

The Possible Role of Neuron Specific Enolase and Neurofilament Light Protein as Markers for Organophosphorus-induced Neurotoxicity

Thesis submitted for Partial Fulfillment of M.D. Degree in Forensic Medicine and Clinical Toxicology

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Abstract

Background: Acute organophosphorus poisoning is a common toxic emergency all over the world. Neurological damage occurs after exposure to these compounds can lead to respiratory failure and death.

Aim of the study: Measuring levels of Neuron Specific Enolase and Neurofilament Light protein in patients with acute organophosphorus poisoning and to detect their usefulness as diagnostic and prognostic markers for organophosphorus-induced neurotoxicity.

Methods: A prospective study included 50 patients presented with neurological manifestations after acute organophosphorus poisoning admitted to the intensive care unit of Poison Control Center of Ain shams university hospitals and 25 healthy volunteers.

Results: There was a significant difference between cases and controls among levels of Neuron Specific Enolase and Neurofilament Light protein. There was a significant correlation between Neuron Specific Enolase and Neurofilament Light protein levels and severity of toxicity according to APACHE II score, also there was a significant correlation between Neuron Specific Enolase and Neurofilament Light protein levels and prediction of both mechanical ventilation need and mortality.

Conclusion: Neuron Specific Enolase and Neurofilament Light protein can be used as predictors of morbidity and mortality in acute organophosphorus poisoning.