ABSTRACT

Introduction:
Organophosphate (OP) poisoning is one of the major causes among many other accidental or intentional poisoning reported from developing countries like India. Methyl parathion is the one of the commonly available OP compound responsible for high mortality rate. Atropine is the widely used antidote for symptomatic management of OP poisoning. Pralidoxime (PAM) has been indicated as a specific antidote for OP poisoning; however regarding the dosage regimen used for OP poisoning management has been controversial.

Objective: The present study aimed to identify the appropriate dosage regimen of PAM, its ideal serum levels for the management of OP poisoning. Furthermore, we also evaluated the influence of PAM serum level with the methyl parathion level in the patients.

Methodology:
A prospective, observational study was carried in a total of 256 OP poisoning patients reported to emergency ward of a tertiary care teaching hospital admitted during 2009 to 2013. The patient’s demographical, clinical characteristics and severity were assessed at admission. Patients were categorized into 4 different groups viz. patient’s without PAM, intermittent dosing, 500mg/ hour, 1g/ hour group, based on the PAM dosage regimens received,. Outcomes like hospitalization days, ventilatory days, doses of atropine required and incidence of intermediate syndrome and the clinical evaluation were compared with the PAM regimens prescribed. Blood levels of PAM were estimated in patients by HPLC method to correlate benefits versus risks. Blood levels of methyl parathion also estimated by HPLC method and compared with that of the levels of PAM and its outcomes.

Results:
The results showed that majority of OP poisoned patients were in the age group of 21- 30 years, and males predominated over females. Clinical Severity assessment of higher proportion of patients was moderate to high severity. Outcome analysis showed patients of continuous infusion of pralidoxime had significantly improved recovery rate with least sequel and fatality rate (p<0.01). The incidence of intermediate syndrome, number of ventilation days, total atropine
requirement, number of hospitalization days and mortality rate significantly reduced in continuous infusion group. Blood levels of PAM was maintained uniformly at higher range(21.32±5.26 mcg/dL for 500mg/hour; 41.66±12.86 µg/mL for 1g/hour infusion) and not associated with any ADRs of PAM. Methyl parathion blood level significantly affected the clinical severity and outcome. The higher blood level of pralidoxime (both 500mg/hour and 1g hour group) greatly influences the methyl parathion level after treatment.

**Conclusion:**
Continuous infusion of pralidoxime in OP poisoning patients ensured uniformly higher levels of pralidoxime and significantly better clinical outcome. Methyl parathion blood level also significantly affected the clinical severity and outcome.