

ROBERT M. HAGER
PUBLIC INTEREST LEGAL
2020 PENNSYLVANIA AVENUE, N. W.
WASHINGTON, D.C. 20006

May 15, 1991

Mr. Paul Sutton

Dear Paul:

It was a pleasure meeting you last week. Enclosed s the memo I promised to send, along with other documents, explaining the status of the Ivy case and the necessary action in Congress if Agent Orange claims are ever to be tried before a jury in accordance with American legal traditions.

I would welcome your comments on any of these documents, and thank you for your interest in this case, and any support you can give in contacting members of Congress to hold hearings on the Agent Orange litigation.

Sincerely yours,



Robert Hager

RECEIVED MAY 17 1991

National Vietnam Veterans Affairs Committee

30 September 1991

Page Five

The Zumwalt Council will also be pushing for additional Congressional hearings this Fall and Winter, especially in light of the Dr. Cate Jenkins affidavit exposing the fraud perpetuated over a forty-two year period by Monsanto, involving the Nitro, WV studies. Additionally, the significant increase in diabetes in the exposed Ranch Hand group reinforces the need to once again focus Congress' attention on amendments to PL102-4. The Council's next meeting will be in January 1992. Hopefully, we'll convince Rep. Evans and Senator Daschle to convene hearings before then.

I attend these Council meetings representing the Marine Corps League, after appointment by Ray Berling earlier this year, during his term as our National Commandant.

Semper Fidelis;


Paul L. Sutton
National Chairman

PLS/cas

(H)

(W)

cc: Lamar Golden, National Commandant
R. R. Berling, PNC
R. L. Martin, National Executive Director



National Headquarters

MARINE CORPS LEAGUE

Paul L. Sutton, National Chairman
Vietnam Veterans Affairs Committee

Office of P. O. Box 273

Thorofare, NJ 08086-0273

M E M O R A N D U M

TO: National Vietnam Veterans Affairs Committee

FROM: Paul L. Sutton, National Chairman

DATE: 30 September 1991

RE: Recent Developments

Instead of my usual handwritten note accompanying the month's news articles and items of particular interest to this committee; I'm submitting this report. Because of recent developments (especially since the National Convention), you should be aware of these three areas. Also, please note my new office telephone number (yes, again) at the end of this memorandum.

I. VA Benefits Proposals

Following recent recommendations by the Veterans Advisory Committee on Environmental Hazards, VA will propose rules granting service-connected disability status to certain Vietnam Veterans with peripheral neuropathy, a nervous system condition that causes numbness and tingling. At the same time, VA will propose a rule that there is no link between exposure to dioxin - a contaminant found in Agent Orange -- and lung cancer. A third finding related to diabetes resulted in VA deferring action pending further study and analysis by the National Academy of Sciences which recent legislation established as a review body for Agent Orange-related issues.

"ONCE A MARINE, ALWAYS A MARINE"

National Vietnam Veterans Affairs Committee
30 September 1991
Page Four

The NIS is a service that welcomes questions and the staff wants to help veterans find solutions to their problems. To use this system, simply call toll free 1-800-922-9234, ext. 401, or in South Carolina call 1-800-922-1107, ext. 401.

III. The Agent Orange Coordinating Council

On 9 September 1991, my wife and I attended the first meeting of the Agent Orange Coordinating Council formed and chaired by Admiral Elmo R. Zumwalt, Jr., USN (Ret.). A good deal of printed material was distributed. One of the issues discussed at length was the "Ivy Case." Originally filed in Texas State Court, the suit was remanded to a Federal District Court in Washington, DC, over the objections of the plaintiff, the widow of a Vietnam Veteran (Captain, USMC), who has instituted an action against Diamond Shamrock for her husband's 1988 death from cancer. A public interest attorney, Rob Hager, has filed suit to block the Federal intrusion in the matter and to especially take this case out of the jurisdiction of Judge Julius B. Weinstein, our good friend in Brooklyn. I have a two inch thick set of documents relating to this case that Rob Hager provided to me. If you want copies, please let me know as it will take some time to copy.

