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P35. COMPARISON OF THE TOXIC POTENCY OF G AGENTS AND VX IN ORDER TO DETERMINE THE FATALITY ESTIMATION AFTER A TERRORIST ATTACK

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G agents (tabun, sarin, soman) and Vx which are known as nerve agents have been used both for various military and terrorist purposes at chemical attacks since the First World War. Sarin was used in Syria on August 21, 2013 and it was estimated that death toll ranged from at least 281 to 1.729 fatalities.

The effect mechanism of nerve agents is the blockage of acetylcholinesterase at the neuromuscular junction. Accumulated acetylcholine that cannot be hydrolyzed in the synaptic gap due to inhibition of the enzyme overstimulates the postsynaptic acetylcholine receptors and clinical manifestations are observed in almost all systems including nervous system, eye, respiratory system, cardiovascular system, and digestive system. Paralyzed respiratory muscles cause to death and time of death depends on the concentration of the agent and the exposure time.

Clinical studies showed that average lethal dose for a 75 kg weighted standard man who breathed 15 liters air per minute was 10 mg.min/m^3 for Vx, 35-50 mg. min/m^3 for soman, 75-100 mg. min/m^3 for sarin, and 150-400 mg. min/m^3 for tabun. As the inlet passage of nerve agent vapors to the organism is via airway, LCt50, ICt50, and MCt50 which express vapor toxicity are used in order to compare G agents and Vx.

We aimed to discuss and compare nerve agents comprehensively in mean of toxic potency as the extent of vulnerability to future chemical terrorist attacks varies because of new chemical weapons arsenal of non-state terrorist organizations in Middle East.