AIDS, Washington 1987). Little is known about the influence of genetic factors, but these may affect the rate of development of AIDS in people with HIV antibodies.[14]

It is important to know where patients receive health care to plan resources. Most of the patients were homosexuals living in London. Cases among other risk groups were more evenly distributed around the United Kingdom. In some countries a large proportion of cases have been reported among intravenous drug abusers.[15] In the United Kingdom HIV antibody has been found among drug abusers in well defined geographical areas.[16]

The clinical features at the time of reporting were similar to those described in other Western countries.[7] It is not yet clear, however, what clinical features may be predominant in patients who develop AIDS after long incubation periods. New types of opportunistic diseases may appear with a longer duration of incubation. It is not known whether some people may be HIV positive for many years and develop an AIDS syndrome in later life.

The surveillance system depends on prompt reporting of new cases. Efficient verification and documentation then permits rapid feedback of information through monthly press releases.

We thank all those clinicians who have reported cases to CDSC and CD(S)U; Dr Spence Galbraith and Dr Dan Reid, who developed the CDSC and CD(S)U AIDS reporting programmes; and Dr Galbraith for his continued support and encouragement. Dr S Young, Dr A Ellam, Dr G Marasca, Mrs K Porter, Miss E Overton, and the PHLS computer services staff have all helped to make computerisation of the data possible.

References

1 McEvoy M. The epidemiology of the acquired immune deficiency syndrome (AIDS). *J R Soc Health* 1985;105:88-90.
2 McEvoy M. Acquired immune deficiency syndrome in the United Kingdom. *Eur J Clin Microbiol* 1984;3:63-4.
3 Communicable Disease Surveillance Centre. The acquired immune deficiency syndrome. *Community Med* 1985;7:136-44.
4 Galbraith NS, McEvoy M, Sibellas M. The acquired immune deficiency syndrome—1985. *Community Med* 1986;8:329-36.
5 Galbraith NS, Young SJ. Communicable disease control: the development of a laboratory associated national epidemiological service in England and Wales. *Community Med* 1980;2: 135-43.
6 Centers for Disease Control. Revision of the CDC case definition for acquired immunodeficiency syndrome. *MMWR* 1987;36(suppl):1S.
7 Jaffe HW, Bregman DJ, Selik RM. Acquired immune deficiency syndrome in the United States: the first 1,000 cases. *J Infect Dis* 1983;148:339-45.
8 Tillett HE, McEvoy M. Reassessment of predicated numbers of AIDS cases in the UK. *Lancet* 1986;ii:1104.
9 Carne CA, Weller IVD, Johnson AM, *et al.* Prevalence of antibodies to human immunodeficiency virus, gonorrhoea rates, and changed sexual behaviour in homosexual men in London. *Lancet* 1987;i:656-8.
10 British Cooperative Clinical Group. Homosexuality and venereal disease in the United Kingdom: a second study. *British Journal of Venereal Diseases* 1980;56:6-10.
11 Moss AR. AIDS and intravenous drug use: the real heterosexual epidemic. *Br Med J* 1987;294:389-90.
12 Robertson JR. Drug users in contact with general practice. *Br Med J* 1985;290:34-5.
13 Lui K-J, Lawrence DN, Morgan WM, Peterman TA, Haverkos HW, Bregman DJ. A model-based approach for estimating the mean incubation period of transfusion-associated acquired immunodeficiency syndrome. *Proc Natl Acad Sci USA* 1986;83:3051-5.
14 Smeraldi RS, Fabio G, Lazzarin A, Eisera NB, Moroni M, Zanussi C. HLA-associated susceptibility to acquired immunodeficiency syndrome in Italian patients with human-immunodeficiency-virus infection. *Lancet* 1986;ii:1187-9.
15 World Health Organisation. Acquired immunodeficiency syndrome (AIDS). *Weekly Epidemiological Record* 1987;62:117-21.
16 Jesson WJ, Thorp RW, Mortimer PP, Oates JK. Prevalence of anti-HTLV-III in UK risk groups 1984/5. *Lancet* 1986;i:155.

(Accepted 24 October 1987)

Letter from . . . Chicago

Neuromeanderings

GEORGE DUNEA

In the hierarchy of medical specialists the neurologists traditionally ranked highest. Greatly admired for their elegance and skill, they frequently transcended the bounds of conventional neurological disease, their interests leading them to study the highest functions of the brain in health as well as in disease. For almost a century a series of clinical giants held the spotlight on the diagnostic stage, astounding the world with their unfailing ability to localise the offending lesion—which, alas, they could but rarely cure.