The principal basis in the suit maintains that Donald Ivy's death occurred four years after MDL-381 was settled and that, since he was not sick in 1984, that Donald Ivy was not a member of the class as defined by MDL-381. The suit also specifies that the transfer of the Ivy case violates a Federal statute that holds that such a transfer from a State Court to a Federal Court can occur only when another similar case is pending in that State jurisdiction. Since this was the only such case pending in Texas State Court, the transfer should not have taken place. This will be an interesting case to watch, as it appears that Judge Weinstein may be trying to bite off more than he can chew.

In recommending that diabetes be the focus of future investigation, the committee said that, while currently available evidence does not support associating it with exposure to dioxin, a study of Air Force personnel who sprayed Agent Orange showed trends that should be analyzed. (Department of Veterans Affairs, News Release, "VA Announces New Agent Orange Decisions," July 1, 1991)

II. Assistance for Children

(1) Social Security new eligibility rules for Supplemental Security Income (SSI) may enable up to a million children with disabilities in families with limited means to get cash benefits and free health services.

Until recently, unfair and unrealistic rules kept many families from getting SSI and Medicaid for their children who have disabilities. The social services workers who assist them often became so discouraged they stopped telling families with children who might be eligible to apply.

Reforms in the program should change all that. Now parents should aggressively press their children's applications for SSI. And, if they applied before and were turned down, they may now be able to get benefits back to the time they first applied.

Many children who applied after January 1, 1980, and were turned down can now become eligible and also claim back benefits because of the United States Supreme Court's 1990 decision in *Sullivan v. Zebley*.

(Excerpted from "SSI: New Opportunities for Children with Disabilities," by the Mental Health Law Project. Order the full pamphlet at their address at 1101 Fifteenth Street, N.W., Suite 1212, Washington, DC 20005).

Other information and referral sources:
National Information Center for Children and Youth with Handicaps (NICHCY) offers a free resource sheet of legal aid, P&A, disability and parent organizations in your state:
1-800-999-5599.

National Vietnam Veterans Affairs Committee

30 September 1991

Page Three

Your state's Developmental Disabilities Planning Council (in Virginia, called Board for the Disabled) can give you the P&A system's number and provide additional information.

National Information System for Vietnam Veterans with Children with Disabilities:
1-800-922-9234, ext. 401.

National Information Clearing House for Infants with Disabilities and Life-Threatening Conditions: 1-800-922-9234, ext. 201.

(2) The National Information System (NIS) for Vietnam Veterans and their families is a nationwide computer-based information and referral system that is designed to help:

(1) veterans' children with special health needs; (2) veterans' families in need of counseling and other support services related to their child's disabilities; and (3) the Agent Orange Class Assistance Program by providing support and outreach services.

The Vietnam Veteran can get information and guidance about available child and family services by calling a counselor on a toll free telephone line from anywhere in the country.

Counselors will also provide information and referral assistance by giving basic information on the subject of Agent Orange, including issues of concern to veterans, the history and general provisions of the lawsuit and settlement, eligibility requirements and class assistance program services, and details on VA entitlements in health care and compensation relating to Agent Orange exposure.

Another service the counselors provide is information and referral for genetic counseling and genetic testing for Vietnam Veterans and their partners who are concerned about the effects of exposure to Agent Orange on the health of their unborn children.

Oklahoma Agent Orange Fnd.
P.O. Box 849
Lexington OK 73051

11/26/91

For many years we have worked to provide information to Veterans, their families, and their doctors that would allow intelligent health care decisions.

No major Veterans' organization has yet to join this effort.

We now have a promise from the National Vietnam Veterans Coalition to make health care, and health warnings a priority.

If you wish to join a Coalition group here in Oklahoma contact David Carter at the OKAOF.

There is much to do, and we need help.

Fathers' Exposure Linked To Birth Defects In Their Children

For many years, the possible detrimental effects of environmental toxins on the unborn have focused only on exposures of the mothers. Evidence has been accumulating however, to indicate that environmental toxins can cause birth defects via the father as well as the mother.

Recently, Dr. Gladys Friedler of the Boston University School of Medicine has demonstrated that males are as likely as females to transmit environmentally induced birth defects to their offspring. Friedler's research with mice has shown that critical patterns of development can be altered when male animals are given even small doses of toxins prior to mating. Such findings may have an important impact on policy making decisions regarding workplace toxic exposures that traditionally have focused only on women.

