

Selected Liver Markers and its Association with the Severity in Acute Organophosphate and Carbamate Poisoning

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Intentional ingestion of pesticides [organophosphate/carbamate] has become a major health issue globally. In addition to cholinergic outcomes, harmful effects on liver have also been observed in acute and chronic exposures. The objective of this study was to assess liver markers [Aspartate Aminotransferase (AST), Alanine Aminotransferase (ALT), Direct bilirubin (D. bil), Total bilirubin (T. bil)] on admission with severity of poisoning. This prospective study was carried out with acute organophosphate (OP), (n=38) and carbamate poisoned patients (n=70) admitted to Teaching Hospital Anuradhapura. Patients presented within 24 hours of poisoning were recruited. Severity of poisoning was measured by assessing Red Blood Cell (RBC) cholinesterase level and Peradeniya organophosphorus poisoning scale (POP). Decrease of RBC cholinesterase activity $\geq 50\%$ (group 2), was considered as mild poisoning and decrease $< 50\%$ (group 1), indicates severe poisoning. According to POP scale, 0-3 score was considered as mild poisoning, 4-7 moderate poisoning & 8-11-severe poisoning. In-group 1 (n=40) mean (\pm SD) AST, ALT, D.bil & T.bil were 73 ± 115 mg/dL, 46 ± 103 mg/dL, 0.15 ± 0.09 mg/dL & 0.72 ± 0.47 mg dL respectively and in group 2 (n=30) the values were 40 ± 16 mg/dL, 20 ± 15 mg/dL, 0.12 ± 0.04 mg/dL and 0.62 ± 0.31 mg/dL. All the mean values of group 1 were higher than those of group 2 although not significant ($p > 0.05$). According to POP scale, patients with moderate poisoning had significantly higher mean AST ($p=0.002$) and ALT ($p=0.000$) levels compared to patients with mild poisoning. AST and ALT were elevated in both POP moderate poisoned group and acute anticholinesterase group 1 but was significantly elevated in POP moderate scale group only.

Keywords: Organophosphate, Carbamate, Liver markers