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GULF WAR ILLNESSES: NEED FOR TOXICOLOGY INVESTIGATION

Despite a Department of Defense study which concluded that "there is no clinical evidence for a single or unique agent causing a "Gulf War Syndrome,"[1] a strong argument may be made to the contrary, and it is not a new argument.

In August of 1992, at the request of Richard Christian from the American Legion, and of Admiral E. R. Zumwalt, Jr.,[2] I outlined a protocol whereby the cause(s) of medical problems reported by returning Gulf War veterans could be reasonably and inexpensively determined.

Veterans' medical histories indicated symptoms beginning <u>after</u> having serving in the Gulf area, and although each Veteran did not have every one of the problems, the complaint spectrum included the following:

aching joints
skin rashes and "growths"
bone pain
weakness
shakiness
night sweats
headache
dizziness
memory loss
hair loss
chronic fatigue
shortness of breath, cough
gastro-intestinal problems, including bleeding
change in salivary flow
bleeding gums

Symptoms reported reflected primarily neurological and immunological illness. Possible causes included emissions from burning oil wells, exposure to radioactivity from "spent" uranium shells, viral disease, and chemically-induced disease.

Early on the symptoms were dismissed as due to "stress," callously simplistic, in that fighting personnel have always been under stress. Moreover, it must be assumed that personnel were physically and mentally fit for duty or they would not have been deployed in the first place.

Complaints were and are explained away as "common conditions", however, common conditions often result from uncommon causes.[3] Symptoms reported by the Gulf War personnel form a pattern that did not match any pattern suffered by previous military personnel, but did follow the pattern of illness suffered by civilians similarity exposed.[4]

I stated: "those of us working in the field of toxicology have seen comparable problems in civilians in the United States, which mirror the complaints of those Veterans who served in the Gulf War." Those problems, displayed in civilians nearly always followed "exposure to a number of solvents or pesticides, especially the organophosphate type pesticides." I noted further: "It is highly likely that organophosphate pesticides were employed in a variety of situations where personnel would have been exposed, and included: Spraying (fumigation) of troop carriers, ships and planes; Fumigation of shipping containers of material of all kinds; Spraying of areas showing "poor sanitary conditions" to control vermin; Re-use of tankers that were contaminated with pesticides, solvents or other chemicals."[5]

I proposed that in order to determine the etiology of these illnesses, a clear-cut program should be put in place, and soon, before records are lost or destroyed. The program was to include:

1. Establish a Registry of all Veterans (and current military personnel) who have developed medical problems since serving in the Gulf War area.

2. Obtain records of all pesticides used in the Gulf War area, including those used in ships and planes carrying both personnel and material to and from the Gulf War area.

3. Obtain records of the use of all pesticides used on the ground to control vermin in both personnel quarters and on material.

4. Obtain records of all tanks of chemicals sent to the Gulf area.

5. Cross reference the Veterans with the areas in which they served as to time, and proximity to burning oil wells.

6. Obtain base-line medical data on each Veteran (and current military person having complaints). This should include at least a complete history and physical examination, history of all exposures while in the Gulf area, as well as details concerning transport to and from Gulf area; standard blood panels; but more importantly, an immunological profile to include T-cell and B-cell status, antibodies to tissue components (myelin, brush border, smooth muscle, nuclear, DNA, and mitochondria) and Blood sample or fat biopsies (collected in glass and frozen) and stored for analysis of chemicals or future studies as they develop.

Also, transmitted was a diagram showing the chemical structure

of a chlorpyrifos, commonly used organophosphate pesticides, showing comparison to components of Agent Orange, also associated with immunological and neurological problems.

