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Vaccines May Be Linked to Gulf War Syndrome

DOD TO REVIEW POSSIBLE USE OF ILLEGAL ADDITIVE

Michael Devitt

Less than four months after its publication, the Department of Defense (DOD) has agreed to review a controversial study that appears to link Gulf War syndrome (GWS) with a banned substance used in experimental vaccines.

The study, conducted by scientists at Tulane University Medical School, found that an overwhelming majority of sick veterans who had served in the Gulf War, and had received at least one vaccination, tested positive for antibodies to a naturally occurring substance called *squalene.* None of the healthy veterans in the study tested positive for squalene antibodies.

DoD officials originally dismissed the study as flawed and asserted that none of the vaccines administered during the Gulf War contained squalene. In response to pressure from Congress, however, the department has asked the Armed Forces Epidemiological Board (AFEB) to re-examine the study. The Institute of Medicine is also reviewing the research to see what role squalene may play in Gulf-related illnesses.[1]

Squalene Adjuvant: Friend or Foe?

A naturally occurring molecule, squalene is produced by the human liver and plays a role in the metabolism of cholesterol. It is most commonly found in vegetable oils, shark liver oil, cosmetics and various health supplements.

Under normal circumstances, squalene is released into the blood to help combat physical injuries. However, people don't usually have enough squalene in their blood to prompt the production of detectable levels of antibodies.

Since the late 1980s, squalene has been studied by the DoD and the National Institutes of Health as a possible adjuvant in vaccines. Because adjuvants boost the immune system's response to foreign antibodies, the subtance has sparked the interest of researchers. Drug manufacturers, for their part, have incorporated adjuvants into vaccines in the belief that the substance will render the vaccine more effective.

Adjuvants, however, can sometimes trigger unwanted immune responses. While large-scale studies have yet to be conducted in humans, animal studies have shown that squalene adjuvants may generate autoimmune versions of arthritis and multiple sclerosis type-conditions that attack the body from within.[2]

Although they have been used in a number of vaccines worldwide, only one adjuvant - aluminum hydroxide - has been approved by the Food and Drug Administration for use in vaccines in the United States. And although squalene-adjuvant vaccines have been used on laboratory animals and in experimental human tests, the FDA has not approved the general use of any vaccine containing squalene in the U.S.

"We Never Used Squalene in Vaccines"

Military officials have said all along that no Gulf War vaccines contained squalene. In August 1997, spokespersons for the DoD claimed that squalene "was not an adjuvant that was in any of the vaccines that were used by the Department of Defense,"[3] and that "we never used squalene in vaccines" during the Gulf War. However, in a report[4] issued in March 1999, the General Accounting Office (GAD) - the investigative arm of Congress - stated:

> We cannot say definitively whether or not Gulf War-era veterans were given vaccines with adjuvant formulations containing squalene for a number of reasons. Although DoD officials told us they did not administer such vaccines, they stated they did not have documentation on the process and results of decision-making related to the administration of vaccines at the time of the Gulf War. Also, some officials involved in the decisions were no longer employed with DoD at the time of our review, and we were either unable to locate them, or they declined to be interviewed.

A month after the GAO issued its 1999 report, the first hint that squalene might be linked to Gulf War syndrome appeared in an article in *New Scientist* magazine.[5] Robert Garry, a virologist at Tulane University, tested more than 400 Gulf War veterans for antibodies to squalene and found that 95 percent of those with GWS had high levels of squalene antibodies.

Garry also tested a pair of volunteers who had received experimental herpes vaccines containing squalene in trials conducted by the National Institutes of Health. Both had high levels of squalene antibodies and also suffered from GWS-type symptoms.

In February, the peer-reviewed journal *Experimental and Molecular Pathology*[6] published a study written by Garry's team at Tulane University and Dr. Pamela Asa, an immunologist from Tennessee. Dr. Asa was one of the first health professionals to advance the theory that Gulf War syndrome might be an autoimmune disorder caused by experimental vaccinations.

The research included blinded and unblinded studies. In the blinded study, 56 Gulf War-era veterans and military personnel who were on active service in 1990-91 were tested for squalene. Of those 56, 38 had been deployed to the Persian Gulf and had GWS-type symptoms; 12 had been deployed but were healthy; and six had not been deployed but were nevertheless ill.

The researchers found that among the 38 ill veterans who had been deployed, 36 (94.7 percent) tested positive for squalene antibodies. None of the deployed healthy individuals, however, tested positive.

Furthermore, all six subjects who were ill, but had not been sent to the Gulf, also had squalene antibodies. While they did not serve in the war, they had received the same type and number of vaccinations given to Gulf War troops.

To see whether squalene antibodies might be a marker for other types of autoimmune diseases, the researchers also tested groups of patients with lupus and chronic fatigue syndrome, as well as a small sample from the general population. Only 15 percent of those with chronic fatigue tested positive for squalene; only 10 percent of those with lupus tested positive; and only five percent of the general population had squalene antibodies.

The Tulane study made no conclusion about whether Gulf War vaccines contained squalene, what may have produced the antibodies, or what role they play in Gulf War syndrome. Still, it is hoped

that the research conducted by Garry and Asa will prompt others to investigate the role of vaccinations in Gulf War syndrome and the safety of vaccines that contain squalene.

"We don't know what caused the immune system to produce anti-squalene antibodies in the Gulf War veterans, but this study shows that the antibodies are indeed there," observed Dr. Russell Wilson, president of Autoimmune Technologies, which helped market the study. Dr. Wilson does not believe that the antibodies were the result of a reaction to squalene added to vaccines. "That possibility must still be formally ruled out,"[7] he concluded.

Approximately 700,000 Americans served in the Gulf War between 1990-91. One hundred and forty-eight Americans were killed in action; 467 were wounded. The Department of Veterans Affairs estimates that as many as 100,000 veterans may be suffering from Gulf War syndrome or related symptoms, and that approximately 6,500 soldiers have died since the war's conclusion, including more than 1,300 soldiers between the ages of 18-24.[8]

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4. *Gulf War Illnesses. Questions about the Presence of Squalene Antibodies in Veterans Can Be Resolved.* United States General Accounting Office, March 1999.
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