Memory Disorders and Dementia

ABSTRACT: All memory impairment is not dementia. Memory impairment is associated with several psychiatric disorders and the treating physician must be aware of the possibility before labeling a patient with dementia. Dementia refers to a deterioration of intellectual function and other cognitive skills, leading to a decline in the ability to perform activities of daily living (ADL). It is one of the most serious disorders affecting the elderly. The prevalence of dementia increases rapidly with age; it doubles every 5 years after age 60. Persons with this condition are often more concerned about it, than are family members; reassurance and coping strategies are helpful.

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Psychiatric Disorders And Memory

- All memory impairment is not dementia. Memory impairment is associated with several psychiatric disorders and the treating physician must be aware of the possibility before labeling a patient with dementia.
- These include
  - Mood disorders: depression, anxiety
  - Burnout
  - Schizophrenia and other psychoses.
- Depression, anxiety, and other psychiatric factors may also aggravate memory disorders with other causes.
- Memory disturbances associated with functional psychiatric disorders are generally minor: impaired attention and concentration, increased interference, and diminished capacity for memory overload. Depression, however, may be associated with more severe memory disturbances, although these are rarely as widespread and incapacitating as in dementia (so-called pseudo-dementia).

  Depression with obvious memory impairment often includes the following characteristics that differentiate it from dementia:
  - Previous psychiatric disorders
  - The onset of symptoms can often be determined.
  - The symptoms are of brief duration, and they progress rapidly.
  - The patient's awareness of illness and emotional sensitivity are heightened.
  - The patient gives answers such as "I don't know" and has selective memory gaps with both recent and earlier memories forgotten.
- Treatment trial should be initiated as soon as depression or any other mood disorder is suspected.

Normal Ageing And Memory

- In individuals free of disorders affecting the central nervous system age-related changes in cognitive functions are minor, and they have an insignificant impact on the patient's activities of daily living or social interactions.
- A normal elderly person is capable of learning, albeit more slowly, and thus is not "senile".
- The normal ageing process involves slight deterioration in functions such as
  - Learning

- o Speed of cognitive processes
- o Abstract thinking requiring flexibility
- o Memory capacity

Causes Of Memory Disorders

- Causes of transient memory disorders
  - o Transient ischaemic attack
  - o Global amnesia
  - o Minor brain injuries
  - o Epileptic seizures
  - o Medications
  - o Stimulants
  - o Psychiatric causes
  - o Acute confusional state (delirium)
- Treatable causes of memory disorders are mostly identical to those of treatable dementia. Progressive memory disorders are caused by
  - o Alzheimer's disease
  - o Vascular dementias
  - o Other conditions leading to dementia

Differential Diagnosis Of Memory Disorders

- Normal ageing
- Isolated memory disorders (amnesias)
- Other neuropsychological disorders (such as aphasia or apraxia)
- Psychiatric disorders
- Acute confusional state (delirium)
- Mental retardation
- Dementia

Dementia

Definition: Dementia is memory and cognitive impairment due to an organic cause where there is a decline from previous level of function that limits the patient's social and professional activities.

- o Dementia is a clinical diagnosis made on the basis of adequate examination by a physician who ALREADY knows the patient.
- o Dementia may be progressive (eg Alzheimer's disease), permanent sequelae (eg brain damage), or treatable.
- o Usually affects the elderly

The Epidemiology of Dementia

Occurrence

- An individual may have a dementing illness at any age after maturation, but its prevalence increases with age.
- An Ageing Population
  - o 1997: 40 million at 65+
  - o 2025: 108 million
- Prevalence Of Dementia
  - o Vas et al, 2001: 1.6% > 60 years
  - o Chandra et al, 1998: 1.5% in 65-84 yr, 9.8% 85+
  - o Rajkumar et al, 3.5% > 60 years
- Public health problem: total numbers: projected: 2025: 3.8 million
- 'the silent epidemic'
- 'the family is the patient'
  - o Caregiver stress: GP stress
  - o 'PI-CA' syndrome – Posterior Cerebellar Artery syndrome is also known as "lateral medullary syndrome". This is the most common type of brainstem stroke. It typically has vertigo, ipsilateral hemiataxia, dysarthria, ptosis and miosis. Most patients with this stroke recover very well and often resume their previous activities

