



Dementia

Dementia occurs as a result of physical changes in the structure of the brain. These changes are caused by specific conditions, and affect memory, thinking, behaviour and emotion. Dementia is progressive, which means the symptoms will gradually get worse, but how quickly and in what ways the disease progresses will depend on each individual. This information sheet provides an overview of the various causes of dementia.

Alzheimer's disease

Alzheimer's disease is the most common cause of dementia. It accounts for 50%-60% of all cases. As the disease progresses physical changes occur in the structure of the brain. Brain cells die and the brain shrinks, especially in the inner parts of the brain's temporal lobes. Plaques and tangles form in the brain tissue. These changes disrupt the messenger molecules, which carry messages between brain cells and prevent the brain working efficiently.

People with Alzheimer's experience a gradual decline in their ability to remember, understand, communicate and reason. It is not yet known what causes Alzheimer's disease but researchers believe that a combination of factors including age, genetic makeup, other medical problems and treatments, and lifestyle, may contribute. Some medications are available, which may slow the progression of Alzheimer's in the early stages.

For further information see *Alzheimer's disease* Alzheimers New Zealand. 2005 (Information Sheet) www.alzheimers.org.nz

Am I at risk of developing Alzheimer's disease? Alzheimer's Society, London. 2001 (Information Sheet) www.alzheimers.org.uk

Vascular dementia

Vascular dementia occurs when cells in the brain die or malfunction because they are deprived of oxygen. This happens when there is a blockage or disease in the vascular system, the network of blood vessels which supply oxygen to the brain. The most common cause of vascular dementia is due to multiple strokes (also called multi-

infarct dementia). Occasionally, a single infarct, or starvation of blood to the core of the brain without actual infarction, can cause dementia.

People who smoke or have high blood pressure, a high level of fats in their blood, or diabetes are at risk of developing vascular disease. The symptoms of vascular dementia are very similar to Alzheimer's disease. However, distinguishing features include:

- Presence of neurological symptoms, eg. weakness, clumsiness or altered sensation in the limbs or face,
- Some abilities may remain relatively unaffected since the condition affects the brain in a patchy fashion,
- Symptoms may remain steady for a while and then suddenly decline.

Vascular dementia is diagnosed by looking at the way the condition began and how it has progressed, together with finding evidence of stroke(s) or impaired blood supply on a brain scan (CT or MRI).

It is common to have both vascular dementia and Alzheimer's disease. Pure vascular dementia is less common than previously thought. It is important to treat underlying causes of vascular dementia such as high blood pressure, to reduce the risk of progression.

Stroke occurs when blood flow in the brain is blocked by a blood clot in an artery or when an artery bursts. When this happens the brain cells fed by that artery are deprived of oxygen and die. People who have a large stroke will experience difficulties such as paralysis on one side of the body, speech and language problems, or difficulties with co-ordination and movement.

Multi-infarct dementia is the most common vascular dementia and occurs following a series of small strokes, each of which may or may not cause obvious physical symptoms. Some small strokes may just cause a 'funny turn' or not be noticed at all. However, each stroke is contributing to a build up of damage to the brain, which can cause dementia. Therefore there is a step-like progression to the disease.



Small vessel disease related dementia, also known as sub-cortical vascular dementia, is caused by damage to tiny blood vessels that lie deep in the brain. The symptoms develop more gradually and are often accompanied by walking problems.

For further information see *What is vascular dementia?* Alzheimer's Society, London. 2005 (Information Sheet) www.alzheimers.org.uk

Dementia with Lewy bodies

Dementia with Lewy bodies (DLB) is similar to Alzheimer's disease in that it is caused by the degeneration and death of nerve cells in the brain. Lewy bodies are tiny protein deposits found in nerve cells and their presence disrupts the brain's normal functioning, interrupting the action of important chemical messengers including acetylcholine and dopamine. Lewy bodies are also found in the brains of people with Parkinson's disease. Researchers do not yet fully understand why Lewy bodies occur in the brain.

People with DLB experience memory loss, confusion with time and whereabouts and communication difficulties which are associated with Alzheimer's disease, and slowness, muscle stiffness, trembling of the limbs, a tendency to shuffle when walking, loss of facial expression, and changes in the strength and tone of voice, which are characteristic of Parkinson's disease.

Symptoms characteristic of DLB:

- Abilities fluctuate markedly from hour to hour, even minute to minute,
- Faints, falls or unexplained turns,
- Visual hallucinations,
- DLB affects men more than women and is more prevalent in people over the age of 65.

