



A Healthcare Provider's Guide To Vascular Dementia (VaD):

Diagnosis, pharmacologic management,
non-pharmacologic management, and
other considerations



This material is provided
by UCSF Weill Institute
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educational resource for
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Diagnosis

Definition

Dementia is a clinical syndrome defined as a cognitive or behavioral decline that leads to an inability to complete daily tasks independently. Dementia has many causes, some of which are reversible, such as metabolic disorders, while some are progressive such as Alzheimer's disease. Vascular dementia (VaD) is a common cause of dementia and it is caused by damage to the brain that is the result of cerebrovascular disease.^{1,2}

Etiology

VaD may result from a stroke or series of strokes or be the result of conditions that reduce circulation to the brain such as small vessel disease. The term VaD is used whether the cause of the vascular lesion is ischemic or hemorrhagic.^{3,4,5}

Risk Factors

In general, seven risk factors have been identified that are associated with Alzheimer's disease and other causes of dementia. These risk factors can possibly be reduced or adjusted to help prevent changes in thinking skills and/or memory.⁶

- Type 2 diabetes
- High blood pressure
- Midlife obesity
- Smoking
- Depression
- Little or no mental activity
- Little or no physical exercise

There are multiple risk factors that contribute to the development of vascular dementia that include:⁷

- Hypertension
- Atrial fibrillation and other cardiac conditions
- High cholesterol
- Diabetes
- Metabolic syndrome
- Smoking
- Sleep-disordered breathing
- Sedentary lifestyle
- Hyperhomocysteinemia

Course

The clinical manifestation of VaD depends on the vessels involved (large versus small vessel), location of vascular lesions, and the extent of damage. The term Vascular Cognitive Impairment (VCI) refers to the spectrum of cognitive disorders ranging from mild cognitive impairment to dementia, and dementia is considered the most severe form of VCI.⁸

Differential Diagnosis

Other things to rule out include side effects of medications, delirium, reversible metabolic disorders, and neurodegenerative conditions with similar symptoms (for example, Alzheimer's disease). VaD can coexist with other disorders affecting cognition, especially Alzheimer's disease.⁹



Diagnostic Criteria

There have been different criteria and terminology used over the years to refer to the cognitive impairment associated with cerebrovascular disease. Each of the major criteria has used different definitions of dementia. In 2011, The American Heart Association/American Stroke Association selected a panel of experts to review the evidence on vascular contributions to cognitive impairment.⁹

The diagnosis of VaD should be based on 2 factors:

1. Demonstration of the presence of a cognitive disorder by neuropsychological testing and
2. History of clinical stroke or presence of vascular disease by neuroimaging that suggests an association between the cognitive disorder and vascular disease⁵

The present statement proposes to use the term probable to characterize the most “pure” forms of VaD and the term possible when the certainty of the diagnosis is diminished or the vascular syndrome is associated with another disease process that can cause cognitive deficits.⁹

Pharmacologic Management

Medications to Use

There are several classes of medications used to treat disease symptoms or improve cognitive function. Currently, there is no cure for dementia.

If the patient has vascular disease or mixed dementia, they should receive management and education regarding modification of cardiovascular risk factors as listed above.

Cholinesterase inhibitors and memantine do not have FDA approval for specific use in vascular dementia yet these medications are often used to treat cognitive symptoms,

especially since many of the people who have VaD may also have coexisting Alzheimer's disease.

Medications to Avoid

Medications with strong anticholinergic side effects, such as sedating antihistamines, barbiturates, narcotics, benzodiazepines, gastrointestinal and urinary antispasmodics, CNS stimulants, muscle relaxants, and tricyclic antidepressants should be avoided. Antipsychotics should be used with caution. If used, carefully evaluate effectiveness of medication and consider discontinuing if there is no improvement in six weeks.^{10,11,12}

Non Pharmacologic Management

Vascular risk factor modification

People with vascular disease should be counseled regarding risk factor modifications⁷

- Blood pressure should be controlled and kept less than 140/90
- Weight reduction for people with BMI of 25 to >30
- Cholesterol should be controlled and LDL levels kept below 100, or below 70 in diabetics.
- Diabetes should be controlled.
- Sleep apnea should be checked for and treated if present.
- Counseling regarding smoking cessation should be provided.
- Counseling regarding healthy diet and exercise should be provided as below.

Healthy Lifestyle

There are lifestyle habits that promote health and well-being. Research suggests that the combination of good nutrition, physical activity, and mental and social engagement may provide benefit in promoting health although more study is needed to determine the

actual mechanisms.^{13,14} A heart-healthy diet (lower in sugar and fat and higher in vegetables and fruit) is considered to be good for both the body and the brain. An example is the Mediterranean diet that promotes nutrition based on fruit, vegetables, nuts, and grains with limits on consumption of red meat and saturated fats. Physical exercise has been associated with improvement of mood and mobility, and a decrease in the risk for falls.^{15,16} Physical activities that are socially engaging (walking or swimming with a friend and participating in exercise groups) can be especially enjoyable. Engagement in activities that are mentally stimulating (crossword puzzles, sudoku, computer games) is encouraged as long as the activity is enjoyable.