Aetiology

Etiologic Classification Of Dementia

- Primary dementia (cortical dementia)
- Alzheimer's disease
- Frontal lobe dementia syndromes
- Mixed dementia with an Alzheimer's component

Dementia Due To Toxic Ingestion

- Alcohol-associated dementia
- Dementia due to heavy metals or other toxins

Dementia Due To Structural Brain Abnormalities

- Normal-pressure hydrocephalus
- Chronic subdural haematomas
- Brain tumours

Vascular Dementia

- Dementia
- Cerebrovascular disease
  - o Vascular risk factors, focal signs, abnormal CT
  - § Relationship between dementia and CVD
  - o Abrupt onset, stepwise decline
  - o Within 3 months of stroke
  - § Mixed AD and VaD common

Dementia With Parkinsonian Features
  - § Parkinson's disease with dementia
  - § Diffuse Lewy body disease
  - § Progressive supranuclear palsy
  - § Cortico-basal ganglionic degeneration
  - § 'Vascular' parkinsonism
  - § Hydrocephalus

Parkinson's Disease With Dementia
  - § Rigidity, bradykinesia, tremors
  - § Response to l-dopa
  - § Executive dysfunction in upto 70%
  - § Dementia in 30-40%
  - § Cortical Lewy bodies

Diffuse Lewy Body Disease
- Dementia (executive, visuospatial dysfunction more than in AD)
- Two of 3
  - o Parkinsonism
  - o Visual hallucinations
  - o Fluctuating cognition
- Lewy bodies in neocortex, limbic, brainstem

Progressive Supranuclear Palsy
- Parkinsonism with axial rigidity and impairment of postural/righting reflexes: prominent falls
- Supranuclear gaze palsy: vertical
- Pseudobulbar palsy, dysarthria
- Dementia: Executive dysfunction

Fronto-Temporal Dementias
- Insidious onset, gradual progression
- Onset between 45-65 years
- Behavioural changes before memory loss
  - o Emotional blunting
  - o Impairment in regulation of personal conduct
  - o Decline in social interpersonal conduct
  - o Loss of insight

Some Potentially Reversible Conditions Mimicking Dementia
  - § Hypothyroidism
  - § Depression
  - § Vitamin B_{12} deficiency

Symptoms

- Memory impairment (inability to acquire new information and to recall previously learned knowledge)
- Cognitive impairment manifested by at least one of the following:
  - o Aphasia (language disturbance)
  - o Apraxia (inability to carry out motor activities despite intact sensory function)
  - o Agnosia (failure to recognize or indentify objects despite intact sensory function)
  - o Disturbance in executive functioning (i e planning, organisation, sequencing, abstracting).
- In dementia consciousness is not impaired, although patients with dementia have a higher risk of delirium. Delirium is vital in differential diagnosis, as it requires urgent treatment.
- Patients typically experience a steady, inexorable decline in intellectual function over 2 to 10 years, culminating in total dependence and death, often due to infection.

Dementia Classified By Severity

Early Dementia
- Although the ability to work and social competence are markedly deteriorated, the patient is still capable of independent living and moderate judgment.
- Diminished short-term memory. Patients repeatedly ask the same questions, often after only a few minutes, or forgets where belongings were placed. The inability to locate belongings may lead to paranoia that

they were stolen.

