

Military Technical College
Kobry El-Kobbah,
Cairo, Egypt



6th International Conference
on
Chemical & Environmental
Engineering
29 -31 May, 2012.

CBTC-1

CHEMICAL AGENTS; THREATS AND COUNTERMEASURES

Sheref Fahmy*, PhD

Abstract

Some of the chemical agents are classified as weapons of mass destruction and their production and stockpiling were outlawed by the chemical weapons convention of 1993. Nerve agents represent some of the classes of phosphorus-containing organic chemicals (organophosphates) that disrupt the mechanism by which nerves transfer messages to organs. The disruption is caused by blocking acetylcholinesterase (AChE), an enzyme that normally abolishes the activity of the neurotransmitter acetylcholine. Toxicity by any of these agents leads to contraction of pupils, profuse salivation, convulsions, involuntary urination and defaecation, and eventually death by asphyxiation as the control is lost over the respiratory muscles. Some of them are readily vaporized or aerosolized and the primary portal of entry into the body is the respiratory system. Others can also be absorbed through the skin, requiring those likely to be subjected to such agents wear a full body suit in addition to a respirator. Therefore, the aim of this lecture is to review the topic of chemical agents with a focus on the clinical presentation (picture) i.e. symptoms and signs of toxicity or the biological effects, prophylactic (protective) measures, countermeasures, threats as ocean disposal and the methods of treatment including antidotal therapy together with the possible recommendations.

* Azhar University