CHARACTERISTIC CLINICAL AND LABORATORY FINDINGS IN CHLORPYRIFOS POISONING

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Objectives: (1) To highlight clinical findings and differences in Plasma and RBC cholinesterase levels in Chlorpyrifos poisoning cases. (2) To compare complications with different formulations of Chlorpyrifos. (3) To discuss the role of Pralidoxime and activated charcoal in Chlorpyrifos poisoning.
Methods: This study reports 25 confirmed cases of Chlorpyrifos poisoning over a period of 20 months from different hospitals of Ahmedabad, India. The day of first reporting to Centre for Education, Awareness and Research on Chemicals and Health (CEARCH) following poisoning varied from day 1 to day 12. Plasma and RBC cholinesterase levels were done in all cases and in many cases more than once at CEARCH laboratory. Clinical findings, progress, outcome, treatment given and complications were recorded in all cases. ***Results:*** Three cases were children, four were adolescents and remaining 18 were adults. Except children, suicide was the main reason for poisoning in all other cases. Plasma cholinesterase levels were 80-90% inhibited in all 25 cases whereas RBC cholinesterase levels were normal in 15 cases. Eleven Cases who had taken formulation containing 20% chlorpyrifos presented with tachycardia and did not need atropine. All of them recovered. None of them needed ventilator support. Among the remaining 14 cases, nine had ingested formulation containing 50% chlorpyrifos with or without 5% cypermethrin. Three of them had recurrent cholinergic crisis on day 6, 8 and 12. One patient developed intermediate syndrome on day 5. In these four cases PAM had been given intermittently before CEARCH was contacted. In 5 cases the exact concentration of chlorpyrifos ingested could not be definitely determined. Four out of fourteen needed ventilator for variable period of time. Two patients got discharged against medical advice. Remaining 12 cases recovered completely with continuous PAM infusion, multiple dose activated charcoal, minimal atropine and supportive care.
Conclusions: (1) Chlorpyrifos poisoning is associated with low mortality. (2) Inhibition of plasma cholinesterase is much more than RBC cholinesterase. RBC cholinesterase is better indicator of severity of chlorpyrifos poisoning.
(3)Classical bradycardia of OP poisoning was not seen in chlorpyrifos poisoning. Atropine requirements were minimal and many patients were wrongly overatropinized.
(4) Recurrent cholinergic crisis and intermediate syndrome may occur with high conc. of chlorpyrifos, esp. in cases treated with intermittent doses of PAM; (5) Multiple dose activated charcoal in smaller doses along with PAM infusion may be helpful in patients who develop recurrent cholinergic crisis with chlorpyrifos.