UNIT NO. 3

# TREATMENT OF DEMENTIA – AN OVERVIEW

Dr Joshua Kua Hai Kiat


## ABSTRACT

**The various treatment strategies in dementia target the 'ABC' domains of the disease: 'ADL-Activities of daily living (ADL) or the functioning level', 'BPSD' (Behavioural and Psychological Symptoms of Dementia), and 'Cognitive' functions. The holistic treatment of dementia encompasses pharmacological and psychosocial interventions for the patients as well as supportive services for the caregivers. Specific pharmacological agents that can be used include the cholinesterase inhibitors (ChEIs) and NMDA-Antagonist. Antipsychotics, antidepressants, and benzodiazepines may be used at times. Psychosocial management includes environmental interventions, behavioural interventions, as well as recreational and adjunctive therapies. Dementia related services include: dementia day care centres, support group for carers, home care services, counselling services, nursing home for people with dementia, community hospitals and specialist services in acute hospitals. Medico-legal issues faced by patients with dementia include decisional capacity and driving risk assessment. The integration of such services is a major challenge. Primary care practitioners can play a bigger role by participating in training and shared care programme.**


**SFP 2008; 35(1): 71-77**

## INTRODUCTION

Despite advancement in pharmacological management of dementia in the last decade, 'treatment' in the context of dementia is not in the sense of cure. The treatment of dementia, in a broad and holistic sense, encompasses pharmacological and psychosocial interventions, usually delivered most effectively by a multi-disciplinary team from various healthcare and social facilities. Not all demented patients will be under the care of specialist health service and primary care can play a key role.

The family plays a central role to enable patients with dementia to receive care at home for as long as possible. A realistic management plan needs to be formulated to address the care needs of the patient based on the patient's cognitive and functioning level as well as the presence of any BPSD. The plan should reflect the wishes of the patient and caregivers as much as possible.

JOSHUA KUA HAI KIAT, Chief & Senior Consultant, Department of Geriatric Psychiatry, Institute of Mental Health

## THE 'ABC' OF DEMENTIA

The various treatment strategies usually target the 'ABC' domains of the disease: 'A' for 'ADL-Activities of daily living (ADL)' or the functioning level of the patient. 'B' refers to 'BPSD – Behavioral and Psychological Symptoms of Dementia', defined by Finkel and Burns as "Symptoms of disturbed perception, thought content, mood, or behaviour that frequently occur in patients with dementia", and 'C', the 'Cognitive' functions.

## I. PHARMACOLOGICAL INTERVENTIONS

All dementia patients should be evaluated for suitability of pharmacological strategies to:

- Reverse or stabilize the underlying disease
- Improve cognitive symptomatology
- Treat behavioural, mood or psychiatric symptoms associated with dementia

### Pharmacological interventions to reverse or stabilize the underlying disease

Pharmacological strategies to address the underlying disease include:

#### 1. Treating identifiable reversible causes

Treatment of potentially reversible causes often arrests the underlying pathophysiology but may not reverse the dementia. For examples:

- Replace deficiency states (e.g. B12 deficiency, hypothyroidism)
- Correct metabolic abnormalities (e.g. hypercalcemia, hypoglycemia)
- Treat infections (e.g. neurosyphilis)

#### 2. Reduction of vascular risk factors

Vascular risk factors are important in vascular dementia (VaD) and Alzheimer's disease (AD). Thus, vascular risk factors (such as hyperlipidemia, hypertension, diabetes mellitus, atrial fibrillation, smoking) should be sought for and managed in all dementia patients. For example:

- Treatment of hyperlipidemia, hypertension, diabetes mellitus, and smoking cessation
- Anti-platelet agents for secondary stroke prevention
- Anti-coagulation for atrial fibrillation and cardioembolic strokes

### Improve cognitive symptomatology

Currently, the established modalities for dementia treatment are considered to be primarily symptomatic rather than disease modifying.

