Exocrine Pancreatic Insufficiency: Is it an Omitted Complication of Diabetes?

Ekzokrin Pankreas Yetmezliği: Diyabetin Göz Ardı Edilen Bir Komplikasyonu mudur?

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Malabsorption and malnutrition, which occur after insufficient synthesis or release of digestive enzymes in the pancreas, are referred to as exocrine pancreatic insufficiency (EPI). Besides the nonspecific symptoms such as abdominal pain, flatulence, weight loss, and steatorrhea, more specific symptoms and findings may reveal albumin malabsorption and lack of fat-soluble (A, D, E, K) vitamins. EPI can be seen in many local or systemic diseases and conditions which affect either structure or function of the pancreas but is most commonly found in chronic pancreatitis (1). Today, the general diagnosis is based on the determination of fecal elastase-1 (FE-1) levels. Patients having FE-1 levels > 200 µg/g are assumed to be normal, between 100-200 µg/g are diagnosed as mild/moderate pancreas insufficiency, and <100 µg/g are diagnosed as severe pancreas insufficiency (2).

Endocrine and exocrine disorders observed together or one leads to the other in diabetes mellitus (DM). The hypotheses about occurrence of EPI in diabetes can be summarized with changes in the stimulant-inhibitory islet cell hormone balance, development of pancreatic acinar atrophy due to insulin deficiency, decreased enteropancreatic reflex as well as impaired exocrine functions stemming from autonomic neuropathy and consequent gastroparesis, autoimmunity and blood supply disorder in the pancreas due to microvascular complications and fibrosis (2).

The frequency of EPI that is not considered much in routine diabetic patient evaluation has been reported as 40% in patients with type 1 DM and 27% in patients with type 2 DM (3). The causes of underestimation of EPI which is actually not rarely existing may be the patients’ assumption that the gastrointestinal symptoms are normal and thus unworthy of considering and telling the doctor about them. Furthermore, the physician may not be able to allocate enough time for a detailed symptomatic interrogation in countries, as in our country, where diabetes is frequent and the number of patients is very high. Moreover, there is a dearth of clear data on which symptoms or findings should be based while investigating the EPI. For example, Cummings et al. reported that approximately one-fourth of diabetic patients had at least one gastrointestinal symptom of EPI, and half of them had low levels of FE-1 (4). In this study, steatorrhea and weight loss were found to be insufficient in proving EPD, and a detailed investigation for gas, diarrhea and abdominal pain was highlighted. A recently published multicenter study (5) reported that the symptoms associated with diarrhea or digestion in patients with normal FE-1 levels were as likely as those with low FE-1 levels. In one study, we found that weight loss and abdominal distention were significantly more in diabetic patients than in the control group (6). We also found that the only predictors of the presence of EPD in patients with diabetes...
mellitus were distension and abdominal pain. The studies with different outcomes indicate the need for multidisciplinary, planned and prospective controlled investigations with more patients.

The aims in the treatment of diabetic patients with EPI are to achieve normal digestion, decrease and recover steatorrhea and other symptoms as well as to reduce morbidity and mortality. For this purpose, pancreatic enzyme replacement therapy (PERT) and proton pump inhibitors are recommended in appropriate patients together with measures such as ensuring a good blood glucose regulation, avoiding smoking and alcohol, a frequent intake of small amounts of nutrients, having normal amounts of fat, and adding fat-soluble vitamins in diet (3).

In conclusion, frequent occurrence of EPI in diabetic patients exerts negative impacts on the patients’ quality of life and the metabolic complications that may be caused. The physicians should give exhaustive attention to the symptoms and the algorithms for diagnosis and treatment should be developed. For instance, research and subsequent guidelines need to be developed on when and which patients should be tested for EPI and administration of PERT to those specific patients.

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