

LABORATORY DIAGNOSIS OF VITAMIN D DEFICIENCY IN PATIENTS WITH CHRONIC PANCREATITIS USING THE AFIAS ANALYZER

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Chronic pancreatitis is accompanied by progressive exocrine pancreatic insufficiency, leading to impaired digestion and absorption of fats, as well as fat-soluble vitamins, including vitamin D. Vitamin D deficiency in this category of patients is associated with the development of osteopenia and osteoporosis, necessitating timely laboratory diagnosis.

The aim of this study is to evaluate the capabilities of the automated immunofluorescence analyzer AFIAS for determining the level of 25-hydroxyvitamin D in clinical diagnostic laboratory practice in patients with chronic pancreatitis.

The concentration of 25-OH vitamin D was determined in serum using a fluorescence immunoassay using an automated AFIAS analyzer. This method is characterized by high analytical sensitivity, accuracy, and reproducibility.

A number of studies have shown a high frequency of 25-OH D deficiency and insufficiency in patients with chronic pancreatitis. Thus, according to one large study, the average 25-OH D level in patients with CP was 39.43 ± 26.13 nmol/L, while in the control group it was 53.54 ± 28.74 nmol/L ($p = 0.036$). Absolute deficiency (less than 25 nmol/L) was observed in 37.5% of patients with CP, severe deficiency (25–49.9 nmol/L) in 29.2%, moderate deficiency (50–79.9 nmol/L) in 25%, while normal levels (>80 nmol/L) were detected in only 8.33% of patients.

A meta-analysis of nine studies found that the prevalence of vitamin D deficiency and insufficiency among patients with CP reached approximately 65% and 83%, respectively. Other data indicate that the incidence of 25-OH D deficiency can vary widely, from ~22% to ~86%, reflecting the heterogeneity of populations and measurement methods used.

The obtained data and the literature confirm that patients with chronic pancreatitis tend to have decreased 25-OH vitamin D levels due to impaired fat absorption associated with exocrine insufficiency. The frequency of severe deficiency—in the tens of percent range—substantiates the need for regular screening and, if necessary, correction of vitamin D status in this category of patients. This is particularly important given the risk of osteopenia/osteoporosis and associated bone metabolism disorders.

Conclusion: The use of an automated immunofluorescence assay on the AFIAS analyzer is a valid and effective approach for determining 25-OH vitamin D levels in patients with chronic pancreatitis. The high prevalence of 25-OH D deficiency in this population justifies regular laboratory monitoring and timely correction aimed at preventing metabolic complications.

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