

EPIDEMIOLOGY

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In this session, seven papers will be presented and discussed on the human health effects of exposure to various halogenated organic pollutants including dioxins. Four studies will describe findings among community people, both adults and children, residing in the areas contaminated with the compounds, while the remaining session will cover the health effects of military use of phenoxyherbicide on U.S. and Australian veterans. A wide range of health outcomes in relation to the exposures will be discussed, from a specific disease such as breast cancer, hypertension, diabetes, multiple sclerosis, liver disease, to laboratory findings such as pulmonary function test and liver enzyme and blood chemistries, as well as cognitive functions as measured by various psychometric tests.

Koppe, et al. study of 29 Dutch children who were exposed to dioxins, prenatally (mean 34.6 ng TEQ dioxin/kg fat) and postnatally (mean 75.4 ng TEQ dioxin) will show a significant decrease in lung function associated with both exposures.

Watanabe, et al. will demonstrate that chronic exposure to PCDD and PCDF in emission gases from municipal waste incinerators resulted in an elevated blood level of PCDDs and PCDFs. A study of 470 adult residents from 15 areas in Japan showed that systolic blood pressure, total cholesterol, triglyceride, total bilirubin, total protein, CPK, BUN and uric acid were positively correlated with blood dioxin level. Furthermore, past history of hypertension, diabetes, and hyperlipidemia is significantly associated with blood dioxin levels.

Another study of children in Japan by Nagayama, et al. will report that thyroid hormone status of 121 infants who were exposed to organochlorine pesticides, PCBs and dioxins from maternal breast milk was negatively affected by the compounds.

Revich, et al. will attempt to describe the dioxin pollution from a chemical factory as an environmental risk of breast cancer in Chapaevsk City Russia. A preliminary result comparing mortality data for breast cancer in Chapaevsk to the expected number of deaths for the region indicated almost two times greater rates. A case control study, 71 cases and twice as many controls, is on going to investigate the role of various potential risk factors.

Two presentations by Dr. Michalek will cover the health of U.S. Air Force veterans who participated in Operation Ranch Hand in Vietnam. First report will show a very little difference in measures of cognitive functioning among veterans in the four TCDD categories, i.e., comparison (n=1,195), background (n=398), low (n=262) and high (n=264). However, the study will show significant differences between veterans with highest TCDD levels and comparison veterans on several measures of memory functions. A second report on the same veteran subjects will

indicate a significantly increased history of liver disorder among the highest exposed veterans compared to the non-Ranch Hand comparison group. Clinical significance of the increased level of hepatic enzymes will be discussed.

Horsley, et al. will compare prevalence of multiple sclerosis (MS) and motor neuron disease (MND) in Australian Vietnam veterans to the rates derived from Australian general population for the period 1986 to 1994. Adopting a specific model for the validation study, the authors reported no statistically significant difference between the prevalence of MS and MND in veterans and that of the general Australian population.

In summary, results to be presented in the session will confirm those which have been reported earlier or will suggest promising new areas of further research.