

The Acquired Immunodeficiency Syndrome and the Human T-lymphotrophic Leukaemia Viruses.

Notes made at a symposium held at the London School of Hygiene and Tropical Medicine on 3rd April 1985. With some additional material from a Brief review published in Blood, February 1985, and the Interim guidelines from the Advisory Committee on Dangerous pathogens.

Introduction:

The first formal report of the Acquired Immunodeficiency syndrome (AIDS) in the United Kingdom was made + published in late 1981. One case was diagnosed retrospectively as having occurred in 1979. The number of cases of AIDS reported to the Communicable Disease Surveillance Centre ~~at~~ (CDSC) at Colindale was 140 as at March 1985. The rate of new reports indicates that the number of cases in the UK is doubling every 7 months. If, as seems likely from the experience in the USA, this increase occurs, there will ~~will be over 1000 cases by the end of~~ have been over 1000 cases reported by the end of 1986. The criteria for the diagnosis of AIDS adopted by the CDSC, follows the criteria used by the Centre for Disease control in USA and is as follows:

"... for the limited purposes of epidemiological surveillance a case of acquired immune deficiency syndrome is defined as one in which a person has a reliably diagnosed disease that is at least moderately indicative of an underlying cellular immune deficiency (such as opportunistic infection, or Kaposi's Sarcoma in a person aged less than 60 years) but who, at the same time, has had no known underlying cause of cellular immune deficiency nor any other cause of reduced resistance reported to be associated with that disease."

Briefly, people with AIDS are susceptible to infections which rarely affect normal people, and they often have multiple or repeated infections. The occurrence of Kaposi's sarcoma, previously a rare tumour affecting people ~~over 50 years of age~~ usually over 60 years of age, is frequently seen in people with AIDS.

The agent causing AIDS and progressive generalised lymphadenopathy (PGL) and also associated with certain tumours has now been identified and characterized.

T-helper cells 'help' B-cells to ~~secrete~~ produce immunoglobulin, either cytoplasmic or secreted Ig. The cytotoxic action of T-cells is also ~~enhanced~~ ^{controlled} by the action of T-helper cells. There is also an action of T-helper cells on T-suppressor cells. T-helper cells ~~also~~ proliferate in response to antigenic stimuli, as well as to mitogens such as PHA (Phytohemagglutinin). T-helper cells are also important in the control of marrow precursors.

It can thus be seen that the loss of T-helper cells ~~as~~ results in profound effects on both cell mediated and humoral immunity.

The failure of immunity gives rise to infection with a range of opportunistic infections.

~~See~~ In addition to the ~~for~~

Mode of Transmission:

The HTLVIII virus has been isolated from infected individuals. It is found in the blood, semen and saliva, ^{bone marrow and lymph nodes.} It is also found in significant amounts in the brain. As the disease progresses, the amount of virus decreases, and may be undetectable in the saliva in patients with AIDS.

The transmission by blood or blood products is now well documented, and this includes 'needle stick' injuries in staff handling infected materials, intravenous drug abusers sharing needles and patients receiving blood or certain blood products. It appears that Human Albumin solutions (PPF) do not transmit the virus, nor do intramuscular preparations of immunoglobulin. Factor VIII concentrate is known to transmit HTLVIII and one case is documented of a patient who had received only U.K. produced F.VIII concentrate developing AIDS.

The transmission of HTLVIII amongst homosexual men appears to correlate particularly with receptive anal intercourse. Semen is known to contain HTLVIII and this raises the possibility that the rectal mucosa is particularly receptive to the infection by the virus.

Heterosexual transmission occurs much less frequently. Female partners of male homosexuals have been found to be infected with HTLVIII. A recent study of samples collected from registered prostitutes in

commonly involved. Kaposi's sarcoma is quite a common tumour, but cerebral lymphoma, certain squamous carcinomas and some rarer tumours all occur with increased frequency in patients with HTLVIII infection. AIDS is universally fatal. Effective treatment of these opportunistic infections is difficult and some of the drugs used have significant side effects. Cerebral Toxoplasmosis, and GI tract Cryptosporidium infections are particularly difficult to treat.

The number of cases of AIDS is likely to continue to rise. The current rate indicates doubling of the number of reported cases every 7 months.

Prospects for limiting the ~~the~~ spread of the disease include the encouraging homosexual men to limit the number of partners they have, to use condoms, and presumably men known to be HTLVIII antibody positive, to refrain from sexual contact. For blood transfusion, all donations should be screened for HTLVIII antibody - as tests are now available, although not yet as commercial kits. ~~But~~ Potential donors from risk groups must be excluded as far as possible. Effective literature and advertising campaigns should be used. All ~~blood~~ plasma for processing should be tested and treatment of finished products should be carried out to render the product non-infective. Heat treatment of F.VIII concentrate may render the product non-infective, but at the cost of a 50% reduction in potency and a resultant increase in price of more than 50%. These costs in prevention should be considered against the cost of treatment and management of ~~cases~~ patients with AIDS.

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