

Evaluation of Hepatic Damage by Serum Levels of Cleaved Cytokeratin 18 Fragments M30 and M65 in Methamphetamine Abusers

Ghid H. Abdulhadi, PhD* Saba Sagban Kadum, M.B.Ch.B, F.A.B.M.S/F M** Nawar Mazin Jawad, M.B.Ch.B, PhD*** Maha T. Sultan, PhD****

ABSTRACT

Methamphetamine (METH) abuse has been known to cause serious liver injury, but conventional liver function tests (LFTs) may not detect the damage early enough. This study investigated the utility of caspase-cleaved cytokeratin 18 (M30) and total cytokeratin 18 (M65) as sensitive biomarkers for METH-induced liver damage. To assess the serum concentrations of M30 and M65 in METH users and to determine their diagnostic efficacy for detecting subclinical liver injury. In this study, 30 chronic METH users and 30 healthy controls were enrolled. The serum levels of M30, M65, and conventional LFTs were measured. Results: METH users exhibited profoundly elevated serum levels of both M30 ($p < 0.001$) and M65 ($p < 0.001$) compared to the control group. Receiver Operating Characteristic Curve (ROC) analysis demonstrated diagnostic accuracy for M65 (AUC = 1.00) and M30 (AUC = 0.97), significantly outperforming traditional LFTs, which remained within the normal ranges for all participants. In the multiple regression model, M65 was identified as the strongest predictor of METH group membership rather than of hepatic damage per se. A strong positive correlation was observed between M30 and M65 levels ($r = 0.972$). Serum M30 and M65 levels demonstrated high sensitivity and specificity for detecting subclinical liver injury in chronic METH abusers and showed better accuracy than conventional LFTs. Further longitudinal studies are required to evaluate the prognostic utility of M30 and M65 in this population.

Keywords: Methamphetamine; Drug-Induced Liver Damage; Apoptosis; Cytokeratin-18; Alanine Transaminase.

Bahrain Med Bull 2026; 48 (2): 3239-3244

* Clinical Biochemistry, Department of Biochemistry
College of Medicine, University of Baghdad, Iraq.
Email: Ghid.h.ah@comed.uobaghdad.edu.iq

** Ministry of Health, Al-Rusafa Health Directorate.

*** Clinical Biochemistry, Ministry of Health
Central Public Health Laboratory.

**** Polymer Chemistry, Department of Chemistry
College of Pure Science Ibn Al-Haitham, University of Baghdad
Baghdad, Iraq.