

# **Clinical Practice Guidelines for Management of Alzheimer's Disease:**

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(First draft was prepared by Dr.K.S.Shaji .This was discussed on 17<sup>th</sup> &18<sup>th</sup> August 2006 during the National Workshop on Clinical Practice Guideline for Psychiatrists in India on Geriatric Psychiatry .This modified draft is for circulation among the membership of IPS .Comments and suggestions are invited.The final draft will be made after peer review)

According to the 2001 Census, India is home to more than 49 million people aged sixty five years and over. This age group, currently only 4.8% of the population, is expected to grow dramatically in the coming few decades. Analysis of the census data shows variations in the rate of demographic aging within India. At present 7.2 % of Kerala's population is older than 65 years. This proportion is as low as 3% in some other states. Regions with more favourable health indicators seem to be ageing faster and the demand for services will soon be evident in such places.

There is a growing realization that the care of older people with disabilities makes enormous demands on their carers. However even now, dementia remains a largely hidden problem in our country. Public awareness about the mental health problems of old age remains low. People do not differentiate between normal aging and phenomena that are secondary to conditions like dementia (Patel & Prince 2001). Dementia is not usually identified as a health condition. Even when it is identified, it does not lead to caregivers receiving practical advice or longer-term support (Shaji et al 2003).

## **Dementia: Public Health Aspects**

Prevalence studies have indicated a lower prevalence of dementia in India than in developed countries. The reported rates vary widely, from 1.4% to 4.4% (Chandra et al 1998; Vas et al 2001; Rajkumar et al 1996 &1997; Shaji et al 1996 &2004). It is estimated that there are already about 1.5 million people affected by dementia in India (compared with 2.9 million in the USA), but this number is likely to increase by 300% in the next four decades (Ferri et al 2005). This estimate is based on the premise that the Indian incidence rates are relatively low and will remain stable over time. The relatively high prevalence of smoking and the high and rising prevalence of type 2 diabetes are matters of concern in India. These coupled with anticipated life style changes could affect the incidence rates and lead to a higher than expected prevalence in the near future (Shaji & Dias 2006). The prevalence of vascular dementia and importance of vascular risk factors for dementia need to be addressed in future research.

Dementia-care extends beyond providing mere pharmacotherapy to the patient. It has an important social dimension to it and encompasses care at family and community levels. There is a need for efforts in developing innovative and user-friendly dementia care services in India. Resource limitations need to be taken into account while we think of new services. Clinicians could seek the partnership of the families and other organisations in service development. This chapter describes the management of people who suffer Alzheimer's Disease(AD). Aspects of management specific to the other diseases that produce dementia are not within the preview of this chapter.

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## **Clinical Features**

Alzheimer's disease usually presents with loss of memory, especially for learning new information, reflecting the disturbances of function of the anatomical sites (medial temporal lobe and the hippocampus) which are the primary focus of pathological change. Later in the illness other higher cortical functions (for example language, praxis, executive function) become affected and behavioural and psychiatric disturbances are seen. These have been referred to in the literature in a number of ways, including behavioural and psychological symptoms of dementia (BPSD), challenging behaviour, neuropsychiatric symptoms and, more recently, behaviour that challenges. Such symptoms commonly include depression, apathy, agitation, disinhibition, psychosis (delusions and hallucinations), wandering, aggression and incontinence. They are important because they are frequent symptoms which are often difficult to manage and cause great distress to individuals and carers. Sometimes AD can present initially as behavioural disturbance, language disturbance or praxis but these may also be manifestations of other causes of dementia.

Early diagnosis is important. A focused history, physical, mental status examination as well as assessment for evidence of functional impairment is crucial in the evaluation.

AD is characterised by a progressive decline in cognition and ability to function. Behavioural disturbances can occur early, but tend to become more frequent as the severity of dementia increases. As independence is lost people become unable to care for themselves, dress, wash and toilet. There may be brief plateaus during the illness but decline is fairly consistent, tending to increase or accelerate.

