

ALZHEIMER'S DISEASE - a patient's guide

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What is it?

Alzheimer's disease is a neuro-degenerative condition which is the most common cause of dementia. Alzheimer first described this disease on post-mortem brain tissue of a 51-year-old patient with characteristic microscopic changes of neurofibrillary tangles, and clinical symptoms of suspiciousness, loss of memory, and disorientation, in 1906.

In addition to neurofibrillary tangles (tangles of degenerating nerve fibres), senile plaques (patches of deposition of a fragment of protein, called amyloid) are typical. These changes seen under the microscope can be found in other conditions, but their coexistence, distribution in the brain and severity confirms the presence of Alzheimer's disease. Of course, microscopic examination of the brain is usually only possible after death. Well-recognised clinical signs and symptoms have been developed into various diagnostic criteria (NINCDS criteria and DSM-IV criteria) and allow accurate diagnosis in a living person by experienced physicians in most cases.

Accompanying these clinical features are a number of changes at a molecular level. Typically in Alzheimer's disease, an important nerve signal transmission chemical ("neurotransmitter"), acetylcholine, is deficient in certain areas of the brain. Also, reduced blood flow and inflammation in the brain are now believed to be important contributors to the disease.

Risk factors for Alzheimer's disease

Age

Family history of the illness

History of head injury

Low educational level

Down's syndrome

Some risk factors for vessel disease (e.g. smoking) also raise the risk for Alzheimer's disease

What are the symptoms?

The changes tend to be slowly progressive, and initially subtle. It is common to notice memory impairment initially. However this needs to be distinguished from mild memory loss that occurs with age and is not related to dementia. Often the changes are noticed first by family and friends rather than the patient.

In Alzheimer's disease, it is characteristic to have memory loss, and impairment of at least one other mental function. For example, the sufferer may have difficulty with language (aphasia), motor skills (apraxia) and perception (agnosia). In addition, the ability of the victim to perform their everyday activities (activities of daily living or "Alzheimer's disease L's") such as bathing and dressing become impaired. Personality changes also occur with Alzheimer's disease, and this can be distressing to caregivers.

Other causes of dementia include vascular disease of the brain and other degenerative conditions such as Parkinson's disease (where 30% of patients get dementia).

It is important for people with suspected dementia to see a physician, so that the diagnosis can be confirmed, the cause can be determined, and so that treatment can be commenced.

What tests are needed?

It is important to exclude other causes of dementia, and make a positive diagnosis of Alzheimer's disease. Therefore, a clinical assessment, a few blood tests and a brain scan are needed. Sometimes neuro-psychological tests, including various "puzzles" are performed, to determine which part of the brain is most affected. Occasionally other tests such as analysis of spinal fluid and electroencephalograms (brain wave measurement) are required.

What can be done about it?

There is a great deal of research being done into both the fundamental nature of Alzheimer's disease, and treatment. Although Alzheimer's disease remains a progressive degenerative brain condition, there is growing optimism that it can be treated.

Results are now available from trials of drugs that inhibit the breakdown of acetylcholine (acetylcholinesterase inhibitors). Some of these drugs appear to delay the deterioration in brain function. Although the results appear modest as measured by tests of brain function, nevertheless often little changes in mental functioning can make a substantial difference to the ability of the patient to care for themselves, and thus for the caregiver.

Other drugs currently under trial include new anti-inflammatory drugs (COX-2 inhibitors, and hormones -oestrogen). These trials follow the observation that patients coincidentally on these drugs appear to have a reduced risk for Alzheimer's disease. Initial experiments on newer drugs such as nerve growth factors are underway. Drugs that modify risk factors for vascular disease may have an important role in Alzheimer's disease treatment in the future.

There is no doubt that previous pessimistic attitudes to Alzheimer's disease are being replaced by optimism that the disease in the future will be more effectively treated, and indeed prevented.

In addition to drug treatment, practical treatment and measures should be undertaken (see dementia). In particular, support for the caregivers of patients with Alzheimer's disease is essential, as caring for people with this condition can be very stressful.

Useful resources

All patients with suspected Alzheimer's disease should have an assessment by a physician. Specialists who may be asked to see the patient include neurologists, gerontologists (geriatricians), and neuro psychologists. Physical therapists (physiotherapists) and occupational therapists also have an important role in assessment and treatment. Your local Assessment Treatment and Rehabilitation Unit (Geriatric Unit) can often provide comprehensive assessments.

A number of support organisations are available. In New Zealand, the Alzheimer's Foundation (phone 09-6255280) is a useful source of information and support. They have a library of information, as well as a 24-hour telephone information line (09-6255678). The Health Funding Authority of New Zealand funds courses on dementia for caregivers.

Future trends

It is expected that a number of drugs will prove useful in the treatment of Alzheimer's disease (there is already evidence of this for some drugs, such as the acetylcholinesterase inhibitors). Our understanding of Alzheimer's disease, particularly at a molecular level, will grow.

Future challenges include learning how to detect the presence of Alzheimer's disease early, even perhaps before symptoms, prevention of the disease, and more effective treatment