Fecal Elastase-1 Is Useful in the Detection of Steatorrhea in Patients with Pancreatic Diseases But Not After Pancreatic Resection

Pietro Campagnola, Chiara Cristofori, Antonio Amodio, Flora Agugiaro, Rocco Micciolo, Alessandra Magro, Armando Gab brielli, Luisa Moser, Arianna Massella, Luca Frulloni, Italo Vantini, Luigi Benini

Gastroenterology Unit and Pancreas Center, Department of Medicine, University of Verona. Verona, Italy

Context The measurement of steatorrhea in pancreatic disorders is complex and has limited diagnostic role. Fecal elastase-1 (FE-1) has been suggested as a simpler alternative to evaluate pancreatic insufficiency, but its diagnostic performance has never been compared with steatorrhea in patients with chronic pancreatitis or after pancreatic resection. Methods. The relationship between steatorrhea and FE-1 was studied in patients with suspected of malabsorption due to chronic pancreatic disorders or pancreatic resection. Analysis of variance (ANOVA) was used for statistical analysis, accepting a P value of 0.05 as limit for significance.

Results Eighty-two patients were studied (42 non operated; 40 previously submitted to pancreatic resection). Fat output was pathological in 50, and more severe in operated than non-operated patients (29.2±3.1 vs. 9.9±2.2 g/day, P<0.001). FE-1 was consistent with exocrine impairment in 58 (severe 50, moderate 8), which was significantly more severe in operated patients. The relationship between FE-1 and steatorrhea was described by a power regression model (Figure 1), with a regression line significantly different in operated and non operated patients (P<0.001). A steatorrhea of 7 g (upper limit of reference range) was calculated by this regression when FE-1 was 15 µg/g in non-operated, but as high as 225 µg/g in operated patients.

Conclusion FE-1 is useful to identify pancreatic insufficiency. Steatorrhea is anticipated in non operated patients only when FE-1 is below the limit for a confident measurement of our assay. In operated patients, steatorrhea may be present even if FE-1 is only slightly reduced, to confirm a role for non pancreatic factors.

Figure 1. Relationship between FE-1 and steatorrhea