## **Assessment**

The first part of clinical assessment is aimed at establishing the cause of dementia syndrome. It is important to remember that patients seeking help in clinical settings are not representative of the cases in the community. Reversible causes are more common in clinical settings. Early identification of reversible causes could improve the treatment outcome. Investigations should be targeted at identifying the treatable causes of the dementia syndrome. Routine investigations should include complete blood count, erythrocyte sedimentation rate, and serum/blood levels of urea, electrolytes, calcium and phosphate, liver, renal and, thyroid function tests, urine analysis, VDRL and Serum B<sub>12</sub>, and Folate levels. CT scan or MRI scan, at times, can be a very useful investigation in the differential diagnosis of dementia. Investigations for testing the HIV status, ECG, Chest radiograph, Electroencephalogram, Neuropsychological assessment etc are investigations worth considering.

Assessment of the following will help in planning the management:

- Daily function, including feeding, bathing, dressing, mobility, toileting, continence and the ability to manage finances and medications
- Cognitive status using a reliable and valid instrument (e.g. the MMSE)
- Other medical conditions
- Behavioral problems, psychotic symptoms, or depression
  - Reassessment should occur every 6 months or more frequently with any sudden decline or behavioral change.
  - Identify the primary caregiver and assess the adequacy of family and other support systems.
  - Assess the patient's decision-making capacity and whether a surrogate has been identified.

- Caregiver's needs and risks should be assessed and reassessed on a regular basis.
- Assess the patient's and family's culture, values, primary language, literacy level and decision-making process.

A detailed history is crucial, and a reliable informant should be interviewed alone. This will allow the informant to divulge information which otherwise is difficult to discuss in the presence of the patient. Delirium is an important differential diagnosis of dementia especially in the elderly. It is worth remembering that patients with pre-existing dementia could present to the hospital for the first time following the development of delirium. History of sudden worsening of cognitive functions along with sudden appearance of behavioural disorder should alert the clinician to the possibility of delirium. Delirium needs to be identified if it is present.

A diagnosis of dementia cannot be made if the cognitive deficits occur exclusively during the course of delirium (DSM-IV criteria APA, 1994)

Delirium is a clinical diagnosis. According to DSM-IV (APA, 1994), Delirium is characterised by a disturbance of consciousness and a change in cognition that develop over a short period of time. The disorder has a tendency to fluctuate during the course of the day, and there is evidence from the history, examination or investigations that the Delirium is a direct consequence of a general medical condition, substance intoxication or withdrawal.

According to DSM IV (APA, 1994), in order to make a diagnosis of Delirium, a patient must show each of the features A - D listed below :

- A. Disturbance of consciousness (i.e. reduced clarity of awareness of the environment) with reduced ability to focus, sustain or shift attention.
- B. A change in cognition (such as memory deficit, disorientation, language disturbance) or the development of a perceptual disturbance that is not better accounted for by a pre-existing or evolving Dementia.
- C. The disturbance develops over a short period of time (usually hours to days) and tends to fluctuate during the course of the day.
- D. There is evidence from the history, physical examination, or laboratory

#### **findings:**

- (1) that the disturbance is caused by the direct physiological consequences of a general medical condition, and/or
- (2) that the symptoms in Criterion A and B developed during substance Intoxication, and/or
- (3) that medication use is etiologically related to the substance, and/or
- (4) that the symptoms in Criterion A and B developed during, or shortly after, a withdrawal syndrome, and/or
- (5) the delirium has more than one aetiology (e.g. more than one etiological general medical condition, a general medical condition plus substance intoxication or medication side effect). Importantly, as noted above, Delirium may have more than one causal factor (i.e. multiple aetiologies). Central to the concept of Delirium is a disturbance in consciousness as manifested by attention deficit. Attention deficit can lead to disorganised thinking resulting in incoherent or rambling speech and impairments in memory. Disorientation to time and place are often present although disorientation to person is rarely seen. Many patients describe persecutory delusions and bizarre thoughts and

images. Perceptual abnormalities, typically in the visual modality, may include distortions, illusions and frank hallucinations. Hallucinations occur less frequently in the elderly than the middle-aged. The aetiology of delirium is multifactorial, involving the interrelationship of predisposing and precipitating factors.

