

LONG-TERM HEALTH EFFECTS OF EXPOSURE TO SARIN AND OTHER ANTICHOLINESTERASE CHEMICAL WARFARE AGENTS

During the period from 1955-1975, the U.S. Army conducted a series of experiments at Edgewood Arsenal, Maryland in which military volunteers were exposed to various kinds of substances, including chemical warfare agents such as sarin and other anticholinesterases. This is the second survey done to examine the adverse long-term effects of known exposure in the volunteers from the Edgewood experiments. In this current study, the Medical Follow-up Agency of the Institute of Medicine conducted a telephone survey of 4,022 military volunteers to compare the current health of those exposed to anticholinesterase agents with the health of men in two other control groups: those who had been exposed to other substances and those who had been exposed to no active agents. The telephone survey asked about general health, but was mostly focused on neurological and psychological health problems. This is because there is some evidence that exposure to pesticides—which chemically resemble anticholinesterase agents and thus might be expected to produce similar health effects from exposure—can cause neurological and psychological health problems.

In general, the study found few differences in health among the three groups of men. Experimental exposure to anticholinesterase agents was associated with significantly greater sleep problems and significantly fewer attention problems, depending on the control group with which the comparison was made. Statistically significant differences were not found in memory problems, peripheral neuropathy, vestibular dysfunction (i.e., dizziness), depression, generalized anxiety, somatization, or prevalence of birth defects.

The survey also asked about exposures to hazardous chemicals outside of the Edgewood experiments. Men who reported such exposure also reported significantly higher levels of problems in memory, attention, sleep disturbance, peripheral neuropathy, somatization, depression, generalized anxiety, vestibular dysfunction, and birth defects. These higher levels were independent of experimental exposure. However, they may be subject to reporting bias; i.e. because the non-experimental exposures were self-reported, there may be a tendency for those who recall hazardous chemical exposure to be more likely also to recall health problems. In this study, the health effects of experimental exposure were less frequently seen than the effects of non-experimental exposure.

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Reprints of *Long-Term Health Effects Of Exposure To Sarin And Other Anticholinesterase Chemical Warfare Agents* are available from William Page, Medical Follow-up Agency, wpage@nas.edu. For more information about the Institute of Medicine, visit the IOM home page at www.iom.edu.

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