

Malnutrition in patients with chronic pancreatitis of various etiologies

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A large number of CP patients exhibit signs of malnutrition with vitamin deficiencies. Deficiencies of fat-soluble vitamins, minerals and trace elements appear not to be related to CP etiology. Such deficiencies might represent a risk factor for potential comorbidities and mortality in this group of patients, regardless of etiology

Background: Malnutrition with deficiencies of fat-soluble vitamins, minerals and trace elements are well-known consequences of maldigestion and poor absorption of nutrients, and malnutrition has been frequently identified in patients with CP and pancreatic exocrine insufficiency (PEI). The prevalence of abnormal laboratory nutritional markers in chronic pancreatitis (CP) has been investigated in several studies, but most of them were restricted to patients with alcoholic chronic pancreatitis and had limitations due to the small number of studied patients.

Materials and method

We performed a retrospective analysis of medical records of patients with various etiologies of CP. The following parameters were analyzed: age, gender, smoking, consumption of alcohol, fecal elastase-1 (FE1), albumin, calcium, magnesium, iron, triglyceride, cholesterol, hemoglobin, vitamin A, vitamin E and vitamin D. Etiology of CP was determined according to the M-ANNHEIM classification system into the following subcategories: alcohol consumption, nicotine consumption, hereditary factors, efferent pancreatic duct factors and immunological factors.

Results: In overall, 226 patients were included in the analysis: 131 (58.0%) male and 95 (42.0%) female, mean age 51.8 ± 17.9 years. The different etiologies of CP comprised: autoimmune (n=69; 30.5%), alcohol (n=65; 28.8%), efferent duct factors (n=19; 8.4%), hereditary (n=26; 11.5%), smoking (n=20; 8.8%) and idiopathic (n=27; 12.0%). FE1 was normal ($> 200\text{mg/g}$) in 83 (41.7%) patients. Mild to moderate PEI (FE1: $100\text{-}200\text{mg/g}$) was found in 22 (11.1%) of patients and severe PEI (FE1 $< 100\text{mg/g}$) in 94 (47.2%) of patients. Prevalence of deficiencies according to our serum nutritional panel was as follows: vitamin D 51.3%, albumin 34.2%, hemoglobin 15.8%, cholesterol 14.1%, cobalamin 11.0%, iron 10.5%, vitamin A 8.3%, vitamin E 6.9%, magnesium 5.7%, folate 4.4%, triglycerides 1.1% and calcium 0%, with no statistically significant differences between nutritional deficiencies and different etiologies of CP. To the best of our knowledge, this is the largest study characterizing the prevalence of malnutrition in chronic pancreatitis on the basis of all key CP etiologies.