It's Not Just Ole’ Timers:
Causes of Dementia and Other Cognitive Decline in Older Adults
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Dementia Defined.

- Dementia is the loss of mental functions, such as thinking, memory, and reasoning, that is severe enough to interfere with a person's daily life. Dementia is not a disease itself, but rather a group of symptoms that may accompany certain diseases or conditions. Symptoms may involve changes in personality, mood, and behavior.

Dementia Defined

- The development of multiple cognitive deficits manifested by:
  - Memory impairment
  - Aphasia (language disturbance)
  - Apraxia (motor disturbance)
  - Agnosia (failure to recognize or identify objects in spite of intact memory)
  - Decreased executive functioning

Stages of Alzheimer’s disease

Stage 1: No Cognitive Impairment
Stage 2: Very mild decline
Stage 3: Mild Cognitive Decline
Stage 4: Moderate Cognitive Decline
Stage 5: Moderately Severe Cognitive Decline
Stage 6: Severe Cognitive Decline
Stage 7: Very Severe Cognitive Decline

Stages 1 of Alzheimer’s Dementia

No Cognitive Impairment
Individual does not experience memory problems and none are evident to others.
<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Stage 2 of Alzheimer’s Dementia</strong></td>
<td>Very mild decline. Person feels as if they have memory lapses, forgetting objects, names, word finding but problems are not evident in the medical exam or to others.</td>
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<td><strong>Stage 3 of Alzheimer’s Dementia</strong></td>
<td>Mild Cognitive Decline. Family, friends, or co-workers begin to notice problems. Problems with memory or concentration may be measurable in clinical testing or in medical exam but generally functioning well. May or may not develop into Alzheimer’s disease.</td>
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<td><strong>Stage 4 of Alzheimer’s Dementia</strong></td>
<td>Moderate Cognitive Decline (mild Alzheimer’s). Clear deficits in: knowledge of recent events, ability to do challenging mental arithmetic, ability to perform complex tasks/planning, reduced memory of personal history, may withdraw.</td>
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<td><strong>Stage 5: of Alzheimer’s Dementia</strong></td>
<td>Unable to recall important details like their address. Become confused about where they are, day of the week, date. Trouble with less challenging mental arithmetic. Need help choosing appropriate clothing. Retain self knowledge, know spouse or children. Usually do not need assistance with eating or toileting.</td>
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<td><strong>Stage 6: of Alzheimer’s Dementia</strong></td>
<td>Severe Cognitive Decline (Mid-stage Alzheimers). Memory difficulties worsen, personality changes, need help with ADL’s. Lose awareness of most recent experiences or events. Recollection of own history is imperfect. May forget name of spouse but recognize familiar face. Need help to dress properly; toileting assistance. Sleep disruption; Incontinence, wandering. Behavioral symptoms (paranoia; repetitive).</td>
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<td><strong>Stage 7: of Alzheimer’s Dementia</strong></td>
<td>Very Severe Cognitive Decline (Late-Stage AD). Loss of ability to respond to the environment, to speak, and control movement. Full care is needed. Swallowing impaired.</td>
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Functional Assessment Staging Test (FAST)

1. No difficulties
2. Subjective forgetfulness
3. Decreased job functioning and organizational capacity.
4. Difficulty with complex tasks, instrumental ADL's
5. Require supervision with ADL's (e.g. bill paying, cooking, cleaning, traveling)

6a. Needs help putting on clothes
6b. Needs help bathing
6c. Needs help toileting
6d. Urinary Incontinence
6e. Fecal Incontinence

Why is type of dementia important?

• Symptoms, progression, and functioning may vary by type.
• Some types/causes can be halted/reversed.
• Dementia can be due to medical illness, medications and a host of other treatable causes.
• Some types/causes are progressive. (Although there may be treatments that reduce symptoms or slow progression).
• Type may have implications for treatment and for legal status.

