

## SOFT TISSUE SARCOMA\*

Some scientists have voiced a concern that there may be a higher than expected incidence of malignant neoplasms known as soft tissue sarcomas in people exposed to phenoxy herbicides and the contaminant TCDD (dioxin). The issue has remained unresolved since reports suggesting the possibility of such a relationship emerged from a number of European investigations beginning in 1979.

The term "soft tissue sarcoma" is used to describe a group of approximately 25 different types of malignant tumors which arise from body tissues such as muscle, fat, blood and lymph vessels and connective tissues. These tumors are relatively rare and as a group tend to be highly malignant.

Publications from Sweden suggest a correlation between the appearance of some of these tumors and occupational exposure to certain chlorinated compounds including the phenoxy acid herbicides. In addition, fragmentary reports have come from U.S. researchers alerting the scientific community to the possibility that such a relationship may exist. These are largely in the form of individual case reports and lack evidence that a definite cause-and-effect relationship exists in humans.

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Such evidence would most likely require a series of large scale epidemiologic studies similar to the ones which established smoking as a major factor in the cause of lung cancer.

In a recent issue of the New England Journal of Medicine, two VA physicians in a letter to the editor reported the occurrence of soft tissue sarcomas in the chest cavities of 3 Vietnam veterans who claimed exposure to Agent Orange. Two of these cases occurred in 1979 and the third in 1981. One patient has died and the other two are presumably alive and under treatment.

The National Cancer Institute reports an annual incidence of new cases of soft tissue sarcomas in males between the ages of 30 and 40 to be 1.5 per 100,000 population. Assuming a Vietnam veteran population of 2.4 million, one would expect an incidence in this age group of approximately 36 new cases per year. Twelve years have passed since the mid point of the Vietnam era; therefore one would expect a total of some 430 cases in this group. In view of this, the occurrence of 3 such cases in one of our large VA hospitals serving a metropolitan area the size of Atlanta is not particularly surprising.

The VA has reviewed the number of reported cases of malignancies in the Agent Orange Registry. In the first 50,325 veterans examined, 603 cases of malignant tumors were reported. This represents 1.1% of this group, not an unusually high rate. Of these, 11 were soft tissue sarcomas; again, not a surprisingly high number.

In addition, the VA is reviewing the Patient Treatment File for the number of Vietnam era veterans treated for soft tissue sarcomas in VA hospitals on an annual basis. We will then be able to compare within this group the number of soft tissue sarcomas occurring in veterans who actually served in Vietnam with a similar age group who did not serve in Vietnam. We will also be able to see if there is an unexpected increase in the number of new cases each year.

As further evidence of VA's concern in this area, we have been closely following the progress of a case control study being conducted by the New York State Department of Health using their Tumor Registry. This study will attempt to determine if there is a higher than expected incidence of soft tissue sarcomas in workers exposed to phenoxy herbicides. A similar study is being planned by National Cancer Institute and will look at the incidence of soft tissue sarcomas in people exposed to the herbicide 2,4-D in the state of Kansas.

As a further effort, the National Institute of Occupational Safety and Health is developing a register of workers potentially exposed to dioxins during the manufacture of various chemicals. This will allow the conduct of epidemiological studies in this group of workers.

In conclusion, the question of the relationship between soft tissue sarcomas and exposure to phenoxy herbicides remains an open issue. A number of efforts are underway to resolve the matter in a scientifically valid manner.