## 1. Cholinesterase Inhibitors (ChEIs)

The basis of ChEI use in patients with Alzheimer's dementia is the cholinergic hypothesis, which states that many of the cognitive, functional and behavioural symptoms derive from an absolute or relative deficit in brain acetylcholine activity. The current available ChEIs include donepezil, rivastigmine and galantamine.

Meta-analysis[1] has indicated that ChEIs confer a modest but significant therapeutic benefit in the treatment of mild to moderate AD. Patients in whom the start of AchEI treatment is delayed may demonstrate slightly reduced benefits as compared with those started on AchEI early in the course of disease[2]. There is growing evidence to support their efficacy in treating moderate-to-severe AD[3-4]. ChEIs are generally well tolerated, with side effects that tend to be dose-related and are most problematic during dose titration. A common pattern of response to treatment is initial improvement in cognition, followed by maintenance of cognitive gains above baseline for up to 1 year. This improvement is best detected by family and by objective cognitive tests such as the Mini Mental State Examination (MMSE). Furthermore, long-term studies suggest that early diagnosis and treatment with ChEIs yield better long-term outcomes[5].

Small et al[6] reported that projected mean scores in model-based untreated patients declined below 10 points on the MMSE at about 3 years, while the mean MMSE score of patients who remained on rivastigmine stayed above 10 points for 5 years.

### *Vascular dementia (VaD)*

Cerebrovascular disease (CVD) frequently contributes to cognitive loss in patients with Alzheimer's disease (AD). Cholinergic deficits in vascular dementia (VaD) are due to ischemia of basal forebrain nuclei and of cholinergic pathways and can be treated with the use of the cholinesterase inhibitor used in AD. Controlled trials with donepezil, galantamine and rivastigmine in VaD, as well as in patients with AD plus CVD, have demonstrated improvements in cognition, behaviour and activities of daily living[7-9]. However, no AchEI has been licensed for the treatment of vascular dementia.

### *Parkinson's Disease Dementia (PDD)*

Cholinesterase inhibitors have also been used in Parkinson Disease Dementia. A review by Maidment et al[10] concluded that ChEIs have a moderate effect against cognitive symptoms. Tolerability including exacerbation of motor symptoms – in particular tremor – may limit the utility of cholinesterase inhibitors.

### *Dementia with Lewy Bodies (DLB)*

Rivastigmine has been shown to significantly reduce the core psychiatric symptoms of apathy, anxiety, delusions and hallucinations while enhancing cognitive performance in tasks with a substantial attentional component, without worsening the motor symptoms of Parkinsonism[11-13]. The effect size is greater than that seen for a functional or global improvement in most trials of cholinesterase inhibitors in AD patients. In a case series of nine patients, donepezil appeared to improve hallucinations and overall function[14].

## 2. NMDA-Antagonist

Memantine is currently the only available agent in this class. It may prevent glutamate-induced excitatory neurotoxicity in dementia. Memantine has been approved for the treatment of moderate to severe AD based on two landmark studies[15-16].

A review by Rossom et al[17] suggests that memantine is well tolerated in the treatment of moderate to severe VaD or AD, either as monotherapy or in combination with donepezil. It appears effective in improving cognitive, functional, and global outcomes in moderate to severe AD and in improving cognitive end points in mild to moderate VaD.

A Cochrane review[18] suggests that for moderate to severe AD, memantine has a small beneficial effect at six months on cognition, activities of daily living and behaviour, supported by clinical impression of change. A recent study of memantine use in mild-to-moderate AD reported a small beneficial effect on cognition and behaviour, but not function[19]. Taken together, memantine may provide a treatment option if AchEI treatment is contra-indicated, not tolerated, or if there is disease progression despite an adequate trial of AchEI.

Despite the evidence of efficacy from clinical studies, there is debate over whether AchEI and NMDA-antagonist therapy are cost effective, because the treatment effects are small and not always apparent in practice[20-23].

