

## Introduction

Alzheimer's disease is the most common of a large group of disorders known as "dementias." It is an irreversible disease of the brain in which the progressive degeneration of brain cells causes thinking ability and memory to deteriorate. Alzheimer's disease also affects behaviour, mood and emotions, and the ability to perform daily living activities.

Other forms of dementia resemble Alzheimer's disease in that they also involve a progressive degeneration of brain cells that is currently irreversible. They include the dementia associated with vascular dementia (the second most common dementia after Alzheimer's disease), frontotemporal dementia, Creutzfeldt-Jakob disease, Lewy body dementia, Huntington disease, and Parkinson's disease.

Sometimes a person may have different symptoms in the early stages of the disease, such as memory loss, behaviour changes, or difficulties with speech and movement. These symptoms may suggest a form of dementia other than Alzheimer's disease. In any event a person should always seek a thorough medical assessment if any of these symptoms are present.

Regardless of the type of dementia, individuals are encouraged to obtain information and support from the Alzheimer Society.

## What is vascular dementia?

Vascular Dementia (VaD), also called multi-infarct dementia, occurs when the cells in the brain are deprived of oxygen. A network of blood vessels called the vascular system supplies the brain with oxygen. If there is a blood flow interruption in the vascular system, or if it is diseased, blood is prevented from reaching some parts of the brain. As a result, cells in the affected region of the brain die, leading to the symptoms of dementia.

After Alzheimer's disease, VaD is the second leading form of dementia. When Alzheimer's disease and VaD occur at the same time, the condition is called mixed dementia, and this occurs at least in 50% of all dementia cases. In an additional 20% of cases, vascular dementia is the most likely explanation for dementia.

## How does vascular dementia affect the person?

### Stroke and vascular dementia

Stroke is a common cause of VaD. A stroke occurs when blood flow in the brain is interrupted for a variety of reasons. When this occurs, the brain cells are deprived of oxygen and die. Strokes can be large or small, and can have a cumulative effect (each stroke adding further to the problem). Depending on the specific brain areas deprived of oxygen, strokes can affect the person's ability to walk, can cause weakness in an arm or leg, slurred speech or emotional outbursts. Cognitive changes may vary, affecting some areas of the brain more or less than others (e.g., language, ability to process visual information, memory, abstract thinking).

VaD usually has a sudden onset, although specific impairments may occur in steps, where functioning can deteriorate, stabilize for a time and then deteriorate again.

Small vessel disease refers to the condition in which the white matter (the nerve fibre bundles in the brain) is affected. Small vessel disease is likely the most common form of vascular dementia.

### How is vascular dementia assessed?

If VaD is suspected, an integrative approach to diagnosis based on all the available evidence is recommended. The doctor will need to find out about the person's symptoms, medical history, current health and lifestyle. To this end, the person will be referred to a specialist for cognitive tests to assess their attention, planning and thinking speed.

The specialist will look for signs of stroke by checking for weakness or numbness in the arms or legs and for any difficulty with speech. The doctor may also ask for further tests, which could include blood pressure readings, cholesterol levels, an electrocardiograph (ECG), a chest X-ray and blood tests including thyroid function and vitamin levels. Further tests may be required including a CT scan or a magnetic resonance imaging scan (MRI). The different types of scans allow the specialists to examine the brain and reveal any areas damaged by strokes, which would support a diagnosis of vascular dementia.

### What are the other risk factors for vascular dementia?

Both men and women can be affected by VaD. In addition to those just mentioned, the risk factors for VaD include being over age 65, smoking, being overweight and having a family history of heart problems, which may also increase the risk of stroke, itself a risk factor for VaD. Mini-strokes (sometimes referred to as transient ischemic attacks or TIAs) are warning signs that a stroke may be imminent. Temporary loss of vision, speech, strength or brief episodes of numbness may indicate a TIA. TIAs require special attention. If left untreated, they can lead to permanent damage.

Routine brain scans in a group of middle-aged people showed that 10 percent of them had suffered a stroke without knowing it, raising their risk for further strokes and memory loss. Such silent cerebral infarctions

(SCIs, or silent strokes) are brain injuries caused by a blood clot that interrupts blood flow to the brain. Silent strokes are considered to constitute a risk factor for VaD. People with atrial fibrillation, the most common type of irregular heart beat in people over 65, have more than twice the rate of these silent strokes. However, the conventional treatment of atrial fibrillation, which is anti-coagulant therapy, is almost eliminating the association between atrial fibrillation and silent strokes.

In general, treating the risk factors for stroke significantly reduces the risk of VaD. Risk factors can also be reduced by adopting a healthy lifestyle that includes regular physical activity, eating well, avoiding smoking and reducing stress. Medications mostly focus on control of high blood pressure, diabetes and heart disease.

### Is there treatment?

After a person has a stroke, medication may be prescribed to improve blood flow to the brain and reduce the risk of further stroke. A person may also benefit from different therapies to help with movement and speech, such as physiotherapy, occupational therapy or speech therapy. It is critical to regularly assess, monitor and treat the underlying causes of VaD, such as hypertension, high cholesterol and diabetes. Physicians often recommend the use of medications called cholinesterase inhibitors, which are almost routinely prescribed in the early stages of Alzheimer's disease.

New behavioural therapeutic strategies are also helping people living with the disease. Therapeutic techniques like physical activity and music are being used as viable and useful treatments. Research shows that the quality of life of people with dementia, and also their caregivers, is significantly improved by activities that emphasize their strengths and abilities. By understanding the person's personality, life experiences, support systems and ways of coping, a person-centred approach to care can be created that preserves and improves quality of life.

### For more information:

Visit the Alzheimer Society's website at [www.alzheimer.ca](http://www.alzheimer.ca) or contact your local Alzheimer Society.

### More information can be obtained from the following:

- Heart & Stroke Foundation of Canada: [www.heartandstroke.ca](http://www.heartandstroke.ca).
- Mayo Clinic: [www.mayoclinic.com/health/vascular-dementia/DS00934](http://www.mayoclinic.com/health/vascular-dementia/DS00934).
- Alzheimer's Society (UK):  
[http://www.alzheimers.org.uk/site/scripts/documents\\_info.php?documentID=161](http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=161)

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## **Alzheimer***Society*

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