxidisers of carbocysteine are more likely to develop proteinuria or thrombocytopenia when taking penicillamine.³ Our patient was a very poor sulphoxidiser (index 52). Possibly this inability to metabolise the sulphhydryl group makes interaction with acetylcholine receptor more likely.

Penicillamine toxicity, especially proteinuria or marrow suppression, may be more likely in patients who have had a toxic reaction to gold.⁴ The order of treatment with gold and penicillamine probably makes no difference to recurrence of toxicity.⁵

Caution should be exercised in prescribing gold to a patient who has developed penicillamine induced myasthenia.

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Normal energy intake in undernourished patients with Crohn's disease

Malnutrition is common in Crohn's disease and an important cause is widely believed to be reduced food intake as a consequence of anorexia or fear of abdominal pain. Scientific data, however, are remarkably few. We have investigated the energy intakes of a group of chronically malnourished outpatients with Crohn's disease and compared the results with those in a group of well nourished outpatients with ulcerative colitis and a group of healthy subjects.

Patients, methods, and results

We studied 26 patients (17 men) with Crohn's disease and 22 (12 men) with ulcerative colitis. All were ambulant and attending a gastrointestinal clinic, and their mean ages (1 SD) were 36 (14) and 43 (14) years, respectively. Mean duration of disease was 10 years in the patients with Crohn's disease and eight years in those with ulcerative colitis. We also studied 22 healthy subjects (13 men), whose mean age (1 SD) was 34 (15) years.

Patients with inflammatory bowel disease had their height and weight measured, their weight being expressed as a percentage of ideal.¹ A semi-weighted dietary assessment was carried out in all subjects.² Subjects were provided with a pair of Salter Slimmer's Scales and asked to complete a three day dietary diary on two weekdays and one weekend day, recording everything they ate and drank, using either weight, volume, or handy measures. Mean daily energy intake was calculated using a computer tape of McCance

and Widdowson's *The Composition of Foods*³ and from manufacturers' information. Statistical analysis was by unpaired Student's *t* test.

Mean weight (1 SD) was 86.8 (6.4)% of ideal in patients with Crohn's disease and 113.8 (19.9)% of ideal in those with ulcerative colitis. The figure shows the mean daily energy intakes of the three groups; there were no significant differences.

Daily energy intakes in patients with Crohn's disease, patients with ulcerative colitis, and normal subjects. Bars represent group means.

Conversion: SI to traditional units—Energy: 4.18 MJ $\approx$ 1000 kcal.

Comment

These results show that malnourished outpatients with Crohn's disease have similar energy intakes to those of well nourished outpatients with ulcerative colitis and healthy subjects. Undernutrition might therefore be accounted for by malabsorption, inflammation, and enteric loss of nutrients, and possibly the increased metabolic demands of the disease cannot be compensated for by an apparently normal energy intake. In undernourished ambulatory patients with Crohn's disease increasing the energy intake by enteral supplementation may result in an increase in weight and other nutritional variables.⁴ Similarly parenteral hyperalimentation in acute severe Crohn's disease may improve nutrition and contribute to primary management.⁵ These observations support the concept that undernourished patients with Crohn's disease may have a "relative energy deficiency."

Our study suggests that a reduced food intake is not a common feature in chronically undernourished patients with Crohn's disease; nevertheless, this does not in any way obviate the important role of nutritional care in their management.

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