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SUMMARY OF STUDIES DEMONSTRATING LACK OF HTLV-III VIRUS TRANSMISSION TO FAMILY MEMBERS AND HEALTH-CARE SETTING CONTACTS OF HTLV-III INFECTED PERSONS

The development of the human T-cell lymphotropic virus type III (HTLV-III) antibody test has made it possible to systematically study HTLV-III transmission, specifically from persons with HTLV-III infection to others with whom they are in close but nonsexual contact. Such studies have focused on two groups: family contacts of HTLV-III antibody-positive persons and health-care workers. These groups have extensive, often inadvertent, close contact with HTLV-III-infected persons both before and after development of immunodeficiency. The following summary of HTLV-III transmission studies is provided in response to questions about the risk of transmission by casual contact, a risk the evidence indicates is extremely small, approaching zero.

FAMILY MEMBER CONTACTS

We are aware of eight studies of family contacts of infected persons (1-8). To date, five studies have been published in the medical literature and one is in press. Summary data from the studies not yet published have been presented at scientific meetings or provided by the authors to the AIDS Activity Branch, Centers for Disease Control (CDC)(8).

More than 155 HTLV-III positive-index patients were identified in these studies. Information on the number of index patients

was not available for one of the studies (6). Included in the 155 were 20 children less than 5-years-old and 27 children 6 to 18 years of age. In the eight studies, 368 family contacts were evaluated for the presence of HTLV-III antibody to evaluate possible household transmission.

Two hundred eighty-nine household contacts were classified as low risk - 167 children (24 less than 5-years-old) and 122 adults. None were HTLV-III antibody-positive. Seventy-nine household contacts were felt to be at high risk for HTLV-III infection - seven family members in known high risk groups, 23 sexual partners of the index case, and 49 children less than 5-years-old whose mothers were seropositive. Of these, only the seven family members in known high-risk groups and 18 of the 49 children were HTLV-III antibody-positive. Household contact included sharing of toothbrushes, eating utensils and bathwater; casual kissing and consumption of food prepared by HTLV-III infected individuals. In two twin pairs, the ill twin developed AIDS following transfusion in the neonatal period. In each instance, the other twin has remained HTLV-III antibody-negative and healthy despite sharing bottles and beds (8).

To date, no AIDS cases have been identified in household contacts of the more than 15,000 persons with AIDS reported to CDC. The data support the conclusion that HTLV-III transmission by casual person-to-person contact in families is extremely rare, if it occurs at all.

HEALTH-CARE WORKERS

Although health-care workers often take

precautions when handling blood and body fluids, many have been inadvertently exposed to HTLV-III as a result of needlesticks and direct skin and mucous membrane exposure to blood and upper respiratory secretions while caring for HTLV-III-infected persons who may or may not have been labelled as having AIDS or HTLV-III infection.

In published reports of serologic testing of health-care workers and data reported to CDC, a combined total of 1,758 health-care workers have been tested for HTLV-III antibody (9). Twenty-six workers (1.5%) were seropositive; all but three belonged to groups at increased risk for AIDS. For one worker tested anonymously, no epidemiologic information was available. The other two workers had discreet needlestick exposures to potentially infected blood. Since only two persons in no known high-risk groups were HTLV-III antibody-positive (of the 1,734 remaining workers), the risk of HTLV-III transmission to health-care workers appears to be extremely low. In addition, only persons with discreet needlestick exposures were HTLV-III antibody-positive, further evidence that casual but close contact with HTLV-III infected-individuals is insufficient to transmit the virus.

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INFREQUENCY OF HTLV-III ISOLATION FROM SALIVA

In October 1984, the reported isolation of HTLV-III from the saliva of individuals with clinical or serologic evidence of infection with HTLV-III (1) led to concern about the possibility of virus transmission through human bites with skin penetration and "intimate" kissing. In that study eight of 18 HTLV-III antibody-positive persons had recoverable virus in saliva. Recently a second and larger study was reported in which HTLV-III isolation from saliva was considerably less frequent (1.2%)(2).

Over a 12 month period, 83 saliva samples from 71 HTLV-III antibody positive homosexual men were tested; only one was positive for virus (1.2%). The individuals whose specimens were tested included 20 men without symptoms, 32 with AIDS-Related Complex and 19 with AIDS. The positive specimen was from a man with AIDS who had concurrent PCP, candida esophagitis and thrush. Of the 50 subjects whose blood was cultured for HTLV-III, 28 had positive cultures.

The investigators felt that the infrequent isolation of HTLV-III was not due to improper methods, noting that their laboratory had been highly successful in isolating virus from blood, CSF and neural tissues in other studies.

These laboratory studies are consistent with the epidemiologic data presented in this issue. There is no evidence that casual transmission of HTLV-III occurs, even among

household members exposed to the saliva of infected persons. The shedding of virus in saliva occurs infrequently and the actual risk of exposure through human bites or intimate kissing is very low.

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EFFICACY OF INFLUENZA VACCINE IN THREE CONNECTICUT NURSING HOMES

In February and March 1985, three separate outbreaks of influenza-like illness in nursing home residents were investigated by the State of Connecticut Department of Health Services and the Department of Epidemiology and Public Health, Yale University School of Medicine. Influenza type A (H3N2) appears to have caused all three outbreaks. Investigators found that, in each outbreak, residents who had recently received currently recommended influenza vaccine were just as likely as unvaccinated residents to become ill.

"Influenza-like illness" was defined by a temperature of 37.8°C or greater, accompanied by cough, coryza, or sore throat. Cases of influenza-like illness were found by reviewing medical records at the homes.