According to Dr. Donald Mattison, Dean of the School of Public Health at the University of Pittsburgh, animal studies have identified more than 100 chemicals that can produce spontaneous abortions or birth defects in offspring of males exposed to these toxins. Substances with these adverse effects include alcohol, gases used in operating rooms, lead, solvents, pesticides and a variety of industrial chemicals.

Evidence from studies in humans reveals:

- Excesses of miscarriages have been reported in the children of men exposed to vinyl chloride and waste water treatment chemicals.
- Firefighters who are exposed to toxins in smoke

have an increased risk of producing children with heart defects.

- Garage mechanics, auto body workers and other men exposed to hydrocarbons, solvents, metals, oils and paints have four to eight times increased risk of having children with Wilm's tumor, a kidney cancer.

- Men whose jobs exposed them to electromagnetic fields, electricians, power company linemen and utility employees as well as welders are twice as likely to have babies who develop a nervous system cancer called neuroblastoma.

- Men who work at jobs with regular exposure to fresh paint may be seven times more likely to have children who develop brain tumors before the age of 10.

- When men have two or more drinks daily in the month before they conceive children, their babies are likely to weigh 5 ounces less at birth.

Article compiled from newspaper reports by Margaret Harris in The Sydney Morning Herald; Donna Alvarado for the Charlotte Observer and Michael Zimmerman for the Orlando Sentinel.

*Articles reprinted with
permission of*

**ASSOCIATION OF
BIRTH DEFECT CHILDREN, INC.**
5400 Diplomat Circle, Suite 270
Orlando, Florida 32810



National Headquarters
MARINE CORPS LEAGUE

Office of VIETNAM VETERANS AFFAIRS COMMITTEE
P.O. Box #273; Thorofare, NJ 08086-0273

4 November 1991

E. R. Zumwalt Jr.
Admiral, U.S. Navy(ret.)
1500 Wilson Boulevard
Arlington, Virginia 22209

Re.: Congressional Hearings - Federal Judiciary

Dear Admiral Zumwalt:

Our organization, numbering 35,000 nationally, fully supports the call for immediate and thorough hearings by the U. S. House Committee on the Judiciary, chaired by the Hon. Don Edwards.

The hearings are made necessary because of the recent Federal Court actions in the toxic tort case, IVY vs. DIAMOND SHAMROCK. By ignoring the rule of law, the court prohibits Vietnam Veterans and their families from seeking relief in other courts, especially for those whose illnesses were discovered after 1984.

Hearings on the federal judiciary will send the clear message that federal judges must enforce, rather than remaking, ignoring and breaking existing laws to the prejudice of Vietnam Veterans.

Respectfully;

A handwritten signature in dark ink, appearing to read "Paul L. Sutton".

Paul L. Sutton
National Chairman
:PLS

cc: Hon. Robert M. Hager, Esq.

"ONCE A MARINE, ALWAYS A MARINE"

NEWS FOR VIETNAM VETERAN FAMILIES

High Rate Of Childhood Leukemia Reported In Vietvet Children

Raw data obtained through a Freedom of Information request to the Michigan Department of Public Health has suggested an extraordinary rate of childhood leukemia in the first born children of Vietnam veterans. A group of 49,220 veterans who served "in country" during the Vietnam war reported 1,545 cases of childhood leukemia in first born children.

This was thirty times the rate of childhood leukemia reported in a control group of Vietnam era veterans who did not serve in country. When ABDC discussed this data with the Michigan Health Department, they pointed out that the cases were self-reported and had not yet been confirmed through medical records. ABDC will be following up on the continued analysis of this study.



American Legion Report Criticizes Ranch Hand Study of Reproductive Effects

An April 1991 report by the American Legion has criticized the methodology and conclusions drawn from the Air Force Ranch Hand Study of the health of Vietnam veterans. In reference to the study's analysis of reproductive outcomes in Vietnam veterans, the Legion reports:

The United States Air Force study of Air Force personnel involved in the herbicide Ranch Hand Operations also investigated reproductive outcomes. The 1984 report showed no significant differences compared to control groups for prematurity, miscarriages, stillbirths or "severe" birth defects. However, the study did show an excess of "minor" defects, (an unorthodox classification encompassing defects judged to be neither life-threatening nor interfering with normal overall health or socioeconomic progress) as well as a significant excess of neonatal deaths and physical handicaps. A further analysis of the Ranch Hand data in 1988, which included all known live births and not only those births for whom maternal smoking and drinking habits were available, found a significant increase in "severe" birth defects. The birth defects odds ratio was 0.85 for Ranch Hand children born prior to Vietnam service and 1.39 for children born after.

