

DEMENTIA

1. Introduction

Many diseases causes degeneration in different parts of the nervous system without an identifiable cause. Degeneration of the cerebral cortex causes dementia, one form of Alzheimer's disease.

2. Definition

ICD- 10 defines dementia as a syndrome due to disease of the brain usually of chronic or progressive in nature. In which, there is disturbances of multiple higher cortical functions including memory, thinking, orientation, comprehension, calculating, learning, capacity, language and judgment, and consciousness in not clouded. Occasionally deterioration in emotional control social behavior or motivation also seen.

3. Incidence

The incidence is 5% over 65 years of age.

The incidence rises to 20% when the age increases to 80years.

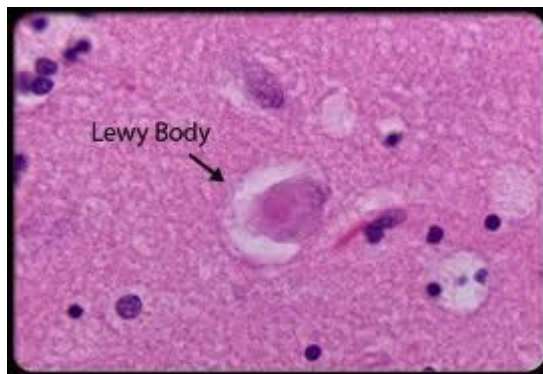
4. Etiology

- The exact cause is unknown.

The following medical conditions also can lead to dementia:

- Parkinson's disease
- Multiple sclerosis
- Huntington's disease
- **Pick's disease**- it affects the frontal and temporal lobes of the brain. Marked shrinkage, called atrophy, of the frontal lobes of the brain occurs that can be seen on brain scans.
- Progressive supranuclear palsy
- Infections that can affect the brain, such as HIV/AIDS and Lyme disease

- Genetic abnormalities.
- **Wernicke –Korsakoff disease.**Wernicke-Korsakoff syndrome is a two-stage brain disorder caused by a deficiency of thiamine (vitamin B-1). Thiamine helps brain cells produce energy from sugar. When levels of the vitamin are too low, cells are unable to generate enough energy to function properly.
- **Lewy body dementia.**People with this condition have abnormal protein structures in certain areas of the brain.



5. Pathophysiology

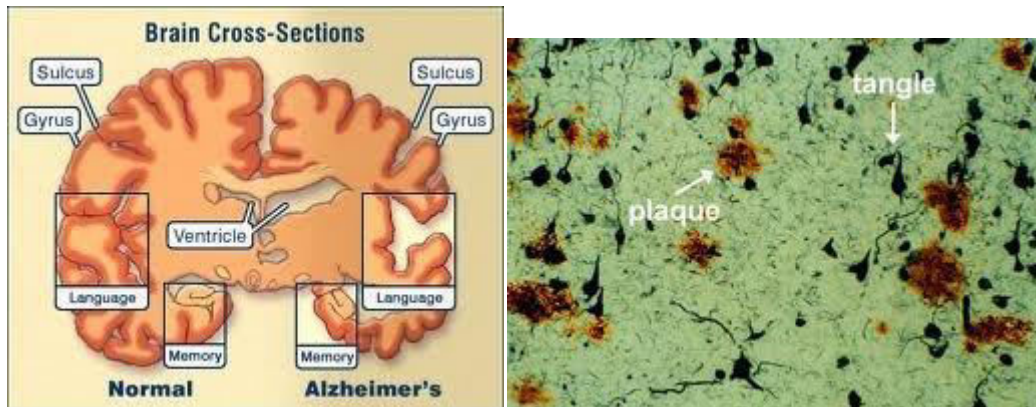
Macroscopically the brain is atrophic, particularly the cerebral cortex and hippocampus. Histology reveals the presence of senile plaques and neurofibrillary tangles in the cerebral cortex. **Two abnormal structures called plaques and tangles are prime suspects in damaging and killing nerve cells.**

Plaques are deposits of a protein fragment called beta-amyloid (BAY-tuh AM-uh-loyd) that build up in the spaces between nerve cells.

Tangles are twisted fibers of another protein called tau that build up inside cells.

Though most people develop some plaques and tangles as they age, those with Alzheimer's tend to develop far more. They also tend to develop them in a predictable pattern, beginning in areas important for memory before spreading to other regions.

Different neurotransmitter abnormalities have been described, in particular impairment of cholinergic transmission, although noradrenaline, 5Hydroxytryptamine, glutamate aspartate and substance P are also involved. Alzheimer changes typically begin in the part of the brain that affects learningIt's the destruction and death of nerve cells that causes memory failure, personality changes, problems carrying out daily activities and other symptoms of Alzheimer's disease.



