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EXOCRINE INSUFFICIENCY AND METABOLIC DISTURBANCES IN
COMPLICATED CHRONIC PANCREATITIS: AN ETIOLOGY-BASED
COMPARATIVE ANALYSIS

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Background. Chronic pancreatitis (CP) is a progressive inflammatory-degenerative disease of the pancreas characterised by gradual structural changes, exocrine and endocrine dysfunction, and reduced quality of life. Complicated forms are associated with more severe clinical, biochemical, and lipid abnormalities; however, the specific features of these changes across biliary, idiopathic, and dysmetabolic variants of CP remain insufficiently investigated.

Objective. To perform a comparative analysis of clinical manifestations, exocrine pancreatic function, biochemical parameters, and lipid profile in patients with complicated and uncomplicated CP of biliary, idiopathic, and dysmetabolic aetiology.

Materials and Methods. A comparative study was conducted in patients with moderate-severity CP divided into six groups according to aetiology (biliary, idiopathic, dysmetabolic) and disease course (complicated vs. uncomplicated). All participants underwent comprehensive clinical and laboratory assessment including stool analysis (soaps, fatty acids, neutral fats), fecal elastase measurement, blood biochemistry (ALT, AST, total and fractionated bilirubin, albumin, α -amylase, total protein), and lipid profile (total cholesterol, triglycerides, HDL-C, LDL-C, VLDL-C, atherogenic index). Data are presented as $M \pm m$; between-group differences were evaluated with parametric tests ($p < 0.05$ considered statistically significant).

Results. Patients with complicated CP demonstrated significantly greater exocrine insufficiency. Fecal elastase levels in complicated biliary, idiopathic, and dysmetabolic CP were 84.1 ± 5.4 , 86.3 ± 5.7 , and 66.0 ± 4.2 $\mu\text{g/g}$, respectively — markedly lower than in their uncomplicated counterparts (133.4 ± 7.8 , 170.1 ± 11.6 , and 112.5 ± 8.4 $\mu\text{g/g}$; $p < 0.001$ for all). Coprogram indices (soaps, neutral fats) were also significantly higher in complicated groups. The most pronounced biochemical difference was observed in α -amylase activity, which reached 1590.9 ± 112.5 , 1761.4 ± 118.8 , and 1502.1 ± 85.7 U/L in complicated biliary, idiopathic, and dysmetabolic CP versus 163.7–209.5 U/L in uncomplicated forms ($p < 0.001$). Total bilirubin and its fractions were significantly elevated in complicated groups across all aetiologies. Albumin, total protein, and ALT did not differ significantly between groups. Lipid abnormalities were most pronounced in dysmetabolic CP, characterised by elevated total cholesterol, triglycerides, LDL-C, VLDL-C, and atherogenic index, with reduced HDL-C, reflecting the close relationship between metabolic disturbances and disease course.



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Conclusions. Complicated CP is associated with more severe clinical and metabolic disturbances compared with uncomplicated forms, regardless of aetiology. The most significant alterations were identified in dysmetabolic CP. Comprehensive evaluation of fecal elastase, α -amylase, bilirubin fractions, and lipid profile provides a reliable basis for early risk stratification and optimisation of individualised management in patients with chronic pancreatitis.

Keywords: *chronic pancreatitis, complicated course, exocrine pancreatic insufficiency, fecal elastase, lipid profile, α -amylase, biochemical markers.*