**Common causes of Delirium include:**

- Infection (e.g. pneumonia, urinary track infection, etc.);
- Drugs (particularly those with anticholinergic side effects e.g. antidepressants, antiparkinsonian /anticholinergic drugs, sedatives, etc.);
- Cardiological (e.g. myocardial infarction, heart failure);
- Metabolic imbalances (e.g. secondary to dehydration, renal failure);
- Endocrine and metabolic (e.g. cachexia, thiamine deficiency, thyroid dysfunction)
- Neurological (e.g. stroke, subdural haematoma, Epilepsy)
- Substance intoxication or withdrawal (e.g. alcohol)
- Respiratory (e.g. pulmonary embolus, hypoxia).

Clinician should take care, not to misdiagnose Delirium as Dementia .Care should also be taken not miss the diagnosis of Delirium when a patient with dementia develops Delirium during the course of the illness.

Cognitive assessment can be made as part of detailed examination of higher functions. Commonly used instruments like Mini-Mental State Examination (MMSE) (Folstein et al 1975) can be used. Addenbrooke's Cognitive Examination (ACE) is a more detailed test battery for assessing cognitive functions (Mathurnath et al 2000). Assessment of the activities of daily living is very important. This information is essential in formulating the individualised plan of intervention. Everyday Activities Scale for India (EASI) developed during the Indo-US Cross-National Dementia Epidemiology Study (Fillenbaum et al 1999) is useful for this purpose, especially in the rural illiterate. Use of simple instruments like the Clinical Dementia Rating Scale (Morris 1993) can help in assessing the severity of dementia in routine clinical practice. Assessment of non-cognitive symptoms like Behavioural and Psychological Symptoms of Dementia (BPSD) is yet another important part of clinical assessment. Two commonly used scales for assessment of these symptoms are the Neuropsychiatric Inventory (NPI) (Cummings et al 1994) and the BEHAVE-AD( Riesberg et al 1987) Both these scales use the caregiver interview for rating behavioural symptoms. Knowledge of instruments like MMSE, ACE, EASI, Behave-AD and NPI is helpful in the detailed and effective assessments of patients with dementia.

**Diagnosis**

Advances have been made in the clinical diagnosis and treatment of Alzheimer's disease. The criteria established by the National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association,(McKhann et al 1984) and Diagnostic and Statistic Manual of Mental Disorders,4<sup>th</sup> Edition (APA 1994) are reliable and commonly used(Knopman et al 2001).

The criteria for AD proposed by DSM IV , National Institute of Neurological and Communicative Disorders and Stroke and the Alzheimer's Disease and Related Disorders Association, (NINCDS-ADRDA) and ICD-10 may be used for clinical diagnosis of AD.

After detailed assessment usually, the clinician would be in a position to judge the cause of the dementing illness. However at times, even the distinction between Vascular Dementia and Alzheimer's Disease (AD) may appear difficult. Clinical recognition of the subtypes of dementia is important during the early part of the illness. This is especially true for the differentiation of Lewy Body Dementia (LBD), Frontotemporal Dementia (FTD) and AD. Such differentiation is feasible in clinical practice by using clinical criteria. However ,this is not possible if one uses DSM IV where all neurodegenerative dementia's will meet criteria for AD.

A diagnosis of LBD is especially important for the clinician since this would indicate a better response to drugs like cholinesterase inhibitors. Furthermore, its important to avoid the use of antipsychotics, especially the typical antipsychotics in these patients because of the high risk of precipitating neuroleptic sensitivity.. Identification of Dementia with Lewy bodies is clinically possible using the consensus criteria(Mckeith et al 1996)