But now times have changed. No longer do neurologists remain wholly true to the traditional sterotype of "the doctor full of phrase and fame shaking his sapient head and giving the ill he cannot cure a name." They may have lost much of their mystique, but they make up for it with a whole array of new tests and treatments. Yet despite their impressive armamentarium they occasionally suffer diagnostic Waterloos that would have made the great Charcot turn hysterically in his grave.

Cook County Hospital, Chicago, Illinois
GEORGE DUNEA, FRCP, FRCPED, attending physician

Such was the case reported in the *Chicago Tribune* of a man who had complained for some time of cramps, weight loss, and weakness of the arms, particularly about the wrists. His wife, who also became ill at the same time, was diagnosed as having porphyria, while he was told that he had a prolapsed intervertebral disc and also that he needed carpal tunnel surgery. Unconvinced by these diagnoses, wondering why both he and his wife should be anaemic, he turned to the medical textbooks to seek an answer and ended up by asking his doctors to order tests for heavy metals. So the mystery was solved: the diagnosis was lead poisoning, the source a 150 piece set of ceramic tableware shipped back from southern Italy at no little trouble and expense. The treatment, with edetic acid, led to great symptomatic improvement, also to an abiding interest in the problems of lead poisoning. The conclusions are: (1) as many as five million pieces of improperly glazed pottery in the United States are leaching excessive amounts of lead; (2) the price of health is constant vigilance; (3) think of buying a kit to test for lead in the home; (4) ask if the ceramic you are buying has been tested for lead; (5) beware of "vibrantly" coloured pots, especially from China or Mexico; (6) avoid storing foods or liquids in containers of unknown safety; (7) do not eat every day from the same plate or drink from the same cup; (8) expect the Food and Drug Administration to tighten standards and inspection procedures for lead, but do not hold your breath for this to happen soon.

Should we avoid aluminium and mercury?

Yet the very air we breathe could be full of other noxious agents. High among these ranks aluminium, found in baking powders, antiperspirants, antacids, and plain dust. It is also present in the neurofibrillary tangles of patients with Alzheimer's disease—hence the interest in experiments showing that in rabbits aluminium may travel up from the nose to the brain along the olfactory nerves.[1] Might this be relevant to Alzheimer's disease, now America's number four killer, an illness affecting two to three million people, causing 120000 deaths each year, and costing some $30 billion in medical and indirect expenses? Concern about possible ill effects may also have been the basis of the recent outcry when Chicago's drinking water was found to contain five times as much aluminium as that in other areas. The water purification board wanted to embark on a study of aluminium's toxic effects, but the newspapers thought that it was better to be safe than sorry, insisting that the levels should be lowered now, especially as this can be done quite inexpensively.

Another cause of neurological disease is mercury. Known in the past to make a man as mad as a hatter, it also made dentists mad at each other, dividing them into two hostile camps as they disagreed about the safety of their dental fillings during the amalgam wars of the 1840s. But although small quantities of mercury vapour may indeed be released from fillings during the act of chewing, these are generally regarded as being inconsequential. Yet as late as 1955 a man with multiple sclerosis blamed his illness on a mercury filling and claimed that his condition improved after he had his tooth pulled out. Then there is a noxious contaminant of synthetic heroin, usually referred to as MPTP, which some years ago was found to cause a syndrome resembling Parkinson's disease. Even more dramatic is the existence of a whole host of slow viruses that may call for a re-evaluation of our dietary habits. Eating human brains is definitely out, ever since the trouble with kuru in New Guinea. Cooked squirrel brain dumplings, served as a delicacy in east Texas, may also have to come off the menu list, being suspected of transmitting Creutzfeldt-Jakob disease.[2] Even pig brains can no longer be recommended, nor can the brains of wild goats, ever since a gourmet seems to have got into trouble by dining periodically at an exotic restaurant in Padua.[2] In fact, is it safe to eat any brains—including the calves' brains often served at ethnic restaurants?

Yet undoubtedly the best way to avoid neurological disease is to select your ancestors judiciously. In what has become a rapidly advancing though not necessarily easily understood discipline, we learn that changing as little as one leucine to proline may result in you being struck with type two Gaucher's disease.[3] Neurological trouble also ensues from defects on the short arm of the X chromosome in Duchenne muscular dystrophy; on chromosome 4 in Huntington's chorea; on chromosome 11 in ten depressive members of an Amish family in Pennsylvania; and on chromosome 13, where a mutation causes the recessive inheritance of retinoblastoma. Of interest, because of the large number of people affected, is the recent discovery by four groups of investigators that a defective gene on chromosome 21 is present in some patients who inherited Alzheimer's disease, in Down's syndrome, and in association with the amyloid that accumulates in plaques in the brains in both these conditions.[4]