These positive findings of adverse health outcomes have been downplayed or altogether ignored in publicity arising from the infrequent reports published by the Air Force. As extensively documented by Senator Daschle in his investigations, the Air Force has systematically failed to provide the public with information on positive findings, such as the increased rate of skin cancer or birth defects, until prodded or subpoenaed by the Congress to do so. Further, press releases stating that the results are "encouraging" or "reassuring" have been released, when the data have shown just the opposite.

It is no more acceptable to ignore positive findings, however weak statistically, than to emphasize outcomes that are judged negative because of inadequate statistical power. The positive findings observed in the Air Force Health Study are, in fact, consistent with health effects reported in the scientific literature on dioxin exposure, and should have been reported as such.

Agent Orange and the Ranch Hand Study. The Air Force Health Study and the Health of Vietnam Veterans: Report by The American Legion National Veterans Affairs and Rehabilitation Commission, April 1991.

Agent Orange Coordinating Council
1500 Wilson Blvd. • Arlington VA 22209

October 9, 1991

The Honorable Don Edwards, Chair
Civil and Constitutional Rights Subcommittee
House of Representatives
Washington, D.C. 20515

The Agent Orange Coordinating Council has been recently formed by veterans organizations to assist Vietnam veterans, and others, exposed to Agent Orange.

A series of novel legal rulings have denied Vietnam veterans who are Agent Orange victims their constitutional rights. The organizations listed below that make up the Council support access to justice for Vietnam veterans, who comprise the largest single group of persons affected by the highly toxic chemical dioxin.

A 1990 report of the Government Operations Committee exposed the federal government's manipulation and coverup of the evidence that dioxin injured Vietnam veterans. Agent Orange Coverup, HR 101-672. However, actions by the federal judiciary inconsistent with existing law and the Constitution have prevented this evidence from being presented to a jury in lawsuits against the responsible chemical companies.

For example, the Government contractor defense, the only ground for upholding the dismissal of the veterans' claims in Agent Orange Product Liability Litigation, 818 F.2d 145, 151 (2d Cir. 1987), cert. denied 487 U.S. 1234 (1988), was legislated by the federal courts in violation of the exclusive powers of Congress to make the laws of the United States. See Boyle v. United Technologies, 487 U.S. 500, 515-16 (1988) (5-4 decision) (Brennan, J. dissenting). Other judicial rulings have similarly violated the constitutional rights of veterans injured by Agent Orange to due process of law and a jury trial of their claims, and have also breached principles of federalism and the separation of powers, as described in the enclosed letter of Vietnam veteran Rodney Tyler to his Congressman.

This continuing denial of justice to Vietnam veterans will not likely be remedied without an investigation and hearings on the conduct of Agent Orange litigation by the federal courts. The Agent Orange Coordinating Council requests that your Subcommittee investigate these numerous new rulings of law, in order to prepare legislation that would restore to Vietnam veterans their constitutional right to a fair hearing of their claims.

Very truly yours,



Admiral Elmo R. Zumwalt, Jr.

Environmental Illness and Vietnam Veterans' Children

by Bryan Smith, Ed.D.

Director, National Information System for Vietnam Veterans

The staff of the National Information System for Vietnam Veterans and their Families (NIS), a project of the Center for Developmental Disabilities of The University of South Carolina supported by the Agent Orange Class Assistance Program, have been collecting client information as a part of their Information and Referral function for slightly over a year. They have interviewed parents or health care providers in an effort to connect over 1500 children with appropriate services to meet their needs. Most of the children have multiple problems within and between categorical groupings of a variety of developmental disabilities, birth defects, genetic conditions and anomalies, and most commonly conditions that can be grouped into the area of immune response disorders. These include persistent skin rashes, infections, chronic fevers and asthma. The NIS staff has observed that these immunological dysfunctions, which may sound minor in relationship to the damage caused by a birth defect or developmental disability, are serious and often disabling. They occur in many members of the same family constellation and persist for many years. In fact, many veterans reported that their children have never lived a day without them.