### **Consensus Criteria for the Clinical Diagnosis of Probable and Possible Dementia With Lewy Bodies**

1. The central feature required for a diagnosis of dementia with Lewy bodies is progressive cognitive decline of sufficient magnitude to interfere with normal social or occupational function. Prominent or persistent memory impairment may not necessarily occur in the early stages but is usually evident with progression. Deficits on tests of attention and of frontal-subcortical skills and visuospatial ability may be especially prominent.
2. **Two** of the following core features are essential for a diagnosis of **probable** dementia with Lewy bodies, and **one** is essential for **possible** dementia with Lewy bodies:
  - a. Fluctuating cognition with profound variations in attention and alertness
  - b. Recurrent visual hallucinations that are typically well formed and detailed
  - c. Spontaneous motor features of parkinsonism
3. Features supportive of the diagnosis are:
  - a. Repeated falls
  - b. Syncope
  - c. Transient loss of consciousness
  - d. Neuroleptic sensitivity
  - e. Systematized delusions
  - f. Hallucinations in other modalities
4. A diagnosis of dementia with Lewy bodies is less likely in the presence of:
  - a. Stroke disease, evident as focal neurologic signs or on brain imaging
  - b. Evidence on physical examination and investigation of any physical illness or other brain disorder sufficient to account for the clinical picture

(McKeith IG, Galasko D, Kosaka K, et al: For the Consortium on Dementia with Lewy Bodies. Neurology

## Management of Alzheimer's Disease

### 1. General Measures

**Information & Education.** This would include educating the family and the caregivers about the illness and its management. Dementia has to be differentiated from normal aging. The family should be made to realize that Alzheimer's dementia is a disease common among older people, and not a consequence of normal aging. Special care needs to be taken to explain the behavioural symptoms as well as impairment in basic activities of daily living. The relatives could easily misinterpret these symptoms as deliberate misbehaviour especially when the general awareness of dementia as a disease state is low. The caregiver training manual developed by the Indian Network of 10/66 Dementia Research Group can be used for this. Caregiver guides and more information for families are available on the website of Alzheimer's Disease International ([www.alz.co.uk](http://www.alz.co.uk)) as well as the website of Alzheimer's and Related Disorders Society, India ([www.alzheimerindia.org](http://www.alzheimerindia.org)).

**Communication & consent.** Following early diagnosis or on suspicion of a progressive dementing illness, certain facts should be discussed with the patient and the family. It is advisable and helpful if early in the course of the illness the patient makes an enduring power of attorney, settles the will, and along with the other members of the family discusses with the doctors on how they wish to be treated once the disease is advanced. Vas et al (1999 & 2001) have highlighted the relevance of this in an Indian set-up. This helps the family and friends of the patients to anticipate future disabilities, make alternate plans and facilitate medical management in those with advanced disease. For example a patient with early onset dementia could take voluntary retirement from service following the diagnosis of a progressive dementia. Alternate arrangements to manage finance can be made early, as the patient's capacity to give consent will be lost during the course of the illness. The patient should be assessed periodically to evaluate his capacity for judgment and for giving informed consent. All aspects of management need to be discussed with the family as it is particularly important for one of the members in the family to assume the decision making role for and on behalf of the patient. The treating physician needs to sensitise the carers and other responsible family members to these aspects.

**Caregiver Support.** Dementia care is often associated with negative effects on the carer and the family. Caregivers do not seek or get help from the existing health services. Identifying and supporting the caregiver is an important intervention strategy in dementia care. Offering emotional support is an essential component of it. Most often the primary caregiver needs to talk to someone about the difficulties associated with caring. It is important to give such opportunities during the follow up consultations. Primary caregiver and the other family members should be informed about the importance of supporting each other and sharing the caring responsibilities.

**Respite Care.** Home care is a convenient option for mild or moderately advanced patient. This is complemented by the availability of respite care. Respite care is useful in moderately advanced cases, and consists of a professional care-giver who can provide respite for a specified duration of time to the care giver at home. However, professionally trained personals who can deal with patients with dementia effectively are sparse. Respite can also come from a professionally run

service of a day-care-centre for dementia which can provide a more effective and sustained respite. Institutional care is helpful in severely advanced cases. However, the existence of specialised institutional care for dementia is almost nonexistent in India.

