

## REVERSIBLE DEMENTIAS

Old age is often viewed as a time when mental prowess begins an inevitable and irreversible decline. This is generally a benign process and is quite common. Nevertheless, a segment of geriatric population is affected by pathological cognitive dysfunction which can later advance to full-fledged dementia. which at present is currently thought to exist in about 10-15% of elderly in the west and 2-3% in India.

Dementia is defined as a progressive deterioration of memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement and may lead to impairment of emotional control, social behaviour, maturation and activities of daily living (ADL). Following are the DSM IV Diagnostic Criteria of Dementia: These are taken from Diagnostic and Statistical Manual of Mental Disorders (DSM). In brief, these include

(1). Presence of multiple cognitive deficits including memory plus at least one of the following: aphasia (difficulty in language), apraxia (difficulty in familiar tasks), agnosia (difficulty in recognising) and executive functioning despite being fully conscious.

(2). Should be a progressive disorder with impairment of occupational and/or social functioning without any disturbed consciousness, confusion or delirium\*.

(3). A medical condition or substance abuse or their combination can cause dementia

\* A patient can have delirium and dementia at different times.

There are more than 60 medical, psychiatric and neurological conditions associated with cognitive impairment and dementia most of which are chronic with a slow onset and are irreversible despite treatment. Alzheimer's disease is an example of such category. Few of the conditions however are not chronic, are temporary and are treatable. It is vital to recognize these **reversible dementias** and treat them While the irreversible dementias, in particular Alzheimer's disease have justifiably become the focus of extensive international research, there has

been relative neglect of the potentially reversible dementias which are often erroneously dubbed as chronic confusion , sub acute confusion or nondescript organic brain syndrome etc. The term “treatable dementia” was proposed in recognition of the fact that many cases of dementia improve or have their progress halted .It may however be noted that not all cases of reversible dementia stage a complete recovery in their cognition. This may be due to coexisting presence of irreversible dementia. Faced with the growing size of geriatric population , physicians are more likely to come across patients with cognitive impairment .

**Various classifications of reversible dementias** have been proposed from time to time but unfortunately there is no consensus for the same .One of them divides them into three groups .The first group is that of dementia secondary to specific disorders (normal pressure hydrocephalus , subdural hematoma or brain tumours ) ; the second group includes somewhat acute or subacute conditions (including vitamin B12 , folate or thiamine deficiency, hypothyroidism, vasculitis , chronic obstructive airway disease , sleep apnea hypoxia , dialysis, drug intoxication or electrolyte disturbances like low sodium state) .Finally the third group includes so called pseudodementias referring to those psychiatric disorders that may appear with global cognitive impairment .(examples are depression , late onset schizophrenia , mania and delusional disorders).

In greater detail, reversible dementias can be classified as below

**Intracranial conditions**

- Normal pressure hydrocephalus
- Meningioma
- Subdural hematoma
- Hydrocephalus
- Multiple sclerosis

**Systemic diseases**

- Hyponatremia
- Pulmonary insufficiency
- Severe anemia
- Chronic kidney failure
- Depression

**Deficiency states**

B 12 deficiency  
Pellagra-B-6 deficiency  
Folate deficiency

**Hormone diseases**

Hypothyroidism  
Hyperthyroidism  
Addison's disease  
Recurrent hypoglycemia  
Cushing's Disease

**Drugs and Metals**

Methyl Dopa  
Clonidine  
Fluphenazine  
Lithium  
Barbiturate  
Mercury, Arsenic, Thallium

**Exogenous toxins and industrial agents**

Alcohol  
Organophosphates  
Carbon mono oxide

**Infections**

Chronic meningitis  
Cerebral abscess  
Cysticercosis  
Progressive multifocal leukoencephalopathy

List of causes of reversible dementia therefore highlights numerous disorders that can lead to various cognitive disturbances. Depending on type and severity of any of these disorders , one can expect varying grades of dementia in individual patients . Further it is obvious that patients with several causative disorders listed here are often taken to neurologists and psychiatrists for help . However , an internist is likely to handle cognitively disturbed patients for the so called medical causes of reversible dementia such hyponatremia , hypoxia , renal failure , hypothyroidism , vitamin B12 deficiency , recurrent hypoglycemia , chronic

exposure to drugs and toxins including alcohol and chronic tubercular meningitis etc particularly in elderly individuals.

### **CLINICAL ASSESSMENT OF DEMENTIA**

From a professional point of view, assessment of dementia requires careful history taking from the patient as well as from his family members, a thorough physical examination by the physician, patient's cognitive testing by employing the well known mini mental state examination (MMSE), a complete neuropsychological evaluation, relevant laboratory investigations and the neuroimaging techniques (table) .

**TABLE : STEPS IN THE CLINICAL ASSESSMENT OF DEMENTIA**

HISTORY PHYSICAL EXAM COGNITIVE ASSESS	NEUROPSYCH ASSESS LAB. EVALUATION
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Patient's history should include an enquiry of the type of onset and progression of disease, type of cognitive defect(s) present, any history of associated diseases like hypertension, diabetes or seizures and any family history of dementia. Physical examination should lay emphasis on the type of patient's gait, and presence of rigidity and myoclonus, if any. Mini Mental State Examination (MMSE) tests orientation, working, episodic memory, language comprehension, naming and copying etc. It is however less sensitive in evaluating executive functioning and thus in the frontal lobe assessment. Neuropsychological assessment is for depression and many other symptoms which are often treatable. Laboratory investigations to be carried out as relevant to a particular case include testing for thyroid function, vitamin B 12, blood counts, ESR, sodium and potassium, VDRL, HIV, liver and kidney functions, cortisol, and CSF examination.

**From the above , we conclude :**

- 1.Cognitive dysfunction and dementia are common in elderly patients.

2. Although Alzheimer's disease which is irreversible form of dementia is the centre of main attention, there are causes which are reversible also.

3. Multiple medical illnesses cause reversible forms of dementia. Chronic alcoholism, depression, low sodium state (hyponatremia), chronic obstructive pulmonary disease (e.g. in heavy smokers), TB meningitis, Vitamin B12 deficiency, hypothyroidism and chronic kidney disease are some of them.

4. More than one cause may be operative in an individual case of dementia.

5. It may however be noted that not all cases of reversible dementia stage a complete recovery in their cognition. This may be due to coexisting presence of irreversible dementia.

6. The rapidity of development of any of these conditions has more detrimental effect rather than the condition itself.

**(Alzheimer's and Related Disorders Society of India-DC Souvenir, pages 38-39, 2010).**