



LABORATORY PROFILE OF PATIENTS WITH ISCHEMIC HEART DISEASE AND MULTIPLE COMORBIDITIES

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ABSTRACT

According to the World Health Organization (WHO), cardiovascular diseases remain the leading cause of mortality worldwide, accounting for an estimated 17.9 million deaths annually, of which ischemic heart disease (IHD) constitutes the largest share [1]. Data from the Global Burden of Disease Study (2019) indicate that IHD consistently ranks first in terms of years of life lost (YLL) and disability-adjusted life years (DALYs) globally [2]. The prevalence of IHD is particularly high among patients with comorbid conditions such as type 2 diabetes mellitus (T2DM) and chronic kidney disease (CKD). Epidemiological studies show that T2DM increases the risk of developing IHD by 2–4 times, while CKD independently elevates the risk of cardiovascular mortality by up to 50% [3,4]

The urgency of problem: According to the World Health Organization (WHO), cardiovascular diseases remain the leading cause of mortality worldwide, accounting for an estimated 17.9 million deaths annually, of which ischemic heart disease (IHD) constitutes the largest share [1]. Data from the Global Burden of Disease Study (2019) indicate that IHD consistently ranks first in terms of years of life lost (YLL) and disability-adjusted life years (DALYs) globally [2]. The prevalence of IHD is particularly high among patients with comorbid conditions such as type 2 diabetes mellitus (T2DM) and chronic kidney disease (CKD). Epidemiological studies show that T2DM increases the risk of developing IHD by 2–4 times, while CKD independently elevates the risk of cardiovascular mortality by up to 50% [3,4]. Laboratory parameters such as coagulogram indices, renal function markers (creatinine, urea), and metabolic indicators (glucose, HbA1c) have been shown to undergo significant pathological shifts in the presence of these comorbidities, contributing to hypercoagulability, endothelial dysfunction, and accelerated atherosclerosis [5,6]. Despite advances in pharmacological management and international guidelines, the presence of T2DM and CKD in IHD patients is associated with poorer prognosis, increased frequency of complications, and reduced survival rates [7,8]. This underscores the necessity of detailed laboratory monitoring and individualized therapeutic strategies tailored to comorbid backgrounds.

The aim of the study was to investigate the laboratory parameters of ischemic heart disease in patients with various comorbid conditions, including type 2 diabetes mellitus and chronic kidney disease..

Research methods and methodology. A comprehensive clinical and laboratory examination was performed in 120 patients admitted to the Bukhara Regional Cardiology Dispensary. All patients were selected according to predefined inclusion and exclusion criteria to ensure the validity of results and minimize the effect of unrelated pathologies.

Patients were stratified into three clinical groups:

Group I (n=40): Patients with isolated ischemic heart disease, without clinically verified comorbidities.

Group II (n=40): Patients with ischemic heart disease combined with type 2 diabetes mellitus.

Group III (n=40): Patients with ischemic heart disease combined with chronic kidney disease.

The distribution of patients by age, sex, body mass index, clinical symptoms, hemodynamic parameters, coagulation profile, biochemical blood markers, and general urinalysis was analyzed. Special emphasis was placed on identifying intergroup differences in order to evaluate the impact of comorbid conditions on the course and prognosis of IHD.

Conclusions:

Conclusions

In patients with isolated IHD (group I), laboratory parameters remained close to normal, while the addition of comorbid conditions (groups II and III) shifted the disease onset toward older age categories and worsened overall profiles.

In IHD with T2DM (group II), significant hypercoagulability and metabolic disturbances were observed, with elevated glucose and HbA1c and reduced PTI and INR ($p \leq 0.05-0.001$).

In IHD with CKD (group III), the most severe changes were noted, including marked renal dysfunction ($\downarrow$ GFR, $\uparrow$ creatinine, $\uparrow$ urea), pronounced proteinuria and leukocyturia, as well as deeper imbalance in coagulation parameters ($p \leq 0.01-0.001$).

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