## 2. Management of Symptoms of Alzheimer's Disease

Beta-amyloid peptide seems to exert its neurotoxic effects through a variety of secondary mechanisms, including oxidative injury and lipid peroxidation of cell membranes, inflammation, hyperphosphorylation of tau protein, and increased glutamatergic excitotoxicity. Neuroprotective strategies have targeted these mechanisms in an effort to reduce the cell injury associated with the generation and aggregation beta-amyloid. Proof that these approaches are neuroprotective in humans is lacking; available data from animal models make this mechanism of activity most plausible. The principal antioxidant strategy has involved treatment with alpha-tocopherol (vitamin E). A randomized, placebo-controlled trial compared the effect of vitamin E, selegiline, the two drugs together, and placebo in patients with Alzheimer's disease. There is no evidence to for the use of anti-inflammatory agents or hormone replacement therapy (Cummmings 2004)

Since there are no effective treatments known to arrest the progression of Alzheimer's Disease, the management aims to reduce the distressing symptoms and minimise the functional disability. It is neither necessary nor possible to treat all symptoms of Alzheimer's Disease. Symptoms can be broadly classified as cognitive symptoms and non-cognitive symptoms. Non-cognitive symptoms can be subsumed under two categories. First and the most important category consist of a wide variety of Behavioural and Psychological Symptoms of Dementia (BPSD). The other category consists of inabilities arising out of impairment in Activities of Daily Living (ADL). Cognitive symptoms consists of difficulties with memory, language visuospatial orientation, executive functions etc.

### Management of Cognitive Symptoms.

Cognitive impairment is a core feature of dementia. Cognitive rehabilitation techniques aim to reduce the disability due to the cognitive impairment than to improve cognition. Though psychological methods like reality orientation, reminiscence therapy and validation therapy had been tried, there is very little evidence to support its use in clinical practice (APA 1997). Cholinesterase inhibitors like Donepezil, Rivastgmine, Galantamine and NMDA –receptor antagonist like Memantine, are available in India. They may be used as per the dosages which are reportedly effective in AD (See Table-1).

**Table 1.**  
**Agents Useful for Reducing the Signs of Dementia**

Drug	Donepezil	Rivastgmine	Galantamine	Memantine
Dose	5mg to 10 mg daily	1.5 mg twice daily to 6 mg twice daily	4 mg twice daily to 12 mg twice daily	5 mg daily to 10 mg twice daily

Cholinesterase inhibitors, have been shown to be effective in patients with mild to moderate dementia. They are indicated in patients with mild to moderate dementia. (Cummings et al 2004) Following guidelines are helpful in prescribing cholinesterase inhibitors.

- A. Prescription only for patients- a) fulfilling criteria for probable AD, b) Duration of illness being more than 6 months, and c) with MMSE more than 10 (i.e., mild or moderately severe dementia).
- B. Three phase evaluation of response- a) early (2 weeks) for assessing tolerance and side effects, b) later (3 months) for cognitive state, c) continued (6 months) for disease state.
- C. Stop treatment- a) if early evaluation shows poor tolerance or compliance, b) if deterioration continues at pre-treatment rate after 3-6 months of treatment, c) if even after reaching maintenance dose accelerating deterioration continues, d) if a drug-free period of 3-4 weeks suggests that the drug is no longer helping.

### ***Management of Behavioural and Psychological Symptoms of Dementia.***

Behavioural and Psychological Symptoms of Dementia (BPSD) is a term used to describe a heterogeneous range of psychological reactions, psychiatric symptoms, and behaviours occurring in people with dementia of any aetiology (Finkel et al 1996). It represents an important clinical dimension of dementia that has until recently been ignored from both research and therapeutic points of view. Because of their frequency and their adverse effects on patients and their caregivers, these disturbances should be ascertained and treated in all cases of dementia. Remission or reduction of BPSD is also known to produce remarkable improvement in the functional abilities of the patient.

Observable abnormalities in behaviour are designated as behavioural symptoms of dementia. This includes symptoms like aggression, wandering, agitation etc. Psychological symptoms are those symptoms, which are commonly seen, in psychiatric illness. Delusions, hallucinations, depression, anxiety and sleep disturbance etc are commonly seen psychological symptoms. Together, these two sets of symptoms are referred to as BPSD. First of all, the clinician has to decide whether there is any indication for the treatment of BPSD. For example presence of a delusion that "people are stealing things" by itself will not be an indication for treatment. However if that delusion is accompanied by other delusions, sleep or activity disturbances or distress to care giver, then active treatment will have to be considered.