- Word-finding becomes difficult; patients may forget a specific word and use elaborate circumlocution to compensate (eg a watch may be called - that thing which shows the time).
- Formerly mastered activities of daily living (eg driving, handling finances, housekeeping) may also become difficult. A change in the level of functioning is key to diagnosis.
- Other symptoms of early dementia include personality changes, emotional lability, and poor judgement.
- Family members may report that the patient is "not acting like himself" or is doing uncharacteristic things.
- Mood swings, including depression and euphoria, commonly occur.
- Patients may become increasingly irritable, hostile, and agitated, especially in circumstances in which they are confronted with their cognitive impairment.
- Patients with early dementia can usually compensate reasonably well and follow established routines at home. Acute decline often results from disruption of routine or a change in surroundings.

Intermediate Dementia

§ The patient's ability to function independently is threatened, and some degree of supervision is necessary.

§ The ability to perform basic activities of daily living (eg bathing, dressing, toilet) becomes impaired.

§ Patients cannot learn new information. Normal environmental and social cues do not register, thus increasing disorientation to time and place. Patients may become lost even in familiar surroundings (eg they cannot find their bedroom or bathroom).

§ Patients with intermediate dementia are also at increased risk of falls and accidents due to confusion and poor judgement.

§ Behaviour disorders may develop during early or intermediate dementia and can persist into severe dementia. Significant paranoia (eg specific delusions, generalised suspicion) occurs in about 25% of patients. One particularly poignant delusion results from the loss of self-recognition in mirrors, leading to a suspicion that strangers have entered the home. Wandering can also be a significant problem, particularly if patients are trying to return to familiar surroundings which may no longer exist.

§ Physical aggressiveness, inappropriate sexual behaviour, and nonspecific agitation may also occur during intermediate dementia.

§ In most patients the ability to drive a car has deteriorated.

§ Legal competence is compromised.

Severe Dementia

- The patient's daily activities are affected to such an extent that continuous supervision is required.
- Patients with severe dementia cannot perform activities of daily living and become totally dependent on others for feeding, toilet and mobilisation.
- Short-term and long-term memory is completely lost, and patients may be unable to recognise even close family members.
- The ability to ambulate is variably affected in different dementias but is usually lost in the later stages of illness, particularly in Alzheimer's disease.
- Loss of other reflex motor tasks (eg ability to swallow) puts patients at risk of malnutrition and aspiration.
- The combination of poor mobility and malnutrition increases the risk of pressure sores. Late in the course of dementia, the incidence of seizures increases.

- Complications such as dehydration, malnutrition, aspiration, and pressure sores are ultimately inevitable but may be delayed by excellent nursing care.
- Total functional dependence usually requires that the patient be placed in a nursing home, or that similar support be implemented in the home.
- The usual cause of death is infection from respiratory, skin, and urinary tract sources.

Approach To The Patient

History

- Family members should be interviewed whenever possible because they are more aware of cognitive impairment than are patients.
- The nature of the impairment, time of onset, and pattern of progression should be elicited. Formal mental status examination is also a key component to evaluation of cognitive impairment. Serial assessments can be useful in determining whether cognition is declining.
- Patients with cognitive impairment that affects daily functioning require a more thorough evaluation than a mental status examination. Ruling out correctable factors that contribute to cognitive decline (eg medical disorders, drugs, mood) is most important.
- A thorough review of the patient's known medical disorders and a search for new disorders may hold the key to reversing cognitive deficits.
- Some medical disorders (eg hypothyroidism, vitamin B12 deficiency) develop slowly and may mimic dementia more closely than delirium, but they are still correctable with treatment.
- Drug use may be the most important correctable factor contributing to cognitive impairment. Every patient undergoing evaluation for dementia requires a thorough drug review, including over-the-counter drugs and ophthalmic preparations.
- A history of alcohol use should also be obtained. Before dementia can be diagnosed, all psychoactive drugs should be eliminated or substituted with less-psychoactive drugs. Every elderly patient with a cognitive problem requires a full mood assessment, including a symptom review.

Physical Examination

- Screen for evidence of a self-care deficit (eg poor hygiene) that may confirm functional problems described during the history.
- On neurological examination, focal neurological findings may indicate cerebrovascular disease; extrapyramidal signs may indicate parkinsonism or other neurodegenerative diseases and neuropathies and myopathies may suggest a treatable systemic disorder.