Dementia caused by any of the following are often at least partially treatable:

• Chronic drug abuse
• Tumors that can be removed
• Subdural hematoma, an accumulation of blood beneath the outer covering of the brain that results from a broken blood vessel, usually as a result of a head injury (which can be minor and even unrecognized)
• Normal pressure hydrocephalus
• Metabolic disorders, such as a vitamin B12 deficiency
• Hypothyroidism, a condition that results from low levels of thyroid secretion
• Hypoglycemia, a condition that results from low blood sugar

Dementia caused by the following are not currently curable:

• Alzheimer’s disease
• Vascular (Multi-infarct) dementia
• Lewy Body Dementia
• Dementias associated with Parkinson's disease and similar disorders
• HIV dementia complex
• Creutzfeldt-Jakob disease (CJD), a quickly progressing and fatal disease that is characterized by dementia and myoclonus — muscle twitching and spasm
2 Broad Types of Dementia

- Corticol Dementia
- Subcorticol Dementia
- There are cases, such as with vascular dementia, where both parts of the brain tend to be affected.

Cortical Dementias

- Arise from a disorder affecting the cerebral cortex, the outer layers of the brain that play a critical role in cognitive processes such as memory and language. Alzheimer’s and Creutzfeldt-Jakob disease are two forms of cortical dementia. Cortical dementia patients typically show severe memory impairment and aphasia, the inability to recall words and understand common language.

Subcorticol Dementias

- Result from dysfunction in the parts of the brain that are beneath the cortex. Usually, the memory loss and language difficulties that are characteristic of cortical dementias are not present. Rather, people with subcortical dementias, such as Huntington’s disease, Parkinson’s Disease, and HIV dementia complex, tend to show changes in their personality and attention span, and their thinking slows down.

- There are cases, such as with vascular dementia, where both cortical and subcortical parts of the brain tend to be affected.

Mild Cognitive Impairment (MCI)

- Dementia can be due to medical illness, medications and a host of other treatable causes. With mild cognitive impairment, an individual will experience memory loss, and sometimes impaired judgment and speech, but is usually aware of the decline. These problems usually don’t interfere with the normal activities of daily living. Individuals with mild cognitive impairment may also experience behavioral changes that involve depression, anxiety, aggression and emotional apathy; these can be due to the awareness of and frustration related to his or her condition.
- MCI may, or may not, develop into Alzheimer’s Disease or another form of dementia.

Alzheimer’s Dementia

- Most common type affecting 50-70 percent of all dementias
- A serious brain disorder that impacts daily living through memory loss and cognitive changes.
- Alzheimer’s is a degenerative disease, progressing from mild forgetfulness to widespread neurological impairment and ultimately death.
- Chemical and structural changes in the brain gradually destroy the ability to create, remember, learn, reason, and relate to others. As critical cells die, drastic personality loss occurs and body systems fail.
Vascular Dementia

- The second most common form of dementia, vascular dementia is caused by poor blood flow to the brain, which deprives brain cells of the nutrients and oxygen they need to function normally. Vascular dementia can result from any number of conditions which narrow the blood vessels, including stroke, diabetes and hypertension.

Causes of Vascular Cognitive Impairment

- Multiple large strokes
- Single strategic stroke
- Hemorrhage
- Small Vessel Disease (most common)
- Ischemic-hypoxic dementia (prolonged lack of oxygen such as in drowning or CO2 poisoning)

Risk Factors for Vascular Dementia

- Hypertension
- Heart diseases
- Diabetes, especially Type 2
- Obesity
- Elevated Lipids
- Smoking

CADASIL (Vascular Dementia)

- Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy
- Parent with CADASIL gene = 50/50 chance child will have disorder
- Offspring with gene = 100

CADASIL (Vascular Dementia)

- Age of onset:
  - 20% <30
  - 50% age 30-50

  - Different than other stroke patients
  - Family or personal history of strokes without history of high bp, elevated lipids or smoking

Characteristic Symptoms of CADASIL

- Migraine headache with auras
- Mood disorders
- TIA
- Early loss of STM, attention, executive functioning (age 30-40)
- Multiple strokes
- Visual impairments
- Hemiparesis
Mixed Dementia

- Sometimes dementia is caused by more than one medical condition. This is called mixed dementia. The most common form of mixed dementia is caused by both Alzheimer’s and vascular disease.