## Behavioural and Psychological Symptoms of Dementia (BPSD)

Evidence suggests that a cholinergic deficit resulting from a loss of cholinergic neurons is the biological basis of some BPSD in AD and related dementias. The review of the studies favours a benefit of the ChEIs in reducing BPSD. In some studies, specific behavioural symptoms, particularly apathy and hallucinations, were reduced[24]. Cholinesterase inhibitor therapy may be considered in treatment of patients with behavioural problems if antipsychotics are inappropriate. For patients with Dementia with Lewy Body and behavioural problems, acetylcholinesterase inhibitors should be considered first for management of the behavioural problems.

## Antipsychotics

Approximately 40% AD patients will experience psychotic symptoms at some stage during the course of cognitive decline. Presence of early psychotic symptoms may indicate more rapid deterioration, greater risk of behavioural disturbance and earlier need for institutionalization.

Conventional antipsychotics have been shown to be superior to placebo in controlling agitation & psychosis[25-26]. However, the effects are modest as reported in two meta analysis[27-28]. In addition, they are associated with treatment-emergent side

effects, e.g. extrapyramidal symptoms (EPS) with high potency agent like haloperidol, postural hypotension and anticholinergic side effects with low potency agents such as chlorpromazine. Demented patients are also much more at risk of developing tardive dyskinesia. Hence, these agents should be used with extreme caution- with lowest possible dose, minimal duration and close review- and only when other options have failed. The use of anticholinergic agent such as benzhexol to reverse the EPS of conventional antipsychotics should be avoided as they are likely to increase cognitive impairment.

Atypical antipsychotics such as risperidone, olanzapine, and quetiapine are at least as effective as conventional antipsychotics, are better tolerated, and have a lower propensity for EPS[29-30] . But they are associated with increased mortality and stroke in elderly patients with dementia[31-32].

In an observational database study, Gill and colleagues[33] confirmed the increased risk of death among patients given atypical antipsychotics compared with untreated patients. However, the risk of death with typical antipsychotics was even higher.

Hence, antipsychotics should be regarded only as 'rescue' medications for acute-onset (over hours or days) or for severe chronic BPSD, or used in patients who are aggressive, psychotic and/or present a danger to themselves or others. If atypical antipsychotics are prescribed, physicians should screen for risk factors for both stroke and cardiovascular disease when initiating treatment. Regular monitoring should be undertaken if patients with chronic behavioural problems receive antipsychotic maintenance therapy.

Several randomized placebo-controlled studies[34-35] have suggested that antipsychotics can be withdrawn in most patients without exacerbating behaviour. It is recommended that clinicians consider tapering and withdrawing antipsychotics used to treat behavioural and psychological symptoms after about 3 months of behavioural stability.

Patients suffering from Dementia with Lewy Bodies (DLB) should not be prescribed conventional antipsychotics as severe and sometime fatal sensitivity to conventional antipsychotics and atypical antipsychotics have been reported[36].

### Antidepressants

Depression is among the most frequent of the neuropsychiatric comorbidities in AD, affecting up to 50% of AD patients. Untreated depression is associated with severe negative consequences for patients and caregivers. Despite having a presentation in the context of AD that differs from typical 'geriatric' depression, it can be detected and quantified reliably in AD patients.

Both tricyclic antidepressants (TCA) and Specific Serotonin Reuptake Inhibitors (SSRI) have been shown to be moderately effective in treating depression in AD patients[37-38]. TCAs are often associated with side effects such as postural hypotension and those related to its anti-cholinergic properties. They should be avoided in general. If they were to be used, secondary (e.g. nortriptyline) rather than tertiary amines (e.g. amitriptyline, dothiepin) are preferred.

The first choice anti-depressant for treating depression in demented patients should be an SSRI, given their demonstrated efficacy and safety in patients with mild to moderate Alzheimer disease[39-40]. There are suggestions that SSRI may also have a beneficial effect on anxiety, agitation[39] and psychotic symptoms[37] in dementia.

The side effects of SSRIs are generally mild. However, they can potentially cause SIADH resulting in hyponatremia. Some also have potentially clinically significant interaction with other drugs via the Cytochrome P450 enzymes in the liver, with the exception of Escitalopram and Sertraline.

