

SOUTHWESTERN NEWS

NEW LEADS IN THE GULF WAR SYNDROME CASE

Researchers at UT Southwestern Medical Center at Dallas are leading an exhaustive three-stage investigation that finally may solve the medical mystery known as Gulf War Syndrome.

UT Southwestern investigators base their probe on their hypothesis that some Gulf War veterans' unexplained illnesses were caused by exposure to combinations of chemicals during the war.

The three-phase UT Southwestern study includes:

- * Epidemiologic studies of 249 veterans of a Naval Reserve battalion involved in the Gulf War conducted in five southeastern U.S. cities in December 1994 and January 1995.

- * An intensive clinical case-control study of 46 members of the battalion involved in the war. The veterans were tested at UT Southwestern.

- * Animal studies in collaboration with scientists from Duke University Medical Center. These tests got under way in July 1994.

(A detailed chronology of the UT Southwestern study is attached.)

UT Southwestern's research project is based on an hypothesis by Dr. Tom Kurt, professor of toxicology, who theorized in April 1994 that some Gulf War veterans were suffering from a rare disorder called *organophosphate-induced delayed neurotoxicity* or OPIDN. This condition is caused by exposure to certain chemicals that inhibit cholinesterase, an enzyme important to nervous system functions.

Within days, the UT Southwestern researchers had narrowed to seven the list of chemicals that might cause OPIDN in Gulf War veterans.

Dr. Robert Haley, chief of UT Southwestern's division of epidemiology who is in charge of this project, designed the epidemiologic surveys of symptoms and exposures to test the

(MORE)

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NEW LEADS - 2

theory in veterans. Dr. Jim Hom, professor of psychology and neurology, joined the team to apply tests that distinguish the effects of physical brain damage from psychological symptoms.

For the epidemiologic studies, researchers surveyed 249 ill and well volunteers from the 24th Reserve Naval Mobile Construction Battalion to evaluate the possibility of war exposure to culpable chemicals and to document their present symptoms. About half the veterans still were serving in the battalion and half had retired. The veterans also were given a standardized neuropsychological test to detect psychological illness and malingering, or efforts to look sick.

After studying the results of the epidemiologic survey, Haley designed a clinical case control study to test whether the veterans' symptoms were due to neurologic damage.

Forty-six battalion members - including some who are ill, some who are well, some who served in the Gulf and some who did not - were later flown to UT Southwestern for a series of neuroradiologic, neurophysiologic and audiovestibular exams. The studies were "blinded."

After designing preliminary tests, Dr. Kurt identified Dr. M.B. Abou-Donia at Duke University Medical Center as qualified to conduct the animal experiments to test the theory's biological plausibility. Dr. Kurt asked Dr. Frederick Oehme at Kansas State University, editor of *Veterinary and Human Toxicology*, for help establishing sublethal chemical doses for hens used in the test.

The UT Southwestern researchers have submitted papers on the epidemiologic and clinical aspects of the study to a scientific journal for peer review. Publication is expected this year.

A report on the initial findings of the animal studies at Duke has passed peer review and will be published in the *Journal of Toxicology and Environmental Health* in May. Results also will be presented by Dr. Abou-Donia and Dr. Kurt in a poster session at a meeting of the Federation of American Societies for Experimental Biology in Washington, D.C., on April 17.

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TIMELINE

April 1994

UT Southwestern researchers begin investigation of Gulf War veterans' illnesses. Dr. Robert Haley and Dr. Tom Kurt attend NIH conference on the subject. Kurt hypothesizes that some veterans are suffering from variants of OPIDN, a rare neurological disorder caused by exposure to certain chemicals. UT Southwestern research team narrows to seven the list of Gulf War chemical exposures that cause OPIDN.

May 1994

Haley designs and begins to develop epidemiologic study. Kurt designs preliminary protocols and begins search for a laboratory to conduct animal studies to test the "biological plausibility" that a combination of chemicals could cause OPIDN.

July 1994

Epidemiologic questionnaires pre-tested in Gulf War veterans. Animal studies begin in laboratories of Dr. M.B. Abou-Donia at Duke University Medical Center.

December 1994 and January 1995

Volunteers from 24th Reserve Naval Mobile Construction Battalion participate in epidemiologic studies.

July 1995

Analysis of first phase of epidemiologic study complete.

November 1995

UT Southwestern begins sophisticated clinical testing of 46 veterans from the 24th Battalion, including 26 ill veterans and 20 controls.

January 1996

Testing of 46 veterans at UT Southwestern completed. Report on first phase of animal studies passes final peer review and scheduled for publication in May issue of scientific journal.

April 1996

UT Southwestern submits report on clinical and epidemiologic studies to scientific journal for peer review. Scientific poster presented on first phase of animal studies.