

## LABORATORY FEATURES OF ACUTE VIRAL HEPATITIS IN THE REPUBLIC OF KARAKALPAKSTAN

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**Relevance of the topic.** In the Republic of Karakalpakstan, a region in northwest Uzbekistan, AVH is a pressing public health concern due to a combination of socio-environmental factors such as limited access to safe drinking water, suboptimal sanitation, and gaps in vaccination coverage. The region has reported sporadic outbreaks of HAV and HEV, alongside a steady prevalence of HBV infections, reflecting both environmental exposure and healthcare-related factors. Despite the high burden of disease, there is a lack of comprehensive data on the clinical presentations and laboratory profiles of AVH patients in Karakalpakstan. Understanding the clinical and laboratory characteristics of AVH is crucial for early diagnosis, effective treatment, and the development of targeted preventive strategies. This study aims to systematically evaluate the clinical features and laboratory parameters of patients with acute viral hepatitis in Karakalpakstan, providing insights into regional epidemiology, disease severity, and implications for public health interventions.

**Materials and Methods.** The study was conducted in the Republic of Karakalpakstan from January 2022 to December 2023. During this period, a total of 120 patients with acute viral hepatitis were included. The patients were selected based on the presence of clinical signs such as jaundice, fatigue, nausea, and abdominal discomfort, combined with laboratory confirmation of viral infection, including positive tests for HAV IgM, HBsAg, HCV RNA, or HEV IgM. Patients aged between 18 and 75 years were included, while those with chronic liver diseases, autoimmune hepatitis, HIV co-infection, or other hepatotropic viral

infections were excluded. Patient history, including demographic data, vaccination status, travel history, and possible exposure to contaminated water or food, was recorded. Blood and urine samples were collected at admission and during hospitalization. Biochemical liver function tests included alanine aminotransferase (ALT), aspartate aminotransferase (AST), total and direct bilirubin, alkaline phosphatase (ALP), gamma-glutamyl transferase (GGT), and serum albumin. Hematological parameters, including hemoglobin, leukocyte, and platelet counts, and erythrocyte sedimentation rate (ESR), were measured. Serological and virological tests were performed to detect HAV, HBV, HCV, and HEV infections. Additionally, prothrombin time (PT), international normalized ratio (INR), and renal function markers (creatinine, urea) were assessed to evaluate the severity of the disease. Statistical analysis was performed using SPSS version 26. Quantitative data were presented as mean  $\pm$  standard deviation, while categorical data were shown as frequency and percentage. Comparisons were made using Chi-square tests for categorical variables and t-tests or ANOVA for continuous variables. A p-value less than 0.05 was considered statistically significant.

**Results.** A total of 120 patients with acute viral hepatitis were included in the study. Of these, 68 patients (56.7%) were male and 52 patients (43.3%) were female. The mean age of the patients was  $38.5 \pm 12.3$  years, ranging from 18 to 72 years. Clinically, jaundice was observed in 95 patients (79.2%), fatigue in 88 patients (73.3%), nausea in 76 patients (63.3%), and abdominal discomfort in 64 patients (53.3%). Hepatomegaly was present in 78 patients (65.0%), while mild ascites was detected in 12 patients (10.0%). Laboratory findings revealed elevated ALT and AST levels in the majority of patients. The mean ALT was  $242 \pm 85$  U/L, and the mean AST was  $198 \pm 72$  U/L. Total bilirubin levels were elevated in 88 patients (73.3%) with a mean value of  $5.6 \pm 2.3$  mg/dL. Direct bilirubin was elevated in 60 patients (50.0%) with a mean of  $2.3 \pm 1.0$  mg/dL. Serum albumin was below normal ( $<35$  g/L) in 36 patients (30.0%). Serological testing confirmed

the viral etiology in all patients. Anti-HAV IgM was positive in 50 patients (41.7%), HBsAg in 40 patients (33.3%), HCV RNA in 20 patients (16.7%), and anti-HEV IgM in 10 patients (8.3%).

**Conclusion.** Acute viral hepatitis in the Republic of Karakalpakstan presents with typical clinical manifestations, including jaundice and fatigue, and laboratory features such as elevated ALT and AST. HAV and HBV are the predominant causative agents, with HEV contributing to a smaller proportion of cases. Comprehensive clinical and laboratory evaluation is crucial for diagnosis, management, and prevention of acute liver complications in this region.

### **References**

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