### ***Non-Pharmacological Management of BPSD***

Maximising the functional independence and improving the quality of life of the patient as well as the carer is the goal of interventions. Non-pharmacological interventions usually form the first line of treatment and should form the background for all pharmacotherapy. Non-pharmacological treatment of BPSD can be described as the practice of the art of medicine. For this, creativity is a necessary ingredient and one should be willing to experiment using a problem solving approach. In the management of BPSD, the clinician should look for treatable factors like unmet needs, pain, hunger, wetness etc. All of these factors can initiate or sustain BPSD. Identification and removal of these factors will eventually lead to reduction of BPSD. A predictable environment is always better tolerated by patients. Distracting and redirecting the patient to some other activity can terminate certain undesirable behaviours. The carer has to develop new communication strategies. One should learn to interpret certain behaviours as indicative of certain needs. Simple and short sentences need to be

used instead of long sentences. Nonverbal communication should be encouraged. Confrontation has to be avoided and caregivers need to use praise & encouragement instead.

### ***Pharmacological Management of BPSD:***

Pharmacological management is useful in the management of certain patients with BPSD. It is important to remember that there is a high placebo response rate. Given the current knowledge, it is better to monitor behavioural symptoms at least for one month before starting pharmacological treatment, unless symptoms are extremely distressing. Use of conventional antipsychotics is limited by their side effect profile. Antipsychotic medications, especially atypical antipsychotic drugs are widely used to treat these symptoms. Concerns have arisen about the increased risk for cerebrovascular adverse events, rapid cognitive decline, and mortality with their use. Their use should be considered within the context of medical need for the drugs, efficacy evidence, medical comorbidity, and the efficacy and safety of alternatives.

The appropriate initial management approach depends on the nature of symptom, its severity, frequency and impact, and the situation in which it occurs. For drug treatments the '3T' (Target, Titration, Time) approach is good practice: (1) drug treatments should have a specific **target** symptom (2) the starting dose should be low and then be **titrated** upwards (3) drug treatments should be **time** limited.

For less severe BPSD and where management is not urgent, then any combination of drug, environmental manipulation or behavioural treatments may be appropriate first-line approaches. However, practitioners should be aware that no single non-pharmacological intervention (e.g. multi-sensory stimulation, bright light therapy, aromatherapy etc.) has an evidence base that would justify its use as a direct alternative to antipsychotic medication

Judicious use of small doses of atypical antipsychotics can be useful in the management of BPSD especially when psychotic symptoms and agitation are present. Drugs like Risperidone and Olanzapine are rather inexpensive and widely available in India. Risperidone in doses of 0.5 mg to 1 mg per day is often effective. Similarly, low dose of olanzapine between 1.25 to 5 mg per day is also effective. Sedation, however, may be a troublesome side effect in some patients. Both conventional as well as atypical antipsychotics are to be used with caution as there is increasing concern about their safety following reports of increased incidents of cerebrovascular adverse events and mortality in older people with dementia following the use of these drugs (Gill et al 2005). Cholinesterase Inhibitors may help in reduction of behavioural symptoms. It is also speculated that patients who are on these drugs might have lesser prevalence of BPSD. (Cummings et al 2000)

Depressive symptoms are very frequently seen along with the dementia syndrome. Antidepressant drugs, especially selective serotonin re-uptake inhibitors like citalopram, sertraline or mirtazepine can be used to treat depressive syndrome. The doses required is similar to that prescribed for adults. Benzodiazepines are best avoided as they have not been shown to be of use. Patients with REM sleep Behavioural Disorder will benefit from small doses of clonazepam. People have successfully tried anticonvulsants like Sodium Valproate for control of symptoms like agitation. (Tariot et al 2000) The use and combinations of pharmacological agents should be decided on a case-by-case basis. Please refer to Table -2 which describes the use of pharmacological agents in management of BPSD (Cummings 2004).