6. Clinical features

- ✓ Key clinical feature is inability to retrieve information acquired in the past.
- ✓ Short term and long term memory are affected.
- ✓ Cognitive impairment.
- ✓ Apraxia.
- ✓ Visuo-spatial impairment .
- ✓ Aphasia.
- ✓ Anosognosia-as the disease progress the patient denies that there is anything wrong.
- ✓ Depression is common.
- ✓ Decreased ability to perform activities of daily living.
- ✓ Patients become aggressive, confused and agitated in the late afternoon, a phenomenon known as **sundowning**.

Sundowning may be due to sleep disturbances, sleep apnea, decreased functioning of the hypothalamus, decreased visual acuity, and lack of structure in the afternoon.

10 warning signs of dementia

- Memory loss that disrupts daily life
- Challenges in planning or solving problems
- Difficulty completing familiar tasks at home, at work or at leisure
- Confusion with time or place
- Trouble understanding visual images and spatial relationships
- New problems with words in speaking or writing
- Misplacing things and losing the ability to retrace steps
- Decreased or poor judgment
- Withdrawal from work or social activities
- Changes in mood and personality

7. Diagnostic evaluation

- a) **Medical history:** an interview or questionnaire to identify past medical problems, difficulties in daily activities and any medications (prescriptions, vitamins, supplements and over-the-counter medications), among other things. It is important to inform the doctor of any family history of Alzheimer's or other related medical issues
- b) **Physical examination:** should include evaluations of hearing and sight, heart and lungs, as well as temperature, blood pressure and pulse readings. The doctor might also ask about diet and nutrition and use of alcohol and tobacco products.
- c) **Neuropsychological testing:** Doctors use a variety of tools to assess memory, problem-solving, attention, vision-motor coordination and abstract thinking, such as performing simple calculations in your head. The goal is to better characterize the types of cognitive symptoms present, which might provide clues to the underlying cause. **The most commonly used test is called a mini-mental state exam, or MMSE.** During the MMSE, the doctor or health professional will ask a number of questions which test a variety of common mental skills. Some examples of questions on the MMSE will ask about the date or the person's location and also ask the person to count backward or copy a drawn figure.

Mini-mental state exam (MMSE)

The mini-mental state examination (MMSE) is one of the tests most commonly used to assess mental function. In the MMSE, a health professional asks a patient a series of questions designed to test a range of everyday mental skills.

d) Mental status tests

Mental status testing gives the doctor a general idea of whether a person:

- Is aware of having symptoms or feels nothing is wrong
- Knows the date, time and where he or she is
- Can remember a short list of words, follow instructions and do simple calculations

e) Standard laboratory tests: might include blood and urine tests designed to help eliminate other possible conditions. A depression screening should also be conducted. In some cases, a small sample of spinal fluid may be collected for testing.

- B12 level
- Hemoglobin
- T.C, D.C
- Blood ammonia levels
- Blood chemistry (chem-20)
- Blood gas analysis
- Cerebrospinal fluid (CSF) analysis
- Drug or alcohol levels (toxicology screen)
- Tests for exposure to metals such as lead or arsenic
- Electroencephalograph (EEG)
- Glucose test
- Liver function tests
- Serum calcium
- Serum electrolytes

- Thyroid function tests
- Thyroid stimulating hormone level
- Urinalysis

f) Brain-imaging scan:

MRlandCTscans look at the structure of the brain and are used to rule out brain tumors or blood clots in the brain as the reason for symptoms. **PET** scans can look at how certain parts of the brain are working or how active they are.

g) Histological confirmation-shows the presence of plaques, tangles and lewy bodies in the brain tissue.

8. Management

a) Medical management

- Antipsychotics (haloperidol, risperdal, olanzapine)
- Mood stabilizers (fluoxetine, imipramine, citalopram)
- Serotonin-affecting drugs (trazodone, buspirone)
- Stimulants (methylphenidate)

Certain drugs may be used to slow the rate at which symptoms worsen. The benefit from these drugs is often small, and patients and their families may not always notice much of a change.

- ✓ Anticholinesterases are administered, Eg; Donepezil, rivastigmine, memantine.
- ✓ Antidepressants for depression.
- ✓ **Nootropics**: Piracetam, Oxiracetam, Aniracetam derivatives of GABA are postulated to have neuroprotective effect on CNS against hypoxia.

b) Psychotherapy – the specific psychotherapy treatments divided in to 4 broad of range: Behaviour oriented, Emotion oriented cognition oriented and stimulation oriented, behaviour approached can be effective in lessening or abolishing problem behaviour e.g. aggression,

incontinence emotion oriented intervention include supportive psychotherapy reminiscence therapy sensory integration and stimulated presence therapy.

c) Physiotherapy

It will help to structure their daily activities such as muscle and joint exercises, breathing exercises, speech therapy to improve blood circulation etc. Physiotherapy is helpful for chronic encephalitis, meningitis and general paresis of insane. It is also helpful to remove contracture of limbs, deformities of extremities or embolities.; It improves physical health. Appetite, digestion elimination, circulation, muscle tone and body temperature.

d) Nursing management

- ✓ Providing familiar environment to the patient and providing support to the caregivers.
- ✓ Assess the onset and characteristics of symptoms (determine type and stage of disorder).
- ✓ Establish cognitive status using standard measurement tools.
- ✓ Determine self-care abilities.
- ✓ Assess threats to physical safety (eg, wandering, poor reality testing).
- ✓ Assess affect and emotional responsiveness.
- ✓ Assess ability and level of support available to caregivers.