These observations have prompted some relevant questions that need to be addressed and are the basis of this White Paper. These questions are posed as needs assessment issues to identify services that will further assist Vietnam veterans and their families rather than as research questions that may be searching for a cause and effect relationship: (1) Are alterations in immune functions a marker or a symptom of exposure to an

environmental agent? (2) Are alterations in immune functions a teratologic effect? (3) Are these dysfunctions developmental disabilities by themselves, as opposed to conditions occurring concurrently with a developmental disability and do these children constitute an underserved population? and (4) Are these immunological problems medically treatable?

Are alterations in immune functions a marker or a symptom of exposure to an environmental agent?

The health impacts of environmental agents are mediated through effects on cells, the cell being the unit structure in the living organism. Recent developments in cellular and molecular biology have provided powerful new concepts and techniques for studying the normal behavior of cells and the response of cells to environmental agents. These developments can greatly improve our understanding of the mechanisms of environmentally provoked disease.

Environmental exposure to chemicals, both synthetic and natural, has altered human physiologic structure and function. Almost all Americans have a detectable level of synthetic chemicals like halogenated hydrocarbons in their bodies. Environmental concentrations of natural chemicals such as ammonia and formaldehyde are many orders of magnitude higher than in the past. Humans have many biochemical scavenger systems that protect them from damage caused by chemically altered cells and proteins. However, since we are now exposed to much higher concentrations of natural chemicals, as well as massive amounts of synthetic



chemicals to which our ancestors were never exposed, it is easy to see that, with regard to chemical exposures, our protective resources are taxed to a much greater extent than were theirs.

Although allergic and hypersensitivity reactions have long been recognized as responses to environmental chemicals, other environmentally related disturbances in immunity — such as depression of immunity, dysregulation of immunity, and autoimmunity — have only begun to receive the attention that they deserve from toxicologists. Traditional methods for toxicological assessment have implied that the immune system is a frequent target organ of toxic insult following chronic or acute exposure to environmental chemicals, therapeutic drugs, abused drugs, or radiation. Interaction of the immune system with these xenobiotics (allergens) may result in undesirable effects of three principal types: (1) those manifested as immunosuppression; (2) those manifested as immune dysregulation (autoimmunity); and (3) those manifested as an immunologic response to the xenobiotic. The extent of chemical-induced hypersensitivity disease has been known for some time.

molds, tree pollens, and weed pollens can be instituted to take the pressure off the damaged immune system. In some cases, non-specific immunotherapy and intravenous gammaglobulin provides the damaged immune system with antibodies against various pathogens like virus, bacterium and fungus, that reduce some reactions (Carson, Seto & Wasson, 1986).

Most Frequently Reported Developmental Disabilities In 1500 Children of Vietnam Veterans*:

- Skin disorders
- Learning disabilities
- Allergies
- Attention-deficit disorders
- Asthma
- Mental retardation
- Speech disorders
- Hearing problems
- Emotional problems
- Seizures
- Cerebral palsy
- Heart defects
- Orthopedic problems
- Visual disorders
- Cancer
- Renal (kidney) disorders
- Cleft lip and palate
- Scoliosis
- Headache
- Growth abnormalities
- Chronic infections
- Cysts

(*Listed by order of frequency)

REFERENCES

Asher IM (ed): Inadvertent Modification of the Immune Response: The Effects of Foods, Drugs and Environmental Contaminants. Proceeding of The Fourth FDA Science Symposium, August 28-30, 1978. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Clapp RW, Commoner, B., Constable, JD, Epstein, SS, Kahn, PC, Olson, Jr., Ozonoff, DM: Human Health Effects Associated with Exposure to Herbicides and/or their Associated Contaminants — Chlorinated Dioxins, Agent Orange and the Vietnam Veteran: A Review of the Scientific Literature, April, 1980.

Crook, WG: The Yeast Connection, 3rd ed. New York, Random House Books, 1986.