Trazodone has also been shown to be effective for controlling agitation and sleep disturbance in patients with BPSD[41-42.]

In a double-blinded RCT by Roth et al[43] Moclobemide, a reversible monoamine oxidase A inhibitor, was show to be effective in treating depression in dementia.

Mirtazapine, a Noradrenergic and Selective Serotonin antidepressant (NaSSA), has been reported in case series to have favourable effects on depression, anxiety, insomnia, anorexia and weight loss in patients with AD.

### Benzodiazepines

Benzodiazepines can be used for treating agitation, anxiety and insomnia in patients with dementia. But side effects are common and include excessive sedation, ataxia, amnesia and confusion. The risk of fall is increased especially with long-acting agents such as diazepam. There are no systematic reviews or randomised controlled trials of the use of benzodiazepines in the management of behavioural symptoms of dementia.

## II. PSYCHOSOCIAL INTERVENTIONS

Although systematic reviews[44-47] have raised concerns about the methodologic rigor of many studies, some therapies have been examined in randomized trials. Despite the lack of strong, consistent evidence, the modest benefits, and questions about lasting benefit, nonpharmacologic interventions are recommended as first-line therapies, given the safety concerns related to pharmacologic therapies.

### Communication with Patients

Communication strategies have been shown to reduce professional and family carer stress[48]. Communication has to be pegged at patient's cognitive level. It can be an issue even in the early stage of dementia with receptive or expressive dysphasias.

Strategies to enhance communication include assuming a calm and supportive disposition in an environment free of noise or distraction, improving sensory input by maximizing vision and hearing, having face-to-face contact or appropriate touch during conversation, and simplifying content of discussion by focusing on one topic at a time. When talking to a dementia patient, speak

slowly and distinctly using familiar words and short sentences. If the person seems frustrated and you don't know what he/she wants, try to ask simple questions that can be answered with a yes or no or one-word answer. Written prompts and reminders may be helpful. Gesturing may remain relatively intact for some and can be useful. Try to talk about feelings rather than arguing over facts and keep things positive.

### Disclosure of Diagnosis

Many healthcare professionals remain hesitant in disclosing the diagnosis of dementia to patient. Family may also object to the discussion of diagnosis with patient or they would euphemistically attribute it to as a 'natural phenomenon of old age'.

Although some patients may find such approach acceptable, many patients do wish to be told about the diagnosis[49]. Disclosure is not a one-off event. It has to be patient-led, be adapted to patients' cognitive level, and transpire in the context of a supportive doctor-patient relationship.

### Environmental Interventions

In general, an ideal environment is one that is non-stressful, constant, familiar and secure. It should preferably have space for safe walking, visual barriers to preventing exiting, adequate lighting, low noise levels and adequate safety features (such as bath rails, bath mats, toilet railings) especially for those with unsteady gait.

### Behavioural Interventions

While some behavioral disturbances are due to physical discomfort (e.g. constipation) and require appropriate medical interventions, many behavioral disturbances result from the interaction between specific behaviour exhibited by patients and the responses of the caregivers. This may involve reassessing the behaviour disturbance, the possible antecedents, and the consequences of the behaviour. Having identified the ABCs (Antecedents, Behaviours, and Consequence), an intervention can be designed to either remove the antecedents or to change the carers' response. Sometimes, just teaching the carers how to make sense of the patient's behaviour, e.g. understanding apathy as the reason for the patient's apparent 'laziness', can provide some relief and mitigate its negative impact on the carers. Carers can be taught that a simple strategy like distracting the patient from the problems, rather than reasoning/arguing with the patient or simply backing off from the situation can be more effective.

An activity planning approach has been advocated for patients who are cared for in the community. This involves engaging the patients in pleasurable activities for the purpose of stimulating the mind, enhancing physical health and reducing behavioural disturbances. The activities that the patient enjoyed in the past are identified and then modified to the patient's current level of functioning.