Dementia with Lewy Bodies

- Sometimes referred to as Lewy Body Disease, this type of dementia is characterized by abnormal protein deposits called Lewy bodies which appear in nerve cells in the brain stem. These deposits disrupt the brain’s normal functioning, impairing cognition and behavior and can also cause tremors. DLB is not reversible and has no known cure. Can look like Alzheimer’s or Parkinson’s. Pet Scans quite accurate.

Signs of Lewy Body Dementia

- Mental decline. Lewy Body patients may experience reduced alertness and lowered attention span.
- Recurrent visual hallucinations or depression. Hallucinations, usually related to people or animals, occur in most LBD patients. Depression is also common.
- Increasing problems handling the tasks of daily living. Tasks that used to be simple may become difficult for a person with Lewy Body dementia.
- Repeated falls and sleep disturbances. This includes insomnia and acting out dreams.
- Fluctuations in autonomic processes. This includes blood pressure, body temperature, urinary difficulties, constipation, and difficulty swallowing.
- Visual hallucinations and sleep disturbance often distinguish it from Alzheimer’s or Parkinson’s

Meds and Lewy Body Dementia

- According to Lewy Body Dementia Association: Up to 50% of patients with LBD who are treated with any antipsychotic medication may experience severe neuroleptic sensitivity, such as worsening cognition, heavy sedation, increased or possibly irreversible parkinsonism, or symptoms resembling neuroleptic malignant syndrome (NMS), which can be fatal. (NMS causes severe fever, muscle rigidity and breakdown that can lead to kidney failure.)

Meds and Lewy Body Dementia

- So avoid antipsychotics unless the behaviors are significantly disruptive or dangerous leaving no alternative.
- Low levels of acetylcholine so should be treated with cholinesterase inhibitors (Aricept, Exelon)

Parkinson’s Dementia

- Most of the symptoms of the disease involve disruption of motor functions (muscle and movement). However, lack of energy, mood and memory changes, and pain can also occur as part of the disease.
- Dementia less likely in early onset Parkinson’s Disease; more likely in late onset.
Medication for Parkinson’s

- Levodopa/Carbidopa (Sinemet)
- Entacapone (Comtan)
- Dopamine agonists
- Monoamine oxidase inhibitors –
- Surgical: Deep Brain Stimulation

Fronto-temporal Dementia (FTD)

- 20% of early onset dementia
- May have many causes but affects the front and temporal lobes of the brain. Imaging can be helpful.
- Unlike other types of dementia, in FTD behavior and personality changes typically manifest BEFORE memory loss and speech problems.
- Less obvious to untrained observers
- May have normal mental status exam

Fronto-temporal Dementia (FTD)

- Problems in executive functioning.
- Social judgment and impulse control are impaired
- Lack remorse, indifferent
- Weight gain due to hyperorality.
- Hypersexuality
- Perseveration or stereotypy

Physical Signs of FTD

- Primitive (infantile) reflexes (snout, grasp, startle)
- Rigidity and tremor
- Early incontinence
- Myoclonus (involuntary muscle jerking)

Pick’s Disease (a type of frontotemporal dementia)

- Pick’s disease, the most common of the frontotemporal dementia types, is a rare disorder which causes damage to brain cells in the frontal and temporal lobes. Pick’s disease affects the individual’s personality significantly, usually resulting in a decline in social skills, coupled with emotional apathy.
- More common in women
- Affects personality, orientation, and behavior.
- Often begins at earlier age.