The Alzheimer's Association has more information on tips for maintaining your health: [alz.org/we-can-help-brain-health-maintain-your-brain.asp](https://www.alz.org/we-can-help-brain-health-maintain-your-brain.asp).

Sleep

Disrupted sleep can negatively impact memory and thinking, though the mechanisms are not well understood.¹¹

Components of sleep hygiene include:

- Avoid napping during the day
- Avoid stimulants such as caffeine, nicotine, and alcohol too close to bedtime
- Get regular exercise
- Avoid eating right before sleep,
- Ensure adequate exposure to natural light
- Establish a regular relaxing bedtime routine
- Associate your bed with sleep. It's not a good idea to use your bed to watch TV, listen to the radio, or read

For more details on sleep hygiene, you can refer to the National Sleep Foundation at [sleepfoundation.org/ask-the-expert/sleep-hygiene](https://www.sleepfoundation.org/ask-the-expert/sleep-hygiene).

Other Considerations

Support Resources

- Alzheimer's Association: [alz.org](https://www.alz.org)
- Family Caregiver Alliance: [caregiver.org](https://www.caregiver.org)
- National Institute of Health/National Institute on Aging: [nihseniorhealth.gov](https://www.nihseniorhealth.gov)
- Blood Pressure: [nihseniorhealth.gov/highbloodpressure/whatishighbp/01.html](https://www.nihseniorhealth.gov/highbloodpressure/whatishighbp/01.html)
- Diabetes: [nihseniorhealth.gov/diabetes/diabetesdefined/01.html](https://www.nihseniorhealth.gov/diabetes/diabetesdefined/01.html)
- Eating Well: [nihseniorhealth.gov/eatingwellasyougetolder/benefitsofeatingwell/01.html](https://www.nihseniorhealth.gov/eatingwellasyougetolder/benefitsofeatingwell/01.html)
- Exercise: [nihseniorhealth.gov/exerciseforolderadults/healthbenefits/01.html](https://www.nihseniorhealth.gov/exerciseforolderadults/healthbenefits/01.html)

- Smoking Cessation: [nihseniorhealth.gov/quittingsmoking/quittingwhenyoureolder/01.html](https://www.nihseniorhealth.gov/quittingsmoking/quittingwhenyoureolder/01.html)

Research and Clinical Trials

The National Institutes of Health maintains an extensive listing of clinical trials at [clinicaltrials.gov](https://www.clinicaltrials.gov). Academic medical centers may be engaged in research and clinical trials.

Safety

If wandering or getting lost is a concern, refer the patient and family to the MedicAlert +Alzheimer's Association Safe Return program (operated by the Alzheimer's Association) [alz.org/care/dementia-medical-alert-safe-return.asp](https://www.alz.org/care/dementia-medical-alert-safe-return.asp).

Other strategies for ensuring safety concerns may include door alarms and increased supervision.

Driving

Depending on cognitive and motor findings, the patient may be requested to stop driving, complete test of driving abilities through the Department of Motor Vehicles (DMV), or be referred to a driver's safety course that will assess driving ability. Reporting to the DMV should be consistent with state laws. Some states have mandatory reporting requirements: the diagnosis is reported to local health departments who then report to the DMV. Individual state requirements can be found at: [dmvusa.com](https://www.dmvusa.com).

Living Situation and Environment

It is important to determine if the patient's residential setting best meets his or her functional and cognitive abilities. Areas of concern may include personal safety (ability to manage medications safely, ability to manage nutritional requirements, ability to manage personal hygiene) and quality of life (activities and engagement that match the person's needs and abilities). Types of living situations range from living at home alone or living at home with supervision, to board and care, assisted living, or memory care units.

Elder Abuse

Patients with dementia and their caregivers are vulnerable to abuse. Refer to Adult Protective Services (APS) if there is concern for the well-being of the patient or the caregiver.

To locate an APS office in your state, see: [napsa-now.org/get-help/help-in-your-area/](https://www.napsa-now.org/get-help/help-in-your-area/).

Legal Planning

Provide information about advance directives and durable power of attorney while the patient is in the early stages of disease and able to articulate his or her wishes. Make referrals for legal and financial advice, especially if there are concerns about the patient's judgment, decision-making, or vulnerability. A formal evaluation for capacity may be warranted. The Alzheimer's Association provides a brochure that covers legal planning: [alz.org/national/documents/brochure_legalplans.pdf](https://www.alz.org/national/documents/brochure_legalplans.pdf).

- **Advanced Directives**

These documents allow individuals to state their preferences for medical treatments and to select an agent or person to make health care decisions in the event they are unable to do so or if they want someone else to make decisions for them.

- **Power Of Attorney**

A Power of Attorney (POA) is a legal document that gives someone of an individual's choosing the power to act in their place. POAs can be for medical or financial matters.

- **Living Will**

A living will is a written, legal document that spells out medical treatments that an individual would and would not want to be used to keep them alive, as well as other decisions such as pain management or organ donation.

Teaching Video for Providers

An example of a physician telling a patient she has dementia: http://www.alz.org/health-care-professionals/dementia-diagnosis-diagnostic-tests.asp#alzheimers_diagnosis.



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