Diagnosis of DLB can be difficult, and is made on the basis of visual hallucinations, fluctuation, and the presence of stiffness and trembling. An accurate diagnosis is important because people with DLB can react badly to neuroleptic drugs (tranquillisers), which are often prescribed to people with dementia. There is currently no cure for DLB and while some people may benefit from anti-Parkinson's disease drugs, these may make hallucinations and confusion worse.

For further information see *Dementia with Lewy bodies (DLB)* Alzheimer's Society, London. 2003 (Information Sheet) www.alzheimers.org.uk; www.lewybodydementia.org

Fronto-temporal dementia (including Pick's disease)

Fronto-temporal dementias are relatively rare causes of dementia and usually affect people under the age of 65. Men and women are equally likely to develop the condition.

The term 'fronto-temporal dementia' covers Pick's disease, frontal lobe degeneration and dementia associated with motor neurone disease. All are caused by damage to the frontal lobe and/or the temporal parts of the brain. These areas are responsible for behaviour, emotional responses and language skills.

People with fronto-temporal dementia may:

- Lack insight and lose the ability to empathise with others – they may appear selfish and unfeeling,
- Become extrovert when they were previously introverted, or withdrawn when they were previously outgoing,
- Behave inappropriately, for example making tactless comments, joking at the wrong moments, or being rude,
- Lose inhibitions, for example exhibiting sexual behaviour in public,
- Become aggressive,
- Be easily distracted,
- Develop routines, for example, compulsive rituals,
- Overeat and/or develop a liking for sweet food,
- Have difficulty finding the right words,
- Lack spontaneous conversation,
- Use many words with little content,
- Experience a reduction in, or lack of speech.

In the later stage, those affected may no longer recognise friends and family and may need nursing care.

Fronto-temporal dementia is commonly misdiagnosed as Alzheimer's disease. A specialist may be able to make a diagnosis of fronto-temporal dementia by questioning the person affected and taking a detailed history of their symptoms. Brain imaging scans may be also used to determine the extent of damage to the brain.

As yet there is no cure for fronto-temporal dementia and the progression of the condition cannot be slowed. To ease symptoms, it is important to recognise that they have a physical

cause, and are not something that the person can usually control. Rather than trying to change behaviour, carers may develop coping strategies, and speech and language therapy may also help.

For further information see *What is fronto-temporal dementia (including Pick's disease)?* Alzheimer's Society, London. 2003 (Information Sheet) www.alzheimers.org.uk; www.pdsg.org.uk

Alcohol related dementia

Heavy drinking over a long period of time can lead to the brain disorder, Korsakoff's syndrome. This condition is caused by lack of thiamine (vitamin B1), due to poor nutrition and inflammation of the stomach lining. While not strictly speaking a dementia, those with the condition experience loss of short-term memory.

The main symptom is memory loss, particularly for events arising after the onset of the condition. People usually retain the skills they acquired before developing the disorder. Other symptoms may include:

- Difficulty in acquiring new information or learning new skills,
- Lack of insight into the condition. Even a person with great gaps in their memory may believe their memory is functioning normally,
- Inventing events to fill the gaps in memory. This is more common in the early stages of the illness and is known as 'confabulation',
- Some people are apathetic, while others are talkative and repetitive.

Korsakoff's syndrome cannot be diagnosed until the person has abstained from alcohol for at least four to five weeks. Psychological tests will then be carried out to test the person's memory and other abilities. They will also be observed to see whether their condition progresses without alcohol. If their condition does not change, they may be diagnosed with a form of dementia, such as Alzheimer's disease. It is possible to have both Korsakoff's and a dementia.

The progress of Korsakoff's can be halted if the person completely abstains from alcohol and adopts a healthy diet with vitamin supplements. While it remains unclear whether additional thiamine helps people improve once the brain damage has already

occurred, it may help prevent further damage occurring.

For further information see *What is Korsakoff's syndrome?* Alzheimer's Society, London. 2003 (Information Sheet) www.alzheimers.org.uk

Down's syndrome

People with Down's syndrome are at risk of developing Alzheimer's disease in adult life. Research has shown that virtually all people with Down's syndrome develop the plaques and tangles in the brain characteristic of Alzheimer's disease.

It has been found that the amyloid protein located in these plaques and tangles is linked to a gene on chromosome 21. People with Down's syndrome have an extra copy of this chromosome and this may account for their increased risk.

