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**SERUM α -AMYLASE AND LIPID PROFILE AS LABORATORY
PREDICTORS OF COMPLICATED CHRONIC PANCREATITIS**

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Background. Chronic pancreatitis (CP) is a progressively evolving inflammatory-degenerative disorder of the pancreas leading to exocrine dysfunction, metabolic disturbances, and reduced quality of life. Complicated forms are associated with prolonged hospitalisations and worsened prognosis. Early laboratory identification of patients at high risk of complications remains a clinical priority, yet comprehensive criteria for biochemical and lipid-based prognostication are insufficiently defined.

Objective. To evaluate the diagnostic and prognostic significance of biochemical and lipid blood markers in patients with complicated and uncomplicated chronic pancreatitis and to identify the most informative laboratory predictors of disease complications.

Materials and Methods. The study was conducted at the multidisciplinary clinic of Tashkent State Medical University. A total of 160 patients with verified CP were enrolled: 30 with complicated and 130 with uncomplicated disease course. All participants underwent comprehensive clinical, biochemical, and instrumental examination. Biochemical parameters included ALT, AST, total and fractionated bilirubin, total protein, albumin, and serum α -amylase. Lipid profile assessment covered total cholesterol, triglycerides, HDL-C, LDL-C, VLDL-C, and atherogenic index. Data are presented as $M \pm m$; between-group differences were assessed by parametric and non-parametric tests ($p < 0.05$ considered statistically significant).

Results. The most pronounced biochemical difference between groups was detected in serum α -amylase activity, which reached 1644.5 ± 148.7 U/L in complicated CP — nearly ten-fold higher than in uncomplicated CP (170.0 ± 11.1 U/L; $p < 0.001$) — confirming hyperamylasaemia as the most sensitive marker of disease complications. Total bilirubin and both its direct and indirect fractions were significantly elevated versus normal reference values across all patients, indicating hepatobiliary involvement. Albumin levels were below the reference range in both groups (37.0 ± 0.57 g/L overall), reflecting nutritional insufficiency secondary to exocrine dysfunction. ALT, AST, and total protein did not differ significantly between groups. Lipid analysis revealed dyslipidaemia in all CP patients: total cholesterol (5.5 ± 0.08 mmol/L) and triglycerides (1.5 ± 0.07 mmol/L in the complicated group) were elevated, while HDL-C (0.93 ± 0.12 mmol/L) was markedly reduced. VLDL-C and the atherogenic index were significantly above normal in both groups. The difference in triglycerides between complicated and uncomplicated CP reached statistical significance ($p < 0.05$).



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Conclusions. Serum α -amylase is the most informative single biochemical predictor of complicated CP, with levels approximately ten times higher than in uncomplicated forms. Bilirubin elevation and hypoalbuminaemia reflect hepatobiliary involvement and nutritional depletion, while dyslipidaemia — characterised by elevated triglycerides, VLDL-C and atherogenic index alongside reduced HDL-C — is more pronounced in complicated disease. Comprehensive assessment of biochemical and lipid markers enables early risk stratification and timely identification of high-risk patients with chronic pancreatitis.

Keywords: chronic pancreatitis, complicated course, biochemical markers, lipid profile, alpha-amylase, dyslipidaemia, prognosis.