Dean JH, Paderathsing M (eds): Biological Relevance of Immune Suppression As Induced by Genetic, Therapeutic and Environmental Factors. San Francisco, Van Nostrand Reinhold Co., 1981.

Hoffman, R: Health Effects of Long-Term Exposure to 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin, Jour Am Med Assoc 256(15): 2031-2038, 1986.

Jennings, AM, Wild, G, Ward, JD, Ward, AM: Immunological abnormalities 17 years after accidental exposure to 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin. Br J Ind Med 46:701-704, 1989.

Koller LD: Effect of chemical sensitivity on the immune system. Immunology and Allergy Practice 7(10): 405-417-1985.

Knutson, AP, Roodman, ST, Evans, RG, Mueller, KR, Webb, KB, Stehr-Green, P, Hoffman, RE, Schramm, WF: Immune studies in dioxin-exposed Missouri residents: Quail Run. Bull Environ Contam Toxicol. 32: 481-488, 1987.

LaDou J (ed): Occupational Medicine: State of the Art Reviews. The Microelectronics Industry. Philadelphia, Hanley & Belfus, Inc., January 1985.

Levin AS: Transfer factor therapy in food allergies. Brostoff J, Challacombe L (eds): Food Allergies, London, Tindall-Saunders Books, 1987, pp 985-1004.

Levin AS, Byers VS: Environmental Illness: A Disorder of Immune Regulation, Occup Med 2: 689-691, 1987.

Morelli Clinical Laboratory manifestations of exposures to dioxin in children: a six year study of the effects of an environmental disaster near Seveso, Italy, Jour Am Med Assoc 256: 2887-2896, 1986.

Sharma RP: Immunologic Considerations in Toxicology, I & II. Boca Raton, FL, CRC Press, 1986.

Stampf, JL, Castagnoli N, Epstein WL, Byers VS: Transfer of tolerance to mice by IgG from humans desensitized to poison oak. Ms. submitted, 1987.

Stehr-Green, P, Hoffman, R, Webb, K, Evans, RG, Knutson, A, Schramm, W, Staake, J, Gibson, B, Steinberg, K: Health effects of long-term exposure to 2378-TCDD Chemosphere 16: 2089-2094, 1987.

Stehr-Green, P, Andrews, JS, Hoffman, R, Webb, K, Schramm, W: An overview of the Missouri Dioxin Study. Arch Environ Heal 43: 174-177, 1988, Staake, J, Gibson, B, Steinberg, K.

Straus SE, et al: Persisting illness and fatigue in adults with evidence of Epstein-Barr virus infection. Clin Exp Immunol 58: 7, 1984.

Trowbridge JP, Walker M: The Yeast Syndrome. New York, Bantam Books, 1986.

Upton AC, Goldstein, BD: Human Health and the Environment Some Research Needs. Report of the Third Task Force for Research Planning in Environmental Health Science. NIH Publication No. 86-1277, 1984.

Cow Worth More

Veterans who were injured due to contact with chemical defoliants including Agent Orange will receive slightly more than \$1,000 per year in benefits, or the estates of those deceased will receive approximately \$3,300, total.

Compare that settlement with this: One of the members of the management committee representing the veterans (John O'Quinn) had, just prior to the Agent Orange case, won an award of \$8.3 million for a client who lost a prize cow that had consumed dioxin-contaminated feed.

Dead veterans are worth \$3,300 apiece; dead cows, \$8.3 million.

SPOTLIGHT MAY 25, 1987

According to Levin & Byers (1987) the toxicology community has recently become aware that a broad spectrum of chemical xenobiotics can suppress the immune system and increase susceptibility to challenge with infectious agents or tumor cells. Several clinical studies in humans have demonstrated a parallel effect on immune dysfunction. For example, it has been observed that individuals accidentally exposed to polychlorinated biphenyl contaminated rice oil exhibit immune dysfunction.

There are biochemical, cellular, and physiological markers that can signal whether an individual has been exposed to a toxicant, quantify the extent of exposure, characterize the susceptibility of the exposed person, and identify preclinical signs of any resulting injury or disease. Is the immunologic dysfunction seen in Vietnam veterans' children a marker of exposure to a toxicant or is there another marker that could implicate an exposure?

