

OSTEOPONTIN: A Non – Invasive Prognostic Biomarker in Alcoholic Liver Disease (ALD)

Dr. Davina Hijam *

Professor, Department of Biochemistry, RIMS, Imphal, Manipur, India

Dr. Mairembam Jamuna

Senior Resident, Department of Biochemistry, RIMS, Imphal, Manipur, India

Dr. Bidyarani Haobam

Post Graduate Trainee, Department of Biochemistry, RIMS, Imphal, Manipur, India

Dr. Laimayum Romesh Sharma

Professor, Department of Medicine, RIMS, Imphal, Manipur, India

Dr. Nungshitombi Ngangbam

Post Graduate Trainee, Department of Biochemistry, RIMS, Imphal, Manipur, India

Dr. Ningombam Sushma Devi

Post Graduate Trainee, Department of Biochemistry, RIMS, Imphal, Manipur, India

Abstract

Background: Alcoholic liver disease (ALD) spans from asymptomatic early ALD (fatty liver or steatosis) to hepatitis and hepatocellular carcinoma (HCC) attributable to alcohol consumption. Many inflammatory and immune mediators are currently under investigation, including osteopontin (OPN). It has been reported as one of the most promising markers for assessing the severity and progression of Liver Diseases.

Aim: To estimate and compare the levels of Serum OPN in ALD patients and apparently healthy individuals. And also to find its correlation with the severity of liver disease progression using Child Pugh Score.

Method: It was a cross-sectional study conducted in the Department of Biochemistry and Medicine, RIMS Hospital from March 2023 to March 2025. Sandwich ELISA was used for quantitative determination of Osteopontin in 60 individuals with ALD and 60 individuals without ALD.

Results and Discussion: Serum OPN levels were significantly higher in cases (48.63 ± 17.29) ng/ml compared to controls (7.25 ± 2.62) ng/ml): $p < 0.001$. A very strong significant negative correlation was found between OPN levels and total protein and albumin (correlation coefficient (r) = -0.988 and -0.906 , p -value < 0.001 , respectively). OPN showed a very strong positive correlation with total bilirubin, AST, ALT and GGT among the cases. Its level increased with higher Child Pugh Score with significant positive correlation ($r = 0.944$; $p < 0.001$). OPN increases the production of various pro-inflammatory cytokines, contributing to chronic inflammation. OPN is upregulated in ALD and correlates with liver injury and severity.

Conclusion: Assessing OPN can enhance early detection and management of ALD, improving patient outcomes.