**Table-2. Psychotropic Agents Useful for the Treatment of Neuropsychiatric Symptoms and Behavioural Disturbances in Patients with Alzheimer's disease**

Type and Drug	Initial Daily Dose	Final Daily Dose (Range)	Targeted Symptoms
<b>Atypical antipsychotic</b> Risperidone Olanzapine Quetiapine Ziprasidone Aripiprazole  <b>Neuroleptic</b> Haloperidol	0.5 mg daily 2.5 mg daily 25 mg daily 20 mg daily 10 mg daily  0.25 mg daily	1.0 mg (0.75-1.5 mg daily) 5.0 mg (5-10 mg daily) 200 mg (50-150 mg twice a day) 40 mg (20-80 mg twice a day) 10 mg (10-30 mg daily)  2 mg (1-3 mg daily)	Psychosis and agitation       Psychosis and agitation
<b>Mood stabilizer</b> Divalproex sodium Carbamazepine	125 mg twice a day 200 mg twice a day	500 mg (250-500 mg twice a day) 400 mg (200-500 mg twice a day)	Agitation
<b>Selective serotonin-reuptake inhibitor</b> Citalopram Escitalopram Paroxetine Sertraline Fluoxetine	10 mg daily 5 mg daily 10 mg daily 25 mg daily 5 mg daily	20 mg (20-40 mg daily) 10 mg (10-20 mg daily) 20 mg (10-40 mg daily) 75 mg (75-100 mg daily) 10 mg (10-40 mg daily)	Depression, anxiety, psychosis, and agitation
<b>Tricyclic antidepressant</b> Nortriptyline Desipramine  <b>Serotonin and noradrenergic-reuptake inhibitor</b> Venlafaxine  <b>Noradrenergic and specific serotonergic antidepressant</b> Mirtazapine	10 mg daily 10 mg daily  25 mg twice a day  7.5 mg daily	50 mg (25-100 mg daily) 100 mg (50-200 mg daily)  200 mg (100-150 mg twice a day)  15 mg (15-30 mg daily)	Depression   Depression and anxiety   Depression

**Management of Impairments in Activities of Daily Living:**

Assisting a demented elderly person with impaired activities of daily living can be a demanding task for the carer. There are many sources from which the carer can access advice and further information to be effective in providing such care. This includes reading material in the form of booklets published by Alzheimer's and Related Disorder's Society of India ( [www.alzheimerindia.org](http://www.alzheimerindia.org)) and Alzheimer's Disease International <http://www.alz.co.uk> . Websites of these organisations will also give necessary guidelines

### **3. Management of Co-morbidity:**

One should look for, recognize and treat at the earliest, all co-morbid conditions in a patient with dementia. sensory deprivation should be minimized by treating cataract and removing earwax and/or providing hearing aids. Dental and oral hygiene should be maintained; constipations, pneumonia, urinary infections should be treated; and nutrition should be improved. Falls and fractures should be prevented by taking appropriate precautions. Periodic review of the patient's prescription, elimination of all non-essential drugs, minimizing the number of medications on prescription, and appropriately dosing the medications all form an integral component of effective long-term management. Maintaining a daily routine, monitoring fluid balance, nutrition and body weight, training and regularization of toilet habits, meticulous management of incontinence and ensuring adequate and undisturbed sleep at night, constitute a part of effective management strategy. Management of the extra personal environment by providing a clean and levelled flooring without too many obstacles on it; padded clothing to minimize injuries in cases of falls; well lit rooms; modifying the toilets to make them more user-friendly for the patients and providing them close to the patient's bed; grab rails in toilet, stairways and, if required, in the rooms; regularizing meal-timings and sleeping hours; in selected cases, change of life-style and diet to modify the potentially modifiable risk factors should also be instituted. These measures are useful in all but the terminal stages of dementia and are effective in all types of dementia.

### **4. Plan for Future Care.**

Dementia care is generally a long-term affair. Things could get out of control with passage of time. Caregivers and the family members should be able to get help when faced with a crisis situation. Offer of future help especially in times of distress, will be greatly valued by the carers. Long-term follow-up care need to be planned. The caregivers should to be seen at regular intervals. The family need to be clearly told about their options in seeking help in times of need as and when it arises.

It is unrealistic and probably unfeasible to seek to develop a whole new community outreach service dedicated to providing community assessment and care for older persons with dementia. Instead, one can use existing services that already possess some capacity for community-based domiciliary care, focussing upon increasing their skills and extending their roles.

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