In the first outbreak, 19 residents of a skilled nursing facility had influenza-like illnesses. The median age was 84 years (range 65-94). Six of seven ill persons had fourfold or greater rises in hemagglutination-inhibition antibody against influenza A(H3N2) viruses but no comparable rises against other respiratory pathogens. Only residents of one floor of the facility became ill. On the affected floor, the attack rate was 25% (19/75); the rate was 26% (15/57) in vaccinated persons, 19% (3/16) in unvaccinated persons, and 50% (1/2) in residents whose vaccination status was unknown. None of these differences were statistically significant (p less than .05).

In the second outbreak, 26 residents of a skilled nursing facility had influenza-like illnesses. The median age was 83 years (range 33-95). One of 14 throat swabs collected from ill residents yielded influenza A(H3N2) virus similar to A/Philippines/2/82. All six ill residents from whom sera were obtained had fourfold or greater rises in hemagglutination-inhibition antibody against influenza A(H3N2). The overall attack rate was 31% (26/85); the rate was 40% (12/30) in vaccinated persons and 26% (14/55) in unvaccinated persons (p less than .05). Vaccinated persons did not differ from unvaccinated persons in terms of age, sex, and level of care. After 41 of the remaining 62 well residents (66%) were started on amantadine hydrochloride prophylaxis (100 mg a day), only one person, a resident who had not received amantadine, became ill.

In the third outbreak, 111 residents of a large multiple level-of-care facility had influenza-like illnesses. The

median age was 85 years (range 64-104). One of six throat swab specimens yielded Influenza A (H3N2) virus similar to A/Philippines/2/82. Fourteen of 18 ill residents from whom paired sera were obtained had fourfold or greater rises in antibody against Influenza A (H3N2). The overall attack rate was 23% (111/489); the rate was 22% (75/336) in vaccinated persons, 20% (25/128) in unvaccinated persons, and 44% (11/25) in residents whose vaccination status was unknown (p less than .05). After the widespread institution of amantadine hydrochloride prophylaxis (100 mg/day) in residents and staff members, three additional cases were identified among residents on amantadine.

Ten influenza-related deaths were reported from all three nursing homes. Because of small numbers, statistically significant differences between vaccinated and unvaccinated influenza patients were not detected for length of illness, frequency of hospitalization, development of pneumonia, or risk of death.

Editorial Note: While vaccine efficacy studies involving passively reported outbreaks should be interpreted cautiously, the results of these studies are consistent with those reported previously (1-12), most of which suggest that the efficacy of influenza vaccine in reducing the incidence of illness is often lower for nursing home residents than for younger, healthier populations. The reasons for this phenomenon probably include an age-related decline in immune response and high frequency of exposure and ease of transmission once the virus is introduced into the closed, relatively crowded nursing-home setting (3). In addition, for reasons that are not well understood, influenza vaccine efficacy can vary from home to home. In a recent study of influenza-like illness among nursing-home residents in Genesee County, Michigan (2), attack rates were similar for vaccinated and unvaccinated residents in six of the 13 homes studied, including three of the seven homes with outbreaks. Vaccination, however, was associated with a significant reduction in illness when the 1,476 residents were considered together.

Since complications following influenza virus infections account for the greatest impact on elderly patients in terms of both health and health-care costs, it is also important to evaluate the efficacy of influenza vaccine in reducing the severity of illness. Studies of elderly patients have consistently demonstrated a significant association between vaccination and reductions in the length of illness (9-11), the necessity for hospitalization (2,10), the development of pneumonia (2,10,13), and subsequent death (2,10,12,13). Furthermore, vaccination rates in individual nursing homes in the range of 70%-80% - a target recently proposed by the Immunization Practices Advisory Committee (ACIP) (14) - have also been shown to reduce the risk of outbreaks through the induction of herd immunity (15), which can further minimize the risk of severe influenza-related complications.

The use of amantadine in several of these outbreaks suggests that amantadine prophylaxis (in a reduced dosage of 100 mg/day) is useful in preventing additional cases once an outbreak of influenza A has been identified, a strategy that has also been recommended recently by the ACIP (14). It should also be emphasized that amantadine prophylaxis should not be considered a substitute for vaccination because of inherent difficulties in rapidly administering the drug to asymptomatic residents when outbreaks do occur, as well as lack of protection against type B influenza viruses.

Connecticut health-care providers are encouraged to report as early as possible clusters of influenza-like illness occurring in nursing homes and other health-care institutions to their local health department and the Epidemiology Program, State of Connecticut Department of Health Services (566-5058). Investigations of these clusters or outbreaks are important to determine the exact cause of illness and to accumulate a data base about control measures, such as the efficacy of influenza vaccine

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and amantadine in preventing severe illness during outbreaks. The efficacy of other infection-control procedures, such as respiratory isolation of patients with influenza-like illness in preventing transmission of illness (16), and the reasons for interhome variation in vaccine efficacy are also important areas for continuing research.

[Adapted from CDC, MMWR 1985;34:478-82. References furnished on request.] *****

COMMUNICABLE DISEASES REPORTED			
CONNECTICUT			
1984, 1985			
Name	1985*	1984	% Change From 1984
AIDS	83	53	+ 56.6
GONORRHEA	9184	8134	+ 12.9
SYPHILIS P&S	216	191	+ 13.1
MEASLES	3	14	- 78.6
RUBELLA	1	1	0.0
TUBERCULOSIS	160	176	- 9.1
HEPATITIS A	143	87	+ 64.4
HEPATITIS B	352	415	- 15.2
SALMONELLOSIS	1079	881	+ 22.5
SHIGELLOSIS	126	111	+ 13.5

*Subject to change when final report is submitted to the Centers for Disease Control

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