Turning to the modern neurologist's armamentarium, we find positron emission tomography showing increased glucose metabolism in the basal ganglia of patients with obsessive compulsive disorder, and an increased symmetrical distribution of dopamine receptors in parkinsonism. New techniques suggest a role for encephalin deficiency in some cases of alcoholism; for a peptide (β carboline) acting through benzodiazepine receptors to cause increased anxiety.[5] Atrophy of the cells in the area caerulea after the age of 40-50 may explain why the anxiety of youth often gives way to the depression of middle age. People with so called hysteroid personality (marked by repeated romantic problems and constant swings between romantic euphoria and depression or despair) may suffer from widely fluctuating blood phenylethylamine concentrations, their craving for chocolate perhaps reflecting a subconscious effort to redress the metabolic balance.

For the diagnostician nuclear magnetic resonance may help distinguish diffuse Alzheimer's disease from patchy multi-infarct dementia and from Huntington's chorea with its distorted basal ganglia. Positron emission tomography also suggests that trained experienced musicians listen to music with the left side of the brain whereas untrained people use the right or "intuitive" side. And among the therapeutic options now becoming available we find plasma exchange or the possible use of a synthetic aminoacid polymer to treat multiple sclerosis.[6] New drugs may some day cure schizophrenia or depression; make us think, remember, or sleep better; enhance alertness, concentration, or imagination; and help with phobias, panic, anxiety, or obsessive compulsive disorders. Tetrahydroaminoacridine is being tried on patients with Alzheimer's disease; ritanserin may increase slow wave sleep and help us have a good night's rest; and other drugs may eventually be used to make up neurotransmitter deficiencies.

Dramatic results

Then we note that a 4 year old girl suffering from a rare illness called Rasmussen's encephalopathy, who had up to 120 seizures a day, did well after left hemispherectomy. Her seizures subsided, she spoke well, and she moved her right arm and leg, being in all respects a normal child. Another technique, that of implanting tissue in what is regarded as an "immunologically privileged" organ (on account of the blood-brain carrier) was first tried a century ago with implants of cat cortex into dogs' brains—and more recently in Sweden by inserting adrenal implants into two patients with Parkinson's disease with questionable results. But this year a Mexican group reported dramatic results by placing pieces of adrenal medulla on the surface of the caudate nucleus, abolishing the tremor and speech disorders of a 35 year old patient with Parkinson's disease.[9] The results, termed by some as "too good," require confirmation. Even more radical is the work of Dr R J White, a Cleveland surgeon, who has transplanted heads of rats, monkeys, and dogs; he has also kept a perfused brain alive in an aquarium for several hours. He thinks this approach could be the answer to the hypothetical case of a scientist, still brilliant but totally paralysed, who by receiving a new body could continue to benefit humanity with his brilliant insights.

The converse option, that of providing a new brain for an old body, would raise different issues. For one thing, the demand would be so high. There would be ethical questions of allocation, whether to use brains from cadavers or from living donors, and whether people should be allowed to sell their brains. Would foreigners seeking brains in the United States be excluded? And who should bear the cost of raising the intelligence quotient of millions—the haves supporting the have nots. Should brain transplants be done in community hospitals or should we restrict to specially designated centres this complex procedure that requires the highest skills? For in the words of a Chicago surgeon of the last century, "a surgeon must have the heart of a lion, the eye of a hawk, the hands of a woman." He did not, however, mention the brain.

Yet I was shocked when an anaesthesiologist recently described how a woman went to a transplant centre looking for a new brain for her husband. She was shown the brain of a general practitioner that she could have had for $5000; a psychiatrist's for $4000; and brains of paediatricians, physicians, and administrators for even less. But when she asked to see some more they took her to a special section and brought out ceremoniously a pickled brain priced at $1 million. Sensing her surprise, the curator explained in hushed tones that this brain had in fact belonged to a surgeon. It was brand new, he said, it had never been used.

References

1 Sullivan W. Metal's link to Alzheimer's studies. *New York Times*, May 2 1987.
2 Kamin M, Patten BM. Cruetzfeldt-Jakob disease. Possible transmission to humans by consumption of wild animal brains. *Am J Med* 1984;76:142–5.
3 Kolata G. New understanding of Gaucher's disease. *Science* 1987;235:1328-9.
4 Barnes DM. Defect in Alzheimer's is on chromosome 21. *Science* 1987;235:846-7.
5 Marx JL. "Anxiety peptide" found in brain. *Science* 1985;277:934.
6 Weiner HL. COP 1 therapy for multiple sclerosis. *N Engl J Med* 1987;317:442-4.