Investigations

- BC, electrolytes, albumin, renal function, liver function, thyroid function, vitamin B_{12} levels is routinely obtained.
- Other laboratory tests (eg ESR, arterial blood gas, serologic tests for syphilis, drug levels, cerebrospinal fluid examination) should be performed only in targeted high-risk patients.
- Brain imaging can identify potentially-reversible structural abnormalities, such as normal-pressure hydrocephalus, chronic subdural haematomas, and brain tumours. Unless there is a need to identify small cerebral infarcts affecting the posterior circulation, CT is usually adequate, as opposed to the much-more expensive MRI. One imaging study performed after the onset of cognitive decline is sufficient; serial testing is not justified.
- Dynamic imaging of cerebral blood flow by single photon emission computed tomography (SPECT) is used in some specialised centres to differentiate Alzheimer's disease from vascular dementia. Alzheimer's dis-

ease produces a classic pattern of reduced blood flow to the temporal and parietal lobes, whereas vascular dementia produces a more "patchy" pattern.

- Neuropsychological testing can help in the evaluation of cognitive impairment.

Treatable Dementias

- Infections: TBM, syphilis, HIV, Lyme's
- Metabolic: Hypothyroidism
- Nutritional: B_{12} deficiency
- Mass Lesions: Sub Dural Haematoma, Meningiomas, Normal Pressure Hydrocephalus
- Toxic: Iatrogenic
- Psychiatric: Depression
- Epilepsy: Complex partial status epilepticus

Management

Treatment

- Treatment or elimination of all correctable factors that impair cognition may significantly improve daily functioning and quality of life and may delay severe disability and institutionalization.
- Patients with significant depressive symptoms should be treated, even if they do not fulfill all criteria for major depression.
- Treatment of depression reverses pseudodementia and may significantly reduce disability in patients with true dementia.
- The drugs of choice are usually the newer selective serotonin reuptake inhibitors. After 6 to 12 weeks of treatment, mental status examination should be repeated.
- A supportive environment in which patients can function optimally should be created. Patients with early-to-intermediate dementia usually function best in familiar surroundings. A home safety evaluation and appropriate modifications to improve function should be considered for all patients with dementia who live at home.
- The balance between safety and independence is important, and decisions must be individualized.
- Patients with dementia must engage in physical exercise, mental activity, adequate nutrition, and socialization. A regular, supervised exercise programme is often as simple as 15 to 20 minutes/day of walking.
- Adequate nutrition is necessary to maintain body weight. Patients may require prepared meals; monitoring ensures that meals are eaten.
- Social isolation should be minimized if possible because it contributes to all of the problems cited above. Special effort may be required to ensure continued socialization. Behaviour disorders are best treated with individualized behavioural interventions, rather than with drugs. However, frank psychotic symptoms (eg paranoia, delusions, hallucinations) should be treated with antipsychotic drugs, started at a low dose. Patients must be carefully monitored for adverse effects.
- Dementia is also a strong risk factor for other geriatric problems (eg falls, urinary incontinence); prevention and treatment strategies should be implemented.
- Healthcare practitioners must provide support for family members and caregivers of patients with dementia.
- Medical and financial planning is imperative before dementia becomes too severe.

Workup For A Suspected Case Of Dementia

- Neurologic evaluation, Clinical psychometry
- Routine hematological, biochemistry: CBC, indices, ESR, sugar, creatinine (electrolytes, calcium, bilirubin, SGOT, SGPT
- TSH, B_{12}, HIV, VDRL
- Neuroimaging: CT (vs MRI)
- EEG
- Lumbar puncture: CSF exam

All primary Care Physicians should Perform a Mini Mental Status Assessment

This brief test is useful in screening for cognitive

dysfunction or dementia and following their course over time.

