

TOXICOLOGY AND APPLIED PHARMACOLOGY

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Revisiting antidotes in the treatment of organophosphorus poisoning

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Statement of the Problem: Treatment of Organophosphorus Poisoning (OPP) is a Global challenge. 20% death rate in OPP cases is tragic. Standard treatment for OPP is to give intravenous atropine and pralidoxime. Role of oximes needs more clinical evidence and is need of time. We studied causes of success and failure of oxime therapy in OPP cases and tried to revisit an antidote, atropine, for its extrapolated role in OPP cases since decades.

Methodology & Theoretical Orientation: Atropine is a muscarinic antidote to treat the muscarinic crisis. Oximes reactivate inhibited acetylcholinesterase by organophosphates and checks uninhibited action of acetylcholine at neuromuscular junction. We studied major clinical trials and studies of oximes till date to understand factors affecting success or failure of oxime therapy as well as revisited atropine therapy to understand its effect on outcome.

Findings: WHO recommended minimum dose of pralidoxime as a baseline while treating patients of moderately severe OP poisoning. Unfortunately in last 20 years only two randomized controlled trials (RCT's) followed this regimen. Use of suboptimal dosage of oximes is a major cause of its ineffectiveness. Inadequacy of respiratory support system could be a major drawback. Failure to maintain optimum oxime concentration as long as active organophosphates are inhibiting acetylcholinesterase is an additional reason for ineffectiveness of oximes. Expenses of pralidoxime is also limiting factor for its liberal use.

Conclusion & Significance: World needs evidence for use of oxime in OPP cases. RCTs to be conducted in future should strictly follow WHO recommended minimum dose of oximes and to be conducted in intensive care unit where cardiorespiratory support system is adequate. An affordable pralidoxime preparation should be a part of public health response. We researchers strongly believe the drug pralidoxime will save many lives and can substantially reduce mortality in OPP cases.

Biography

Kirti Satheesh Pawar is a Critical Care and Pain Consultant and has expertise in the management of organophosphorus poisoning since 20 years. She has been invited for many national and international clinical meetings to discuss her research and experience in the field of Organophosphorus Poisoning. She is keen to understand controversies in the treatment of organophosphorus poisoning by re-analyzing clinical evidence in this field. She is honored with many awards for her outstanding contribution in the medical field. She believes in ethical medical practice and updating medical knowledge with clinical relevance.

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