DEFINITION

1. The infecting agent giving rise to AIDS is the **human immunodeficiency virus (HIV)**. This brings about a spectrum of clinical problems beginning at the time of infection and terminating years later in AIDS. Diagnosis of infection is by testing for the specific initial antibody response of the host (seroconversion).

2. **Acquired immune deficiency syndrome (AIDS)** is defined clinically. It is an illness characterised by one or more **indicator diseases** (certain diseases when definitively diagnosed which are indicative of AIDS)-see paragraph 4 below. The World Health Organisation (WHO) uses this clinically based definition for surveillance within developed countries.

3. In 1993 the Centres for Disease Control (CDC) in the USA extended the definition of AIDS to include all persons who had a CD4 T-lymphocyte count of less than 200 x 10 to the sixth/l, irrespective of the presence or absence of an indicator disease. This definition has not been accepted in the United Kingdom and Europe, where AIDS continues to be a clinical diagnosis defined by one or more indicator diseases.

CLINICAL MANIFESTATIONS

4. It may take 10 years or more for AIDS to develop after the initial seroconversion. Cohort studies show that 90% of infected persons go on to develop clinical AIDS, 50-60% within 10 years. In 1992 the Centres for Disease Control in the USA developed a clinical classification based on the stages through which the infection progresses, as follows-

   Group 1 - Seroconversion illness, within first few weeks

   Group 2 - Asymptomatic phase

   Group 3 - Persistent generalised lymphadenopathy

   Group 4 - Symptomatic infection. This manifests itself in many forms. There may be neurological disease in the form of HIV encephalopathy; there may be wasting syndrome, or malignancies such as Kaposi's sarcoma or cerebral lymphoma; there may be opportunistic infections such as Pneumocystis carinii pneumonia, candidiasis or generalised herpes simplex. These are the main **indicator diseases**. The outcome of this stage is invariably fatal, but recent evidence indicates that not all patients progress this far.

AETIOLOGY

5. **Virus**. The causative agent of AIDS is a virus. It was first identified in 1983 and was called the **human immunodeficiency virus (HIV).** A further subtype responsible for AIDS in Africa was identified in 1985 and is named HIV-2; in all 6 subtypes have been identified. HIV is a retrovirus which can make copies of its own genome, as DNA, in host cells; the viral DNA becomes integrated in the cell genome, and this is the basis for chronic HIV infection.

6. HIV infects cells of the **immune system**, particularly CD4 lymphocytes, and ultimately destroys them; the clinical features of HIV infection result from that process. CD4 lymphocytes have a central role in human immune response, and their destruction accounts at least in part for the immunosuppressive effect of the virus. Individuals infected with HIV may remain healthy for long period. A hallmark of disease progression, often prior to the development of new clinical symptoms, is a fall in the number of CD4 lymphocytes.

7. **Epidemiology**. The first ever case of AIDS was seen in California in 1981 and since then the disease has appeared in every continent and has assumed pandemic proportions. It is especially rampant in Sub-Saharan Africa, and is spreading rapidly in South East Asia. Infections with HIV-2 virus are mainly confined to West Africa.

8. **Transmission**. The commonest mode of transmission of HIV throughout the world is **sexual intercourse**, either anal or vaginal. Semen and cervical secretions are particularly infectious. The first cases occurred in homosexual males and this has continued to be the commonest mode of transmission in the developed world. In the developing world heterosexual spread has been more common from the outset, and the proportion of cases spread in this way is gradually increasing in the developed countries. Infected prostitutes of either sex are an important reservoir. The second mode of transmission of virus is via **infected blood and blood products**; this has led to the appearance of AIDS in haemophiliac patients and other recipients of blood transfusions, in intravenous drug users, and in health care workers sustaining needle-stick injuries. A third mode of spread is directly by placental transfer from **mothers to unborn infants**; the virus may also be transmitted by **breast milk**.

9. The virus is **not** spread by saliva, or by mosquitoes, lice, bed bugs, swimming pools, toilets, eating and cooking utensils, or sharing cups. HIV/AIDS is not contagious and is not spread by casual or social contact.

Factors influencing progression.

10. **Natural variation**. The rate of progression from initial HIV infection to AIDS varies widely from person to person; it is not clear why or how the infected individual eventually fails to keep HIV infection in check. No specific second pathogen has ever been identified.

11. **Genetic factors** are likely to affect the pace of development of AIDS. A number of mechanisms involving major histocompatibility genes have been proposed, by which genetic influences on an individual's immune system could affect the progress of HIV infection. There is evidence that a separate group of long term survivors exists; there is a small group of HIV positive "non-progressors" who have shown no decline in CD4 levels and remain in good health.

12. **Stress**. Recent studies have shown that **severe life stress** is associated with an increased rate of early HIV disease progression. Severe life stress is defined as death of a family member or close friend, life-threatening illness or deteriorating health of a family member or close friend, serious assault, rejection after disclosure of HIV status, and break-up with a long-term committed partner. The levels of stress common to everyday living at home or work do **not** have this effect.

13. **Depressive symptoms**. These are associated with increased self-reporting of HIV-related symptoms, but do not appear to accelerate HIV progression. They are not associated with alterations in markers of HIV progression. Studies of this factor have assessed symptoms rather than actual depressive syndromes or major depression.

CONCLUSION

14. AIDS is the clinical expression of infection with the HIV virus. Diagnosis of AIDS depends on the presence of one or more indicator diseases. HIV infection is most often transmitted by sexual (mainly homosexual) contact, but also by inoculation with infected blood and blood products. Factors which may influence progression of the disease process are discussed above.

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