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TITLE ..... Human T-cell Lymphotropic Virus Type I (HTLV-I) and HIV Prevalences Among U.S. Drug Abusers

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PRESENTATION
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FOR RELEASE AT TIME
OF PRESENTATION

ATLANTA--Scientists studying several U.S. geographic regions have found that "from 1% up to 51% of drug abusers have been exposed to human T-cell lymphotropic viruses types I and II (HTLV-I/II), human retroviruses associated in previous studies with the development in some individuals of cancer and neurologic illness. These rates of HTLV-I/II exposure are the highest so far noted world-wide in an asymptomatic group."

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"Infection with the AIDS virus (HIV/HTLV-III) ranged from 0% up to 56%. Infection by HTLV-I/II and HIV were found to be independent. In this study, exposure to HIV and HTLV-I/II could be clearly separated."

This report was presented by Dr. Stanley H. Weiss at the 23rd Annual American Society of Clinical Oncology Meeting on May 19.

In 1984, Dr. Weiss and colleagues at the National Cancer Institute, in collaboration with the New Jersey Department of Health, began a prospective study in six cities and ten drug treatment programs. Blood specimens and questionnaires from 955 participants have been analyzed.

In 1985, a prospective study was begun at two drug programs in New Orleans, Louisiana, with 213 study participants. All of the New Orleans participants were born in the United States.

These two studies demonstrated "that rates of exposure to HIV among drug abusers decline with increasing distance from New York City. The overall HIV rates in New Jersey were 56% in Jersey City, 36% in Newark, 26% in Union, Asbury Park and Paterson, and 1.5% in Camden. In New Orleans, the HIV rate was 0.9%. HIV exposure was determined by blood tests that detect HIV-specific antibodies." The body produces antibodies as an immune response to foreign substances. HIV is a virus that can cause immune deficiencies, neurologic and psychiatric abnormalities, and AIDS.

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"HIV infection was significantly more common among blacks in New Jersey than among whites or Hispanics. The near absence of HIV in New Orleans did not permit meaningful racial analysis in New Orleans. Neither age nor sex were related to HIV infection."

HTLV-I was the first human retrovirus to be clearly linked with the development of cancer in humans. In Japan, as well as in populations of African ancestry in the Caribbean basin and bordering areas including southern U.S. blacks, HTLV-I has been associated with the adult T-cell leukemia/lymphoma syndrome (ATL). Rates of HTLV-I antibodies have ranged from 5% to 10% in regions of Japan and the Caribbean where ATL accounts for the majority of the non-Hodgkin's lymphomas occurring in adults. In these regions, the risk of HTLV-I associated malignancy for someone with HTLV-I antibodies appears to be less than 1% during that person's lifetime. ATL may not occur until several decades after initial HTLV-I exposure. In another study from the National Cancer Institute, also reported today, Dr. Edward Murphy noted that "persons with HTLV-I antibodies in Jamaica were as much as thirty-five times as likely to develop ATL as persons without such antibodies." HTLV-I has also been linked to the development of neurologic abnormalities, such as tropical spastic paraparesis.

The HTLV-II virus is closely related to HTLV-I and is not readily distinguishable from HTLV-I by any current serologic techniques. The HTLV-II virus has so far only been isolated from four persons world-wide and no clear link to a specific disease has been established.

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Prior surveys of U.S. populations by the National Cancer Institute and other investigators have documented the absence and near absence of HTLV-I and HTLV-II in most study groups. The only exception had been a small study of drug abusers from Queens, New York ascertained in 1982, in which Dr. Weiss and co-investigators from the National Cancer Institute and Queens General Hospital reported that one-third had been exposed to HTLV-I or HTLV-II or both (Journal of the American Medical Association 1986; 255:3133-3137). A recent study conducted outside the U.S.A. in Trinidad, a country where HTLV-I is endemic, documented elevated rates of both viruses in a sexually active homosexual population (Journal of the American Medical Association 1987; 257:2604-2608).

