

INTENTIONAL OP-INSECTICIDE POISONING: ANTIDOTES MAY CURE THE BIOCHEMICAL LESION, BUT PATIENTS STILL DIE. WHY?

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Abstract

Objective: Lethality in poisoning due to organophosphorus pesticides (OP) is still high, although optimised protocols for antidotal therapy and advanced intensive care treatment is available (1,2). Accordingly, it appears rational to reassess the course of OP-poisoned patients in order to elucidate critical constellations.

Methods: The clinical course of OP-poisoning was analysed from data sheets of patients who were treated in intensive care units in Germany during a clinical study on effectiveness of obidoxime. The appearance of complications was analysed with methods of descriptive statistics and correlated to the clinical course. All patients received obidoxime (250 mg i.v. followed by infusion of 750 mg/24 h), atropine according to demand, and the necessary supportive care.

Results: During primary care severe cholinergic crisis developed fast, frequently associated with unconsciousness and circulatory insufficiency in poisoning with diethyl-OP compounds, while development of critical situations regularly took longer (several hours) in poisoning with dimethyl-OP compounds. During treatment at ICUs there was no general difference in frequency or pattern of complications. However, only 2/13 patients with parathion poisoning died during cholinergic crisis. In both patients the poison load was extremely high preventing a therapeutic effect of obidoxime. The cause of death was mainly due to severest respiratory dysfunction. In contrast, when obidoxime was able to reactivate inhibited AChE, patients mainly died from complications not related to cholinergic crisis, e.g. pneumonia, lung embolism, peritonitis from a stress ulcer, pneumothorax. In cases with dimethyl-OP poisoning reactivation was not effective due to premature aging, but poisoning often could be controlled with advanced intensive care. However, frequently severe complications, e.g. malign dysrhythmia occurred. In one patient, already on admission the conditions were deleterious leading to delayed death.

Conclusion: Advanced antidotal treatment together with intensive care are usually effective in antagonizing cholinergic effects in most patients with OP-poisoning. However, severe non-cholinergic complications may become fateful and obviate a considerable reduction of the high death rates.