



### Characteristics of manifestation and treatment of chlorpyrifos poisoning

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**Objective:** In the past 10 years, a lot of highly toxic organophosphates were banned; chlorpyrifos was chosen as replacement substance, as a result, chlorpyrifos poisoning increased. The aims of this study were to describe the characteristics of chlorpyrifos poisoning and evaluate the effectiveness of the regimen which has been used since 1997 successfully in treatment of this chemical poisoning.

**Methods:** This is a retrospective study describing 40 cases of chlorpyrifos-acute poisoning in the years 2011 - 2015, in comparison with historical control group of other organophosphate poisoning hospitalized during years 1997 - 2002. Patients of the two groups were selected with the same criteria and were treated in the same regimen: atropine was indicated and adjusted following atropinization scoring scale and pralidoxime (PAM) was started at doses according to clinical severity and adjusted every 6-12 hours following PChE activity at each time point and/or patient's required dose of atropine to maintain atropinization.

**Results:** The presence of muscarinic syndrome, nicotinic syndrome and central nervous syndrome in the study patients were 87.2%, 40% and 45% respectively, which were lower than those in the control group (94.4%, 65.7% and 59.3%, respectively). There was an unequal distribution of clinical severity (62.5% mild, 17.5% moderate and 20% severe) in comparison with PChE activity reduction (12.5% mild, 2.5% moderate and 85% severe) of chlorpyrifos poisoning. During treatment, the study group received atropine doses lower than the control group ( $7.6 \pm 9.70$  vs  $100.2 \pm 119.1$  mg), but equal doses of PAM ( $19.4 \pm 8.14$  vs  $20 \pm 12.7$ g). The incidence of paralysis and the need for respiratory mechanical of chlorpyrifos group were 30% and 47.5% vs 34.3 and 43.5% in the control group; intermediate syndrome was 7.5% among the chlorpyrifos group, which was more than the control group (1.9%). There were no deaths in the study group while a mortality rate of 1.9% in the control group.

**Conclusion:** Chlorpyrifos poisoning patients had mild clinical symptom but severe reduction of PChE activity. The regimen which has been used since 1997 until now is good for treatment of chlorpyrifos poisoning.