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Most Common Types of Dementia

A Caregiver's Guide to Alzheimer's Disease, Vascular Dementia, Lewy Body Dementia and More

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Introduction

If you have a loved one or care for someone who suffers from dementia, it helps to understand the condition, how it's diagnosed and how it can be treated. Learning about dementia can help you understand the condition and provide care for those who have a dementia diagnosis.

Dementia is a general term describing an impairment of a person's mental abilities that is significant enough to disrupt their daily life. The condition is caused by damage to the brain's cells that affect the ability of the cells to communicate with each other. There's a common misconception that dementia is a disease, but it's actually collection of symptoms that affect a person's memory and potentially other faculties, like reasoning and judgment.

The majority of people with dementia have Alzheimer's disease. Vascular dementia and Lewy body dementia are also very common types of dementia. There are many additional types as well. The different types of dementia have similarities, but there are also factors that make each type unique.



1. What Is Dementia?

Symptoms of Dementia

The first criterion for dementia is memory impairment.

There are many different types of memory, and it's helpful to be aware of all of them when learning about dementia. First we have long-term and short-term memory, which are fairly well understood in the general public. But there is also verbal memory, which involves a person's ability to recall things like names and events. And there is motor memory, which refers to retention of the ability to carry out tasks and activities requiring motor skills. Think about riding a bicycle — typically, even if you haven't ridden in many years, your body will still remember how to do it.

In addition to memory impairment, a patient has to have one of the following symptoms to be diagnosed with dementia:

- Aphasia
- Apraxia
- Agnosia
- Executive function impairment

Read on to learn more about each of these conditions and how doctors test for them.

• Aphasia

Aphasia is speech impairment, which causes people to struggle to speak. Despite having intact verbal mental "hardware," patients experience a loss of verbal skills. In other words, patients have trouble speaking, but not because their tongue or the muscles in their larynx don't work.

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Most commonly, doctors observe what are called "expressive aphasias," meaning cases in which a patient struggles to get the right words out. A doctor might show a patient a pen, for example, and then ask: "What is this?" Instead of identifying it as a "pen," a person with aphasia might say: "It's one of those things that you write with. It's a writing instrument."

The correct word may seem to be at the tip of the patient's tongue, but they can't get it out. Or they might use the wrong word, calling a pen a clock, for example. Part of testing for aphasia includes asking for the correct name of different objects, but also asking patients to repeat tricky phrases. Patients with aphasia will be unable to use the same words in a different context.

• Apraxia

Apraxia is a condition in which a person has impaired motor abilities despite having intact motor hardware. To test someone's motor abilities, a doctor might say, "I want you to take this piece of paper in your left hand, fold it in half and put it on the floor." The patient with apraxia will take it, but they might take it with both hands or the wrong hand, and then struggle to fold it in half. They might drop it on the floor eventually. In other words, the patient is just not able to manipulate the object like they once were.

A doctor might also ask a patient to pretend they have a comb in their hand and demonstrate combing their hair. Someone with apraxia might use their fingers in a different way than how you would use a comb.

Agnosia

Agnosia is a loss of sensory functioning, which means a person loses their sensory abilities despite having, again, intact sensory hardware. It affects the five senses.

To test for agnosia, a doctor might put a paper clip or coin in the hands of a patient while their eyes are closed. A person with agnosia would struggle to identify the object. They can feel the object, but they can't identify what it is.

• Executive Function Impairment

Executive function impairment is, perhaps, the most critical cognitive loss, because it affects a person's ability to plan, organize, sequence, monitor and complete complex, goal-directed behaviors. Another way to think of it is: Can the person solve problems in unique circumstances?

Executive function is the set of cognitive processes that allows you to behave independently from your environment instead of having the environment mediate your behaviors. It affects the brain's frontal lobe functioning, making performing complex tasks — such as driving a car — difficult.

People with executive function impairment become dependent on routine, and when something in the environment changes, they cannot adjust. Judgement and insight become impaired. So, for example, someone who is cooking a familiar dish might get interrupted by a telephone call. When they return to the task, they've forgotten how to make the recipe.

To be given a diagnosis of dementia, a patient has to have memory impairment and one of the other four cognitive losses described above.

Functional Impairments and Level of Care

Other symptoms of dementia may include functional impairment. Functional impairment occurs when a patient is no longer able to perform self-care activities and meet self-care needs. These might include higher-order functional tasks like using the telephone, managing money or medications and driving or arranging transportation. It may also include more basic functional loss like walking, toileting, grooming and bathing.

Functional impairment is often what ultimately predicts the level of care that people need. When people lose their higher-order functional abilities, then they need an assisted-living level of care. When they lose the basics, they need nursing-home level of care. So what predicts level of care isn't so much cognitive loss, but functional loss.

Types of Dementia

Dementia is a broad diagnostic category that can include a unique combination of the symptoms above. There are different types of dementia, including:

- Alzheimer's disease
- Vascular dementia
- Lewy body dementia
- Frontotemporal dementia
- Dementia secondary to metabolic changes
- Dementia secondary to chronic alcohol or substance use
- Pick's disease
- Creutzfeldt-Jakob disease

Each of these has a different neuropsychological pattern of loss or other important comorbidities, which means they occur simultaneously with other diseases.

The most common types of dementia are **Alzheimer's disease**, **vascular dementia** and **Lewy body dementia**.

2. Alzheimer's Disease

Memory Loss

Different parts of the brain encode and store memory. Without a doubt, the hallmark feature of Alzheimer's disease is memory loss.