For further information see *Dementia and intellectual disabilities* Alzheimer's Disease International, London. 2003 (Information Sheet) www.alz.co.uk; www.nzdsa.org.nz

Infection related dementia

AIDS related cognitive impairment

People with AIDS (acquired immune deficiency syndrome) sometimes develop cognitive impairment, particularly in the later stages of their illness. AIDS is caused by HIV (immunodeficiency virus) in the body. HIV works by attacking the body's immune system, making the person affected more susceptible to infection.

AIDS related cognitive impairment might be caused by the direct impact of HIV on the brain and infections that take advantage of the weakened immune system.

Symptoms may include forgetfulness, concentration problems, language difficulties, problems with short-term memory, clumsiness, unsteadiness, loss of appetite, and mood swings.

There is no cure for AIDS but drug therapies have improved the life expectancy and the quality of life for people with AIDS.

For further information see *What is AIDS-related cognitive impairment?* Alzheimer's Society, London. 2003 (Information Sheet) www.alzheimers.org.uk



Creutzfeldt-Jakob disease (CJD)

Creutzfeldt-Jakob disease (CJD) is a rare fatal brain disorder. Infectious agents, called prions attack the central nervous system and then invade the brain, causing dementia. Early symptoms include minor lapses of memory, mood changes and loss of interest. Within weeks an infected person may complain of clumsiness and feeling muddled, become unsteady in walking and exhibit slow or slurred speech. The disease progresses to jerky movements, shakiness, and stiffness of limbs, incontinence, and the loss of the ability to move or speak. Eventually the person will need full nursing care.

People affected by CJD usually die within six months of early symptoms, often from pneumonia. In a minority of patients the disease may take two years to run its course. Very rarely the disease can last for many years. Variant CJD, a more aggressive strain of the disease was identified in the UK in 1996. Symptoms are similar to classical CJD but the disease progresses more rapidly and usually affects people in the 16-52 year age group whereas classical CJD tends to affect people over 60 years.

There is now evidence that variant CJD is caused by eating meat infected with bovine spongiform encephalopathy (BSE), described as 'mad cow disease' in humans. There have been no cases of variant CJD in New Zealand. A CJD register was established in 1996, and each year, 2-3 cases of CJD are reported in New Zealand.

For further information see www.moh.govt.nz; www.alzheimers.org.uk

Parkinson's disease

Parkinson's disease is a progressive neurological disease that affects movement. While people with Parkinson's disease have a higher risk of developing

dementia than those without Parkinson's disease, the majority will remain unaffected. How dementia occurs in Parkinson's disease is not yet understood. It may be that the Lewy bodies, which occur in nerve cells in the brains of people with Parkinson's have a role to play, as they do in dementia with Lewy bodies. The most common symptoms of dementia associated with Parkinson's disease are memory loss, the loss of ability to reason, and to carry out normal everyday tasks, becoming obsessive, and the loss of emotional control. Visual hallucinations may occur and the symptoms often fluctuate.

For further information see www.parkinsons.org.nz

Huntington's disease

Huntington's disease is a progressive hereditary disease, which most often becomes apparent in adults in mid-life (35-50 years). Dementia can occur at any stage in the illness.

Symptoms of dementia associated with Huntington's disease include:

- Loss of short term memory,
- Loss of planning and organisational skills,
- Lack of insight into their condition,
- Lack of concern for other people's needs,
- Obsessive behaviour,
- Reluctance to accept help.

This form of dementia differs from Alzheimer's disease in that those affected continue to recognise people and places.

This information sheet was produced by Alzheimers NZ using information provided by Alzheimers Disease International (www.alz.co.uk), the Alzheimer's Society (UK) (www.alzheimers.org.uk), Ministry of Health, New Zealand (www.moh.govt.nz), and members of Alzheimers New Zealand's Medical Scientific Advisory Group.



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Alzheimers New Zealand has a range of information sheets and booklets available for people with dementia, their carers and families. Alzheimers member organisations located throughout New Zealand provide a variety of services in their local areas, to support all people affected by dementia. Contact your local organisation for information and support on freephone 0800 004 001.

*Making life better for all people affected by dementia
Kia piki te ora mo ngā tāngata mate pōrewarewa*

This information sheet provides a general summary only of the subject matter covered and is not a substitute for informed professional advice. Any person with dementia or a carer for a person with dementia should seek professional advice about any individual case. Alzheimers New Zealand Incorporated and/or its officers or employees shall not be liable for any error or omission in this publication, as a result of negligence or otherwise.