- Integral part of the neurological exam
- Use localizational approach
- Observation and history of the patient's behaviour are the most important aspect
  - o Denial or unawareness
  - o Appearance, Affect, Level of consciousness
  - o Ability to present a history

MENTAL STATUS EXAM HAS TO BE SYSTEMATIC, HIERARCHICAL, LOBAR

- Initial assessment of basic functions on history
- Primary motor, sensory, visual deficits
- Specific check for attention and memory
- Lobar examination of Association cortex
- Left hemisphere
  - o Executive functions (frontal)
  - o Language (frontal, parietal, temporal, occipital)
  - o Calculation (parietal)
- Right hemisphere
  - o Visuospatial functions (parietal)
- Limbic 'hemisphere': memory, emotion

Hard Numbers: The Classic – Mmse (Folstein Et Al, 1975)

- Scored out of 30 points - standardized
- Can be assessed daily, monthly, annually
- Correlates with functional abilities
  - o 30: unsupervised, unskilled
  - o 25: supervised, unskilled
  - o 20: supervised ADL at home
  - o 15: dependent for ADL

MINI MENTAL STATE EXAMINATION

- ***Orientation***
  - o This category has 10 points; one for each question
  - o 5 points: What is the (year) (season) (date) (day) (month)?
  - o 5 points: Where are we: (state) (city) (locality) (hospital) (floor)?
- ***Registration***
  - o This category has 3 points; one for each question
  - o Name 3 objects, 1 second to say each. Ask patient all 3. 1 point for each answer.
  - o For eg: HOUSE (pause for 10 seconds), CAR (pause for 10 seconds), LAKE (pause for 10 seconds).
  - o The patient should be then asked to repeat these words for five times. Repetition may lead to remembrance of the words and later the patient would be able to register better thus only the first trial should be scored.
- ***Attention and Calculation***
  - o This category has 5 points; one for each question
  - o Serial 7s (100-7). 1 point for each correct answer. 5 steps. (100-7 = 93, 86, 79, 72, 65)
  - o Test the patients ability to do arithmetical calculations, starting with simple addition ("What is 4 + 3?...8+7 ?") and multiplication (What is 5× 6?...9 × 7 ?"). The task can be made more difficult by using two-digit numbers ("15+12" or "25 × 6") or longer written examples.
  - o *Poor performance may be a useful sign of dementia or may accompany aphasia but it must be assessed in terms of the patient's intelligence and education.*
  - o Alternatively, pose practical and functionally important questions, such as "If something costs Rs 75 and you give the clerk Rs 100, how much should you get back?"
- ***Recall***
  - o This category has 3 points; one for each question
  - o Ask for the 3 objects mentioned above in Registration ie HOUSE, CAR and LAKE; 1 point for each.
  - o **HIGHER COGNITIVE FUNCTIONS:** When observed clinically, Information and vocabulary provide a rough estimate of

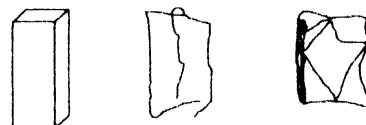
intelligence.

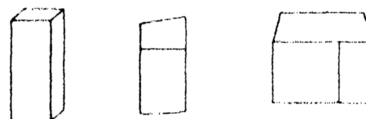
- o Ask for example
- § About favourite courses
- § Inquire about work
- § Hobbies
- § Reading
- § Favourite television programmes or current events
- o Explore such topics first with simple questions, then with more difficult ones.
- o Note the person's grasp of information, the complexity of the ideas expressed and the vocabulary used.
- o More directly specific facts can be asked such as:
- § The name of the president, vice president or governor
- § The names of the last four or five presidents
- § The names of five large cities in the country
- o *If considered in the context of cultural and educational background, information and vocabulary are fairly good indicators of intelligence.*

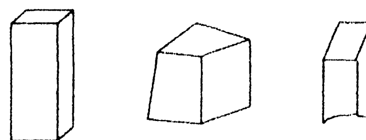
  They are relatively unaffected by any but the most severe psychiatric disorders and may be helpful for distinguishing mentally retarded adults (whose information and vocabulary are limited) from those with mild or moderate dementia (whose information and vocabulary are fairly well preserved)