Susceptibility to the toxic effects of a foreign substance may vary widely with profound implications for risk assessment. A major source of such diversity is variation in the manner in which substances are metabolized in different individuals. Factors contributing to this variation include heredity, age, sex, diet, drugs, smoking habits, occupation, lifestyle, and health status. The effects of heredity on such variations are particularly marked, often outwardly unapparent, and relatively little studied thus far.

The toxicity of a substance depends on the concentration and time in which its active form is present at its biological site of action. These factors, in turn, depend on such variables as the route of exposure, dose, dose rate, and handling of the substance and its metabolism, and excretion. This interaction is referred to as the pharmacokinetic relationship. Ironically this relationship has been used systematically in the development and testing of drugs, but has not been incorporated in the design,

interpretation, and analysis of toxicological studies.

Intense exposure to high levels of toxic chemicals often causes cell deaths. The clinical symptomatology associated with this type of damage has long been recognized as the acute toxic effects of chemical exposure and has been well documented in the medical literature (Asher 1987; Dean and Padarathsing, 1981; Koller, 1985; LaDou, 1986; and Sharma, 1986). Lately, physicians have become aware of the effects of chronic low-level exposure to toxic chemicals and their influence on the biologic regulatory mechanisms of the body. These factors serve as a foundation for the recognition of the disease called environmental illness.

Jennings et al. (1988) investigated immunological abnormalities 17 years after workers had an accidental exposure to dioxin. They found a change in the immune system that may reflect prior tissue damage and cellular destruction in the exposed population. The number of natural killer cells identified was higher. These cells are believed to contribute to the body's defense against viruses and tumors. If exposure to dioxin is associated with an increased risk of neoplastic disease, the number and function of natural killer cells may be important in its pathogenesis. Conversely, changes in the number of these cells may show activation of the body's defenses.

Studies of the residents of Quail Run Mobile Home Park in Missouri suggest alterations in immune function, but these were not consistently found (Hoffman et al., Knutsen et al., 1987; Stehr-Green et al., 1987, 1988). Immunologic tests showed that the exposed group had an increased inability to react to specific allergens. According to Clapp et al. (1990), these findings suggest an association between long-term exposure to dioxin and depressed cell-mediated immunity, although the effects had not resulted in an excess of clinical illness in the exposed group.

Clapp et al. (1990) reported a

study by Mocarelli et al. (1985) in which immune function was evaluated between 1976 and 1979 in 48 children from Seveso, Italy who were heavily exposed to dioxin. Their lymphocyte responses to select allergens were significantly higher than controls.

The term environmental illness is used to describe an acquired disease characterized by a series of symptoms caused and/or exacerbated by exposure to environmental agents. The triggering agents include industrial and domestic chemicals, cigarette smoke, diesel fumes, and alcoholic beverages. The symptoms involve multiple organs in the neuralgic, endocrine, genitourinary and immunologic systems. There is a large body of information documenting symptoms seen in individuals subjected to known acute or chronic exposure to given chemicals; the only truly novel aspect of environmental illness is the realization that similar symptom complexes frequently are seen in individuals without known "massive" exposure and the diagnosis can be made on the basis of these complexes.

Are alterations in immune functions a teratologic effect?

A growing number of agents are known to perturb one or more of the interconnected processes involved in human reproduction. Because effects on any one of these processes may interfere with normal reproduction and development, the entire spectrum of processes presents many targets for the action of toxic agents. Teratologic effects can act specifically on the developing reproductive system of the fetus (Shepard, 1980) to produce dysfunction which are later observed at reproductive maturity. Teratologic effects are not solely female-mediated reproductive effects, although by definition they involve prenatal exposures that occur to the offspring while in utero. Paternally-mediated exposures may also pose teratogenic risks through the secretion of chemicals into seminal fluid

and uptake across the uterine mucosa. The latter has been demonstrated with persistent lipophilic toxicants such as organochlorine (Upton & Goldstein, 1984).

Are these dysfunctions developmental disabilities by themselves, as opposed to conditions occurring concurrently with a developmental disability?