In the current studies, Dr. Weiss reported that HTLV-I and HTLV-II could not be clearly separated in any of ten different tests. "The rates of exposure for HTLV-I/II in the current studies varied in accordance with age, race, and geography. Older drug abusers were more likely to show evidence of HTLV-I/II exposure, with up to 56% of those over 40 years old antibody positive. Blacks were significantly more likely to have been exposed than whites or Hispanics in each region studied and in each age group."

Dr. Weiss stated that "the overall HTLV-I/II rates were 12.1% in New Jersey and 33.8% in New Orleans, primarily reflecting a preponderance of older blacks in the New Orleans study. Within New Jersey, the rates ranged from 23.3% in Newark, 10.2% in Jersey City, 7.5% in Union, Asbury Park and Paterson, to 1.5% in Camden. The rate in Newark was significantly higher than in the five other New Jersey cities studied and this difference was not due to the age or race of the drug abusers."

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"We noted the age and regional variation in HTLV-I/II prevalence among both blacks and whites," said Dr. Weiss. "The HTLV-I/II rates of 17.5% to 36.4% among whites over 40 years old in these two studies represent the first evidence in the U.S. of significant entry of HTLV-I/II into the U.S. white population. It seems plausible that the ethnography of drug abuse, including the patterns of drug use and socialization among drug abusers, will prove to be important in the interpretation of our findings."

Although these data are cross-sectional, the geographic gradient in HTLV-I/II occurrence in New Jersey is reminiscent of the pattern associated with new spread of the HIV virus. Prospective follow-up of these study subjects in both New Jersey and New Orleans is underway to evaluate the incidence (rate) of new infection and the risk factors for HTLV-I/II infection.

"In New Jersey, 5.2% of the participants had antibodies to both HIV and HTLV-I/II. We found the highest co-infection rate in New Jersey among those at least 45 years old, of whom 19.4% were co-infected. Since HIV was nearly absent in the New Orleans study group, co-infection was rare (0.5%) in New Orleans despite the very high HTLV-I/II prevalence."

"With few exceptions the observed cases of adult T-cell leukemia/lymphoma in the United States have occurred in migrants from several Caribbean islands and among southern born blacks often residing in northern cities including the New York City/New Jersey metropolitan area," stated Dr. Weiss. Studies are under way to examine the potential risk of leukemia and neurologic sequelae among persons singly infected with HTLV-I and co-infected with HTLV-I and HIV

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and to explore the hypothesis that dual infection heightens risk for disease. These studies will be important in learning the medical significance of a history of HTLV-I/II exposure in asymptomatic individuals. "Physicians in these regions should be alert to the possibility of adult T-cell leukemia/lymphoma syndrome, a malignancy with an often explosive clinical course." The Environmental Epidemiology Branch at the National Cancer Institute has developed a registry to track cases of suspected ATL that are identified. (Contact person for referrals: Dr. Paul Levine).

"The elevated prevalences of both HIV and HTLV-I/II among black drug abusers suggest the possibility that health problems may continue to mount in the coming years. To clarify these findings, future epidemiologic studies of retroviral exposure should place high priority upon the health of minority groups," said Dr. Weiss. "Our finding of a surprisingly high prevalence of HTLV-I/II will lead to a broadened interest in examining the consequences of infection with these agents."

These studies of HTLV-I/II were built upon the gradual accrual of pedigreed HTLV-I and HTLV-II reference sera by the National Cancer Institute, which were used in the ongoing development of antibody detection assays. Dr. Weiss and his laboratory collaborators utilized a combination of assays to ensure sufficient specificity in the HTLV-I/II determinations. Multiple confirmatory tests are currently required to confirm or rule out the presence of HTLV-I/II antibodies and efforts are continuing to develop tests for routinely distinguishing HTLV-I from HTLV-II.

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