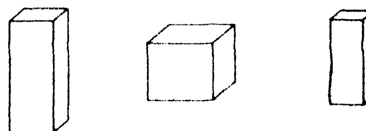
Language

- o 2 Points: If successful in identifying the object. Ask the patient name of a simple object like a pencil or pen by pointing it out.
- o 1 Point for not repeating, 'no, ifs, and, or, buts'
- o 3 Points for Three stage command
- o 1: Read and obey command
- o 1: Write a sentence
- o 1: Copy design
- o For eg: Reading: "Please read this and do what it says." Show examinee the words on the stimulus form. CLOSE YOUR EYES.
- o For eg: CONSTRUCTIONAL ABILITY: The task here is to copy figures of increasing complexity onto a piece of blank unlined paper. Show each figure one at a time and ask the patient to copy it as well as possible.

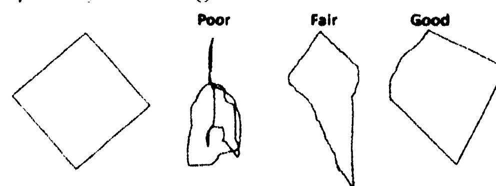




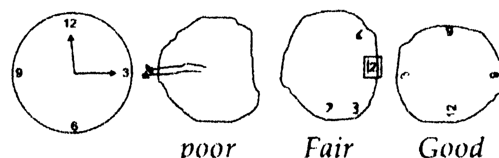




- o *The three diamonds below are rated poor, fair and good (but not excellent)*



- o In another approach, ask the patient to draw a clock face complete with numbers and hands. The example below is rated excellent.
- o *These three clocks poor, fair and good.*



poor Fair Good

- o *If vision and motor ability are intact, poor constructional ability suggests dementia or parietal lobe damage. Mental retardation may also impair performance.*
- o For eg: Abstract Thinking: Test the capacity to think abstractly in two ways.
- § PROVERBS: Ask the patient what people mean when they use some of the following proverbs:
- § A stitch in time saves nine.
- § Don't count your chickens before they are hatched
- § A rolling stone gathers no moss
- § *Note the relevance of the answers and their degree of concreteness or abstractness. For example, "You should sew a rip before it gets bigger" is concrete, whereas "Prompt attention to a problem prevents trouble" is abstract. Average patients should give abstract or semiabstract responses.*
- § SIMILARITIES: Ask the patient to tell you how the following are alike
- · A cat and a mouse.
- · An orange and an apple.
- · A temple and a hospital
- · A piano and a violin
- · A child and a dwarf.
- · Wood and coal
  - o Note the accuracy and relevance of the answers and their degree of concreteness or abstractness. For example, "A cat and a mouse are both animals" is abstract, "They both have tails" is concrete and "A cat chases a mouse" is not relevant.
  - o *Concrete responses are often given by people with mental retardation, delirium, or dementia, but may also be a function of limited education. Patients with schizophrenia may respond concretely or with personal, bizarre interpretations.*

REFERRAL FOR FORMAL NEUROPSYCHOLOGICAL EVALUATION

- · Localising areas of cerebral or cognitive dysfunction
- · Quantification
  - o Prior to resection: Epilepsy surgery
  - o Post stroke, head trauma
  - o Organic vs functional disorder

Homoeopathic Approach to Dementia

ABSTRACT: This article is an amalgamation of thedefinition, the epideauology, the etiology, the stages etc. As seen, the dementia becomes a difficult condition for many to treat, the homoeopathic therapeutics and posology would definitely help many.

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DEFINITION

Dementia can be defined as a progressive impairment of the cognitive functioning occurring in clear consciousness (in the absence of delirium). There is a chronic widespread dysfunction resulting in global impairment of intellect manifested by difficulty with memory, attention, thinking and comprehension.

EPIDEMIOLOGY

With aging population, the prevalence of dementia is increasing. The prevalence of mild to severe dementia in different population groups is ap-