The term developmental disability, is defined by Public Law 96-527 (1984) to mean a severe, chronic disability of a person which —

[A] is attributable to a mental or physical impairment or combination of mental and physical impairments;

[B] is manifested before the person attains age twenty-two;

[C] is likely to continue indefinitely;

[D] results in substantial functional limitations in three or more of the following areas of major life activity; (i) self-care, (ii) receptive and expressive language, (iii) learning, (iv) mobility, (v) self-direction, (vi) capacity for independent living, and (vii) economic self-sufficiency; and [E] reflects the person's need for a combination and sequence of special, interdisciplinary, or generic care, treatment, or other services which are of lifelong or extended duration and are individually planned and coordinated (Public Law 96-527 (1984)).

While it appears that severe immune dysfunction in children meets most of the characteristics of the functional definition for developmental disabilities, the issue of lifelong illness is the most difficult to reconcile. Allergies, fungus infections, asthma, and chronic fevers are usually considered to be medically solvable, at least symptomatically treatable so as to render the patient capable of self-sufficiency. Yet these conditions seem to persist and seem to be medically untreatable in the affected children of Vietnam veterans.

Are these immunological problems medically treatable?

Chemically induced immune dysregulation is a recognized medical disorder (Koller, 1985). A wide variety of symptoms referable as immune dysregulation were described to the NIS staff. Skin manifestations such as hives, urticaria and induration are common. The Agent Orange Scientific Force (Clapp et al., 1990) have stated that after their literature review they found there was a significant statistical association between Agent Orange and immune/dermatological disorders of chloracne and porphyria cutanea tarda.

Other symptoms referable to immune dysregulation include an increase in intensity of ordinary type 1 allergies and increasing sensitivity to body molds such as *Candida albicans* and *Trichophyton*. Mold allergy can manifest itself clinically as chronic dermatitis, gastroenteritis, and endogenous depression (Crook, 1986; Towbridge & Walker, 1986).

A causal agent in environmental illness is defined as a substantial contributing factor to the development of illness. If patients were not exposed to this agent, they would not develop the disease at the same time and with the same intensity. The potential causal agent must be one that can realistically initiate an illness. For example, if a patient whose history, physical findings, and laboratory results are consistent with a diagnosis of environmental illness, described himself as completely well until he was exposed to an intensely toxic material that is associated with severe acute symptoms, the toxic material would be a candidate as the causal factor, since this appears to be an etiologic agent that can reasonably cause disease.

Clinicians have recognized the similarity between the symptoms of environmental illness and acute infectious hepatitis patients, Fatigue, intolerance to alcohol and cigarette smoke, and multi-organ symptomatology are

shared by those with environmental illness and hepatitis. Of importance is the fact that hepatitis does not become symptomatic until the patient has circulating immune complexes. Since immune dysregulation leads to immune complex disease, there is a possibility that an immune-complex-mediated, complement-consuming process could be partially responsible for the symptoms of environmental illness. Upon evaluating a population of symptomatic patients, Levin and Byers (1987) discovered a significant number with elevated immune complexes, depressed complement and elevated prostaglandin, suggesting that part of their symptomatology was associated with an immune-complex-mediated inflammatory process (Straus et al., 1984).

Medical treatment for the immune dysfunction varies based on the clinical orientation of the physician. From the literature it appears that clinical improvement can often be accelerated by reducing the overall load on the immune system. This can be accomplished in most people with allergen reduction or elimination efforts. For example, with a hypersensitive patient a diet may be structured to remove the more common potential allergic offenders in the diet. These include milk and milk products, cereal grains (wheat and corn), and refined carbohydrates (white sugar and white flour). A very common offender in individuals whose biological regulatory system has been damaged by environmental agents is the *Candida albicans* organism. This ubiquitous fungus is widely recognized as an allergen responsible for multi-organ symptomatology (Rippon, 1982). Oral administration of Nystatin (Nilstat) in large doses or careful administration of ketoconazole (Nizoral) can be very helpful. This treatment course has been described elsewhere (Crook, 1986).

Specific antigen immunotherapy with ordinary allergy treatment for dust, grass pollens,



Vietnam Veterans of America, Inc.
1224 M Street, NW
Washington, DC 20005-5183

(202) 628-2700
(202) 628-5880 FAX

PAUL L. SUTTON

Life Member
Co-Chairman, Agent Orange/
Dioxin National Committee



HOME:
WORK: (609) 530-6974
FAX: (609) 530-7075