

Further anxieties about AIDS

AIDS has been a serious problem of public health since it was first recognized. The realization that it may affect the human nervous system gives a new twist. But the remedies are the same.

THE letter from the Drs Fox on page 8 has plainly been written to scare, but it should be taken seriously for all that. Since AIDS (acquired immune deficiency syndrome) was first recognized, it has been seen as a serious threat to public health. It is intractable and infectious, although not especially so. What the Drs Fox (respectively a pathologist and a physician) are saying is that the threat is probably more serious than has been thought, now that it has been demonstrated that infection by the AIDS virus, HTLV-III or LAV, can damage the central nervous system. But it is too soon to know how much more serious.

While so much remains to be understood about the consequences of infection by the AIDS virus, it is not surprising that uncertainty abounds. But the wonder is that so much has been learned about AIDS and its causes in a mere four years.

The immune deficiency that marks out AIDS arises because of the depletion of the sub-class of T (for thymus) lymphocytes known as "helper" cells. Infected people produce characteristic antibodies, by means of which diagnostic tests have been developed and put into service. Their most immediate use is in the screening of blood for transfusions; it is too early to know how effective they will be.

Two lessons have emerged from the determination in the past year of the nucleotide sequence of several isolates of the virus. Viruses recovered from different sources differ — suggesting antigenic variability like that which makes the influenza virus variable — and the AIDS virus is less like HTLV-I (recovered from patients with apparently infectious adult T-cell leukaemia) than visna virus, responsible for a progressive (demyelinating) disease of the nervous system of sheep.

A great deal has also been learned about the nature of AIDS itself. That only some, perhaps 10 per cent or so, of those with HTLV-III antibodies succumb to one of the infections or other conditions that characterize the disease is not surprising. Other viruses may affect people subclinically, causing them little trouble but stimulating the production of antibodies which protect against further infection.

Much has also been learned about the mechanism of the spread of AIDS. Homosexuals, haemophiliacs given contaminated blood-clotting factor and syringe-using drug addicts are the groups chiefly at risk, but the disease has also

been transmitted to heterosexual partners of homosexual men and by infected women to their children *in utero*. Blood-to-blood transmission is the surest route to infection. Little is known about the effectiveness of other methods of transmission, but the AIDS virus is plainly not particularly infectious. Even so, it is reasonable to expect that in due course the infection will spread through the general population in the narrow sense that the groups now most at risk will be less conspicuous. This is what seems to have happened in some parts of Central Africa.

It is a triumph that questions like these have been successfully answered in so short a time. Even so, there remain some curious puzzles. If, for example, the underlying defect in AIDS patients is immunosuppression, why should the rare skin cancer called Kaposi's sarcoma, believed by some to involve cytomegalovirus as a kind of co-carcinogen, be such a common sequel to infection by HTLV-III? Why not other kinds of cancer? And what is the status of those who carry antibodies against HTLV-III but show no overt AIDS? Are they patients in waiting, just lucky or is there an explanation of their apparent immunity?

This is the point from which the Drs Fox start. What, they ask, if those without overt AIDS who have been infected by the virus are at risk of succumbing instead to one of the neurological conditions associated with overt AIDS? What would happen if psychiatric hospitals were refilled with relatively young people suffering from conditions at present associated with old age, dementia for example? Could we shoulder the social burden? The question is chilling. Is it fair?

Over the past few months, there has been a trickle of articles in the clinical journals pointing to a neurological component of AIDS. From the outset, physicians have recognized what is vaguely called "AIDS-related encephalopathy" in some overt infections. The new development (see, for example, Ho *et al.* and Resnick *et al.*, both in *New. Engl. J. Med.*, 313, 1493 & 1498; 1985) is the recognition that HTLV-III virus may infect brain tissue (promoting the formation of antibodies in the cerebrospinal fluid) and that it may be directly responsible for some of the damage done to the nervous systems of people with AIDS. More ominously, some of those in whose nervous tissue HTLV-III has been found are people

without overt AIDS.

These investigations are still few and far between. Knowledge of the neurological complications of AIDS itself is only sketchy. As yet, there is no factual basis for an attempt to guess at the frequency with which virus reaches the brains of those who have merely been infected with the virus. But if the apparent similarity between HTLV-III and visna virus is sustained by further investigations, and because HTLV-III is a retrovirus that may become a part of the genome of somatic cells and nervous tissue in particular, there is a danger that AIDS infection may be hidden in the brains of human beings much as the herpes simplex virus (which causes "cold sores") may linger dormant in the peripheral nervous system, bursting out only from time to time.

This is the background against which the Drs Fox have written their scary letter. There is a possibility that HTLV-III will lodge in infected people's brains, serving both as a cause of direct neurological damage and as a reservoir for the infection of others. Plainly there is an urgent need that this possibility should be explored, not least because virus in the brain may be less accessible to therapeutic drugs. Plainly, that will take time.

What, in the meantime, should be done? Reactions to the emergence of AIDS as a public health problem in industrialized communities has spanned the usual spectrum from panic to complacency. Many have responded with exaggerated fear to the notion that casual contact may infect them, while the primitive response of those who believe that Lot's wife met her deserved fate on the escape from Sodom and Gomorrah has been distasteful and unhelpful.

A strategy for containing AIDS can consist only of two components — some means of decelerating the spread of infection (which is a short-term measure) and, later, some means of preventing infection of those at risk. Infection by contaminated blood products should soon be halted. No doubt the fear of infection has already had an important influence on the behaviour of homosexuals, perhaps even drug addicts. But the benefits will emerge only slowly and the prospects for prophylaxis and cure are still distant. The recognition that there are probably neurological consequences of infection by HTLV-III makes a serious problem of public health still worse.

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