The five distinguishing features of Pick’s disease

- Doctors look for at least three of the following to diagnose Pick’s disease.
  - Onset before age 65
  - Initial personality changes
  - Loss of normal controls, e.g., gluttony, hypersexuality
  - Lack of inhibition
  - Roaming behavior
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<tr>
<th>Treatment FTD</th>
<th>Meds for Pick’s Disease (and other FTD)</th>
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<tr>
<td>• Speech therapy early in disease</td>
<td>• Antidepressants known as selective</td>
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<td>• SSRI’s, consider depakote,</td>
<td>serotonin reuptake inhibitors (SSRIs)</td>
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<tr>
<td>• Can try antipsychotics but not as helpful</td>
<td>may offer some relief from apathy and</td>
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<tr>
<td>• Debate about cholinesterase inhibitors</td>
<td>depression and help reduce food</td>
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<td></td>
<td>cravings, loss of impulse control and</td>
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<td>compulsive activity</td>
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**Creutzfeldt-Jacob Dementia (CJD)**

- CJD is a degenerative neurological disorder, which is also known as mad cow disease. The incidence is very low, occurring in about one in one million people. There is no cure. Caused by viruses that interfere with the brain’s normal functioning, dementia due to CJD progresses rapidly, usually over a period of several months. Symptoms include memory loss, speech impairment, confusion, muscle stiffness and twitching, and general lack of coordination, making the individual susceptible to falls. Occasionally, blurred vision and hallucinations are also associated with the condition.

**Normal Pressure Hydrocephalus**

- Normal pressure hydrocephalus involves an accumulation of cerebrospinal fluid in the brain’s cavities. Impaired drainage of this fluid leads to the build-up and results in added pressure on the brain, interfering with the brain’s ability to function normally. Individuals with dementia caused by normal pressure hydrocephalus often experience problems with ambulation, balance and bladder control, in addition to cognitive impairments involving speech, problem-solving abilities and memory.

**Huntington’s Disease**

- Huntington’s disease is an inherited progressive dementia that affects the individual’s cognition, behavior and movement. The cognitive and behavioral symptoms of dementia due to Huntington’s include memory problems, impaired judgment, mood swings, depression and speech problems (especially slurred speech). Delusions and hallucinations may occur. In addition, the individual may experience difficulty ambulating, and uncontrollable jerking movements of the face and body.

**Wernicke-Korsakoff Dementia**

- Wernicke-Korsakoff syndrome is caused by a deficiency in thiamine (Vitamin B1) and often occurs in alcoholics, although it can also result from malnutrition, cancer which have spread in the body, abnormally high thyroid hormone levels, long-term dialysis and long-term diuretic therapy (used to treat congestive heart failure). Wernicke encephalopathy is the first, acute phase. Korsakoff psychosis is the chronic stage.
Wernicke-Korsakoff Dementia

- The symptoms of dementia caused by Wernicke-Korsakoff syndrome include:
  1. Confusion, permanent gaps in memory, and problems learning new information.
  2. Tendency to confabulate (and then remember the confabulation as fact.)
  3. Unsteadiness, weakness and lack of coordination.

HIV Related Dementia

- Tends to start with cognitive and motor slowing.
- The essential features of ADC are disabling cognitive impairment accompanied by motor dysfunction, speech problems and behavioral change. Cognitive impairment is characterized by mental slowness, trouble with memory and poor concentration. Motor symptoms include a loss of fine motor control leading to clumsiness, poor balance and tremors. Behavioral changes may include apathy, lethargy and diminished emotional responses and spontaneity.

Pseudodementia

- If a person is experiencing depression, anxiety, or other illness it may affect their attention, memory, other cognitive functioning enough that they appear to have dementia but it is reversible if the underlying cause is treated.
- This is why dementia should not be diagnosed in a person with depression unless there is evidence that the dementia was present when there was no depression.
- The depression, anxiety, or other illness should be treated to see if cognition improves once they do.

Questions that help distinguish types:

- When did it start?
- Did it seem to happen all of a sudden or just sneak up on you.
- What did you first notice?
- Any personality changes?
- Any motor changes?
- Any problems with sleep?
- Any visual hallucinations?