In April 1994, nearly two years after preparing my research proposal, which had been forwarded to the Veterans Administration,[6] and to two Senators,[7] I received the list of pesticides "available" for use in the Gulf War.[8] In addition to pyrethrins, pyrethroids, lindane, and pentachlorophenol, were the organophosphates

Dursban (chlorpyrifos)
Dichlorvos (DDVP) 2,2-dichlorovinyl dimethyl phosphate
Diazinon (a thiophosphate)
Malathion (a phosphorodithiophosphate)

and the carbamates

Baygon (propoxur)
Sevin (carbaryl) (carcinogenic and restricted in use)
Ficam (bendiocarb)

It then also was revealed that some of the personnel had been given pyridostigmine, a carbamate pharmaceutical, sharing action and toxicity of the carbamate pesticides.[9]

In practice, patients exposed to differing classes of pesticides (organophosphate, carbamate, organochlorine and/or pyrethroids) are sicker than those exposed to one class alone.[10] Each group (Veterans and civilians) shares a history of not regaining a previous state of health, even after removal from exposure. When nervous system symptoms referable to in the CCEP report are combined, 39% had positive findings,[11] well in keeping with known neurological effects related to pesticide exposures.

A strong case can be made for a thorough investigation into chemical exposures and Gulf War illnesses: Concurrence of findings in civilians and Veterans similarly exposed; results of animals tested with similar compounds; the pesticide and pharmaceutical literature;[12] onset of illness related temporally, and to a common place; and the absence of other reasonable explanations.

It is understandable that the Department of Defense, the Veterans Administration and corporations that manufactured the various products are reluctant to have definitive research in the matter, for it raises the specter of Vietnam, Agent Orange and personal and public liability.

Will the affected Veterans get a definitive study? Let us hope so, for at the very least, the Veterans deserve a fair and open study.

1. Office of Assistant Secretary of Defense (Public Affairs). News Release: New Initiatives announced for Gulf War Veterans and families. 2 pages. December 13, 1994.
Department of Defense Report: Clinical Evaluation Program for Gulf War Veterans- (called CCEP) Preliminary Status Report on the First 1000 Patients. 11 pages with Executive Summary. December 1994
Persian Gulf Veterans Coordinating Board: persian Gulf Veterans' Health Problems. 5 pages, December 1994.

2. Richard Christian: Deputy Director of Research and Technology Assessment for Veterans' Affairs, American Legion; Elmo R. Zumwalt, Jr., Chief of Naval Operations from 1970-74, now retired.

3. Ibid.

4. Sherman, J. D. Organophosphate pesticides- neurological and respiratory toxicity. Toxicol. Indust. Health 11(1): in press, 1995.

5. Sherman, J. D. Letter to Richard Christian, American Legion, 3 pages, with attachment, August 15, 1992.

6. Christian, R. S., Letter to Susan H. Mather, MD, MPH, Department of Veterans Affairs, with copy of my report. May 12, 1993. Second transmissions sent at the request of Mr. Layne Drash of the Veterans Administration, cover letter of August 20, 1993.

7. Dr. Patricia Olson of Senator Rockefellers' Senate Committee on Veterans' Affairs, 2 pages, April 11, 1994. Senator Riegel, 2 pages with 9 attached documents, May 26, 1994.

8. FAX transmission from Senate Committee on Veterans' Affairs, Roberts, Lyman W., Ph. D., Department of the Army, Office of the Surgeon General, 3 pages, April 6, 1994.

9. Dr. Olson, cited above. And, telephone interview with Dr. James Moss, Ph. D., citing synergism of pyridostigmine and some of the pesticides.

10. Sherman, J. D., Chemical Exposure and Disease. Princeton Scientific Publishing Co. Inc. 293 pages, 1994.

11. Clinical Evaluation Program for Gulf War Veterans. p. 7. Combining the following: nervous system 6%, headache/CNS/memory loss 3%, fatigue 3%, sleep disorders 3%, depression 8%, tension headache 5%, post traumatic stress disorder 4%, somatization 2%, anxiety 2%, misc. psychological conditions 3%.

12. A National Library of Medicine publication, Current Bibliographies in Medicine: Persian Gulf Experience and Health, covering the period from January 1971 through March 1994, lists 594 citations. Although some citations emerged in the searches done, specific searches were not made for pyridostigmine, the pesticides available for use, nor "depleted" uranium.