The characteristic pattern of Alzheimer's disease is that early on people will experience non-promptable memory loss, meaning their memories don't respond to prompting. For example, a doctor might ask a patient to remember three words: apricot, table and penny. Then the doctor will distract the patient with another task before asking the patient to recall the words.

A person with Alzheimer's disease won't remember the words. Even with cues and hints, such as that one of words is a fruit, they still can't recall the word.

Changes in the Brain

Different pathological changes happen in the brain of a person person with Alzheimer's disease. Buried in the temporal lobe located on the side of the brain — is a structure called the hippocampus, which is where memories are encoded.

In an Alzheimer's patient, pathological changes called tangles and plaques start out near the hippocampus and then spread into the frontal lobe, or the front part of the brain. These plaques and tangles are neurotoxic and they kill nerve cells, causing cognitive loss.







3. Vascular Dementia

Another type of dementia is vascular dementia, which occurs when people have small strokes in the front part of the brain. People might not know they're having these little strokes, that's how small they are. After a while they accumulate and create vascular lesions that impair cognition.



Blood supply to the brain



Lack of blood supply to the brain

Some people do also develop dementia after large, classic strokes where they lose motor control and sensory functioning on one half of their body. But commonly, dementia stems from these small strokes.

With vascular dementia, the risk factors are the same as for vascular disease: smoking, high blood pressure, high cholesterol and not exercising. To protect the brain, it helps to reduce these risk factors by not smoking, exercising and getting hypertension and high cholesterol under control.

Memory Loss

Memory impairments present a little bit differently with vascular dementia. A doctor may ask a patient to remember three words: apricot, table and penny. After a distraction, the patient might not remember any of the three words, but will respond correctly when given cues or prompts like "fruit" or "coin."

One of the ways doctors start to determine whether a patient has vascular dementia or Alzheimer's disease is by determining whether they have promptable or non-promptable memory loss.

Different Patterns of Decline

People with Alzheimer's disease typically experience a continuous, gradual decline. Those with vascular dementia often exhibit a classic stair-step downward pattern of decline. In vascular dementia, patients will experience a decline after having a stroke. Then they'll stay at that level until they have another stroke, which precipitates another step down in terms of cognitive loss.

If you can reduce the vascular disease risk factors in patients with vascular dementia, it can help. A person might have a stroke and then quit smoking and get their hypertension and high cholesterol under control, preventing another step down.





4. Lewy Body Dementia

Typically it's been thought that vascular dementia was the second most common type, however Lewy body dementia seems to be on the rise.

Patients with Lewy body dementia have the same memory impairments as those with other types of dementia — aphasia, apraxia, agnosia — but they also experience at least two out of three of the following symptoms:

- Visual hallucinations
- Parkinsonism
- Fluctuations of consciousness

Visual Hallucinations

People with Lewy body dementia who experience visual hallucinations will see fully formed, detailed images that aren't there. Often the hallucinations take the form of children, animals or figurine people. But they could be anything. The visual hallucinations are as clear as day, unlike other conditions in which a patient might see shadowy figures out of the corners of their field of vision. Sometimes the hallucinations experienced by those with Lewy body dementia can be benign, but other times they can be frightening.

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Parkinsonism

Parkinsonism is like Parkinson's disease, but often Lewy body patients don't exhibit the classic "pill-rolling" hand tremors. Usually, Parkinsonism is more subtle. For example, a patient might have a symptom called cogwheeling, which means a ratcheting effect occurs when the patient moves their arms up and down. They have this motor stiffness and a shuffling gait that is very Parkinsonistic. People with Lewy body dementia also may lose their facial expressions.

Fluctuations of Consciousness

Some patients with dementia periodically have "spells," otherwise known as fluctuations of consciousness.

A fluctuation in consciousness might be an episode of classic sundowning, where the person becomes more confused and disoriented around nightfall, or any other change of personality or consciousness. It might occur daily or periodically.

Doctors consider this symptom the hardest to confirm, however, if a person has two out of three of the symptoms, they would meet criteria for Lewy body dementia.



5. Medications

Because the different types of dementia have a broad range of causes and specific symptoms, it's not possible to cover all of the medications used to treat even the most common types of dementia here. But we can briefly touch on the medications currently approved by the FDA for the treatment of Alzheimer's disease specifically. Currently there are two such medication classes, acetylcholinesterase inhibitors and NMDA antagonists. Other medication classes are being developed, but are still in clinical trial phases.

Most Common Types of Dementia

Acetylcholinesterase Inhibitors

These include:

- Donepezil, which is marketed as Aricept
- Rivastigmine, which is marketed as Exelon
- Galantamine, which is marketed as Razadyne



Fig. 1. After signalling, acetylcholine is released from receptors and broken down by acetylcholinesterase to be recycled in a continuous process.

Acetylcholinesterase inhibitors prevent the breakdown of a chemical in the brain called acetylcholine, which is involved in memory and attention. If you prevent the breakdown of acetylcholine, the nerves can communicate more effectively.

NMDA Antagonists

Memantine, which is marketed as Namenda, is the only medication marketed in this class. Memantine prevents too much calcium from entering the nerve cell, which can cause damage and cell death. Memantine slows down the flow of calcium into cells and protects the neurons. However, don't think this means that calcium is bad — there's no need to stop taking calcium, particularly patients with osteoporosis, to protect your brain from dementia.



Conclusion

People with dementia experience memory loss and cognitive impairments that can make life quite difficult. But understanding what is causing their symptoms can help caregivers have appropriate expectations of patients and develop effective ways to interact with and care for them. Being informed about the particular type of dementia a patient has can also, in some cases, help caregivers assist patients in reducing risk factors that could contribute to worsening of dementia symptoms.

Additional Resources

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