

Comparative Study of Blood level of Pralidoxime in Continuous infusion Vs Intermittent dosing using HPLC method in Organophosphorus poisoning patients.

Girish Thunga, Sureshwar Pandey, Kishore Gnana Sam, Leelavathi D Acharya and Kanav Kehra,
Email: girishthunga77@gmail.com Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences, Manipal University, Manipal

Introduction: Pharmacological treatment of organophosphate (OP) poisoning consists of 2 antidotes, atropine and pralidoxime. Use of oximes in OP poisoning is controversial, with different opinions regarding the dose, duration and dosage regimen. Continuous infusion pralidoxime has been previously shown to be safe, effective, and atropine-sparing when treated in OP poisoning patients. But there is till now no proper kinetic data supported for the regimen used in these studies. There is a need for such studies to establish effective dosage regimen of pralidoxime in OP poisoning patients.

Objective: To compare the blood level of pralidoxime between the intermittent and continuous dosage regimen using HPLC method.

Method: An open labeled cross-sectional, nonrandomized observational study was carried out in emergency wards of tertiary care hospital, Manipal. Patient admitted to the emergency ward with OP poisoning, meeting the study criteria and willing to participate in the study were selected for collection of blood sample. Around 30 blood samples were collected between January 2008 to July 2008. The study was explained to patient or patient legally acceptable representatives in detail and informed consent was obtained. Based on the type pralidoxime dosage regimen received, patients were categorized in to either intermittent (1g/8th hourly) or continuous infusion group (500mg/hour). Two blood samples (trough and peak) were collected from each patient at 24th hour after pralidoxime therapy was started. Samples were centrifuged and serum was analyzed by using reversed phase HPLC method. This method used Oxcarbamazepine as internal standard and this assay was linear between 0.25 and 50 mcg/ml with a quantification limit of 0.2 mcg/ml. The analytical precision was satisfactory; with variation coefficients lower 10%.

Results: The results showed that majority of OP poisoned patients were in the age group of 21-30 years. Clinical Severity assessment of these patients showed that majority of them belongs to moderate to high severity group. Analysis of blood samples showed that mean serum concentration (trough level) of pralidoxime in intermittent dosing was 3.24 ± 1.59 mcg /mL (at

8th hour), comparatively lower when compared to continuous infusion groups which was 21.33 ± 5.26 mcg/mL. Moreover clinical outcomes in terms of mortality rate, hospitalization days, total atropine dose, incidence of intermediate syndrome also better in continuous infusion group. There was no adverse effect of pralidoxime observed with continuous infusion.

Conclusion: Continuous infusion of pralidoxime at 500 mg/hour uniformly maintained higher blood levels of pralidoxime when compared with intermittent dosing but also significantly better clinical outcome.

