

SYMPATHETIC SKIN RESPONSE (SSR) AND HEART RATE VARIABILITY IN PATIENTS WITH ACUTE ORGANOPHOSPHORUS (OP) POISONING

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Introduction: Some well-defined neurological syndromes are seen following acute OP poisoning. However, it is not clear whether there is medium to long-term autonomic nervous system dysfunction. Therefore we aimed to examine the autonomic nervous system function in patients with acute OP poisoning. **Method:** A case-control follow up study was conducted. Sympathetic skin response (SSR) latency and amplitude of dominant hand, R-R (heart rate) interval variation during standing, deep breathing and Valsalva maneuver were measured in 21 patients with acute OP poisoning around the time of discharge (participants were otherwise well) and 1-2 months later. Assessments were performed a mean of 8 ± 8 days (first assessment) and 46 ± 9 days (second assessment) from exposure. First assessment was done mean 3 ± 2 days following cessation of atropine therapy. 21 controls matched for age and gender were also examined. ANOVA and Post Hoc comparison were used for the analysis. **Results:** The mean ages of cases (and controls) was 31 ± 13 years and there were 16 males in each group. The mean HbA_{1c} of cases and controls were $5.2 \pm 0.32\%$ and $5.4 \pm 0.51\%$ respectively. Atropine was commenced on six patients at peripheral hospital and transferred. All others had cholinergic features before the commencement of atropine therapy. Three patients were admitted to the Intensive Care Unit (ICU) during the hospital stay and two were ventilated. All patients were treated with atropine. Nineteen patients received pralidoxime. The mean latency of SSR in controls, first and second assessments of cases was 1527 ± 125 ms, 1634 ± 123 ms and 1532 ± 123 ms respectively ($F=4.08$ ($p < 0.05$)). Mean amplitude of SSR in controls, first and second assessments of cases were 1.48 ± 1.0 mV, 0.33 ± 0.30 mV and 1.05 ± 0.81 mV, respectively ($F=12.25$, ($p < 0.01$)). Post Hoc comparison showed statistically significant differences in amplitude between the controls and the first assessment ($p < 0.01$), and between the first and the second assessments ($p=0.01$). The first assessment latency was also significantly different from the controls ($p < 0.05$). Heart rate variability analysis did not show any statistical significant difference between cases and controls. **Conclusion:** Statistically significant amplitude reduction and prolongation of latency was observed in sympathetic skin responses at the time of discharge (mean 8 days following acute exposure to OP) which was not present 1 to 2 months later.