CLINICAL PAPER SUMMARY

Pancrelipase for pancreatic disorders: an update

Dhanasekaran R, Toskes PP. *Drugs of Today (Barc).* 2010 Nov;46(11):855-66.

Introduction

Pancreatic exocrine insufficiency (PEI) is an inadequate supply of pancreatic enzymes to the small intestine leading to malabsorption and malnutrition. The most common causes of PEI are cystic fibrosis and chronic pancreatitis. Obstructive causes include resection following pancreatic cancer other GI surgery and as a secondary effect of coeliac disease. [1]

Consequences of PEI extend beyond steatorrhoea, azotorrhoea, chronic pain and weight loss. They also include malabsorption of carbohydrates, vitamins, calcium and magnesium. Despite these consequences, some clinicians still delay treatment or use inadequate dosing.

Basing the diagnosis solely on clinical symptoms of steatorrhoea can lead to significant underestimation of the condition and a delay in initiation of treatment. [1]

A recent study examined stool fat in patients with chronic pancreatitis. 62% of patients who did not report steatorrhoea had abnormal stool fat excretion. [1]

Testing

To avoid nutritional deterioration in patients with chronic pancreatitis, early screening is recommended. [1]

Simple non-invasive tests used in screening for PEI include:

- Monoclonal faecal elastase-1
- Serum trypsinogen

Diagnostic tests include:

- Secretin stimulation test. This is invasive, expensive and seldom performed.
- Quantitative 72-hour faecal fat test. A labour-intensive test which is difficult to perform.

No single test can be reliably and safely used, especially in mild cases. Clinicians sometimes resort to a trial of oral PERT to diagnose PEI.[1]

Pancreatic enzyme replacement therapy (PERT)

Pancrelipase is a pancreatic enzyme replacement therapy (PERT). It contains three pancreatic enzymes: lipases, protease and amylase. The enzymes are extracted from porcine pancreas. Pancrelipase mimics the physiological role of the pancreas.[1]

PERT is the cornerstone of management of PEI. It has been shown to play a role in reversing the metabolic consequences of PEI. Early detection and prompt therapy should lead to an overall reduction in morbidity and mortality as well as improved quality of life.[1]

Although PERT can improve outcomes, diagnosis is often delayed and under-dosing is a common problem.[1]

Efficacy of PERT

Efficacy is usually assessed by relief of steatorrhoea-related symptoms and weight gain. However, malabsorption and malnutrition can persist. Other markers that can be used adjunctively include:[1]

- Body mass index
- Serum levels of retinol-binding protein
- Pre-albumin
- 13C-triglyceride stool breath test

Safety

When used at recommended doses, pancrelipase is relatively safe. Common side effects are nausea, bloating and diarrhoea.[1]

Treatment failure

Treatment failure can occur but can usually be solved.[1]

Treatment failure with PERT may be related to one of the following: [1]

Medication-related	▪ Inadequate dosage ▪ Switching to generic forms that are not bioequivalent ▪ Outdated prescription ▪ Improper storage ▪ Chewing or biting medication
Dietary factors	▪ Inappropriate timing of drug and food ▪ Excessive fibre in diet ▪ Alcohol consumption ▪ Calcium or magnesium-containing antacids ▪ High fat fast food
Poor compliance	▪ Check stool chymotrypsin
Increased gastric acid exposure	▪ Gastric motility disorder ▪ Zollinger-Ellison syndrome ▪ Hypersecretory states
Concomitant malabsorptive states	▪ Coeliac disease ▪ Small bowel bacterial overgrowth ▪ Giardiasis ▪ Short gut syndrome ▪ Inflammatory bowel disease ▪ Bilary disease/cholestasis

Adapted from Dhanasekaran R and Toskes PP, 2010 [1]

"Early detection of and prompt initiation of pancreatic enzyme replacement therapy has the potential to prevent malnutrition-related morbidity and mortality, to achieve symptomatic relief and to improve quality of life." [1]

Reference:

[1] Dhanasekaran R, Toskes PP. Drugs of Today (Barc). **2010** Nov;46(11):855-66.