NO	DIAGNOSIS	OUTCOME	INTERVENTION	EVALUATION
1	Impaired Communication related to cerebral impairment as demonstrated by altered memory, judgment, and word finding	Demonstrate congruent verbal and nonverbal communication.	<ul style="list-style-type: none"> • Speak slowly and use short, simple words and phrases. • Consistently identify yourself, and address the person by name at each meeting. • Focus on one piece of information at a time. Review what 	<ul style="list-style-type: none"> • Demonstrates decreased anxiety and increased feelings of security in supportive environment

			<p>has been discussed with patient.</p> <ul style="list-style-type: none"> • If patient has vision or hearing disturbances, have him wear prescription eyeglasses and/or a hearing device. • Keep environment well lit. • Use clocks, calendars, and familiar personal effects in the patient's view. • If patient becomes verbally aggressive, identify and acknowledge feelings. • If patient becomes aggressive, shift the topic to a safer, more familiar one. • If patient becomes delusional, acknowledge feelings and reinforce reality. Do not attempt to challenge the content of the delusion. 	
2	Self-Care Deficit(Bathing or Hygiene) related to cognitive impairment as demonstrated by inattention and inability to complete ADLs	Independence in Self-Care	<ul style="list-style-type: none"> • Assess and monitor patient's ability to perform ADLs. • Encourage decision making regarding ADLs as much as possible. • Label clothes with patient's name, address, and telephone number. • Use clothing with elastic and Velcro for fastenings rather than buttons or 	Maintains maximum degree of orientation and self-care within level of ability

			<p>zippers, which may be too difficult for patient to manipulate.</p> <ul style="list-style-type: none"> • Monitor food and fluid intake. • Weigh patient weekly. • Provide food that patient can eat while moving. • Sit with patient during meals and assist by cueing. • Initiate a bowel and bladder program early in the disease process to maintain continence and prevent constipation or urine retention 	
3	Risk for Injury related to cognitive impairment and wandering behavior	Safety appears	<ul style="list-style-type: none"> • Discuss restriction of driving when recommended. • Assess patient's home for safety: remove throw rugs, label rooms, and keep the house well lit. • Assess community for safety. • Alert neighbors about the patient's wandering behavior. • Alert police and have current pictures taken. • Provide patient with a MedicAlert bracelet. • Install complex safety locks on doors to outside or basement. • Install safety bars in bathroom. 	Safety precautions and close surveillance maintained; no injury

			<ul style="list-style-type: none"> • Closely observe patient while he is smoking. • Encourage physical activity during the daytime. • Give patient a card with simple instructions (address and phone number) should the patient get lost. • Use night-lights. • Install alarm and sensor devices on doors. 	
4	Impaired Social Interaction related to cognitive impairment	Socialization increase	<ul style="list-style-type: none"> • Provide magazines with pictures as reading and language abilities diminish. • Encourage participation in simple, familiar group activities, such as singing, reminiscing, doing puzzles, and painting. • Encourage participation in simple activities that promote the exercise of large muscle groups. 	Attends group activities; sings, exercises with group
5	Risk for Violence: Self-directed or Other-directed related to suspicion and inability to recognize people or places	Risk for violence is not appears	<ul style="list-style-type: none"> • Respond calmly and do not raise your voice. • Remove objects that might be used to harm self or others. • Identify stressors that increase agitation. • Distract patient when an upsetting 	Decreased occurrence of acting-out behaviors

			situation develops.	
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9. Complications

Complications depend on the cause of the dementia, but may include the following:

- Abuse by an overstressed caregiver
- Increased infections anywhere in the body
- Loss of ability to function or care for self
- Loss of ability to interact
- Reduced lifespan
- Side effects of medications used to treat the disorder

10. Prevention

Most causes of dementia are not preventable.

You can reduce the risk of vascular dementia, which is caused by a series of small strokes, by

- ❖ Quitting smoking

- ❖ Controlling high blood pressure and diabetes.
- ❖ Eating a low-fat diet
- ❖ Exercising regularly may also reduce the risk of vascular dementia.

11. Bibliography

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