There is good evidence to recommend an individualized exercise program for patients with mild to moderate dementia. Benefits include increased strength, fitness, and improvements in cognitive and functional performance[50]. A randomized controlled trial reported that a simple exercise program (1 hour twice a week), compared with routine medical care, was associated with a significantly slower rate of functional decline in nursing home residents with Alzheimer disease[51].

### Cognitive Training

A meta-analysis of the literature on cognitive training for people with Alzheimer disease concluded that this form of therapy may improve the cognitive and functional abilities of patients – or at least slow down the rate of decline[52].

### Reality Orientation (RO)

Reality orientation helps to make the milieu as rational and knowable as possible by reminding the patients of the 'who, where, what, and why' of what is going on in a friendly, firm and dignified way. This could possibly result in improved sense of control and self esteem.

Validation techniques provide a modified form of reality orientation to more impaired individuals who do not respond well to reality orientation. It posits that each expression or action put forward by the demented individual reflects a compromised but meaningful effort at communication.

### Reminiscence Therapy (RT)

Reminiscence Therapy (RT) involves the discussion of past activities, events and experiences with another person or group of people, usually with the aid of tangible prompts such as photographs, music and archive sound recordings, household and other familiar items from the past, It restores feeling of worth and competence through articulation of past successes. It also helps to soothe the fear of facing the unknown future through reminiscing about past challenges that have been overcome.

A Conchrane review[53] on RT reported that the results were statistically significant for cognition (at follow-up), mood (at follow-up) and on a measure of general behavioural function (at the end of the intervention period). The improvement on cognition was evident in comparison with both no treatment and social contact control conditions. Caregiver strain showed a significant decrease for caregivers participating in groups with their relative with dementia, and staff knowledge of group members' backgrounds improved significantly.

### Music Therapy

Music has been suggested as a feasible and less costly intervention to manage agitated behaviours in older people with dementia: Music tailored to the patient's individual tastes is more effective in reducing agitation[54].

A review[55] of eight research-based articles showed that preferred music intervention demonstrated positive outcomes in reducing some types of agitated behaviours in people with dementia. However, Cochrane reviewers[56] concluded that the methodological quality and the reporting of the five studies reviewed were too poor to draw any useful conclusions.

## DEMENTIA-RELATED SERVICES

The majority of people with dementia remains in their own homes for most of the duration of the illness, and hence are cared for by family members. Some families employ domestic helpers to provide the care. However, the family still has to be informed about available support services and how to access them. The family physician may play an instrumental role in liaising with such services and coordinating them.

### Dementia Day Centres (DCC)

These facilities offer a safe and secure environment as well as structured therapeutic activities in the day for the patient. It also allows the family to have time to take a break or perform other tasks/chores.

### Support Group for Carers

Alzheimer's Disease Association (ADA), O'Joy Care services and Shan You Counselling Centre have support groups for families. Tsao Foundation and ADA also conduct training sessions for carers.

### Home Care Services

Home medical services are provided by organisations that include dedicated home medical service providers such as RenCi, Hua Mei Mobile Clinic, and Touch as well as community hospitals. Home Nursing Foundation, community hospitals and some nursing homes are the providers of home nursing services. IMH and CGH provide psychogeriatric domiciliary outreach services through 'Aged Psychiatry Community Assessment and Treatment Service' (APCATS) and Community PsychoGeriatric Programme (CPGP) respectively.

Nursing home placement may be necessary for some dementia patients who have significant functional decline and are no longer able to care for themselves. Although an integral component of the continuum of services, it should be the choice when other options are not feasible. Demented-specific nursing homes are preferred in order to deal with the behavioral challenges some patients with dementia may present.

### Community Hospitals

These provide a variety of step-down care services and respite care. Geriatric and psychogeriatric consultations are also available.

### Specialist services in acute hospitals

These services are provided by specialists such as geriatricians, neurologists, geriatric psychiatrists and other healthcare professionals, and comprise inpatient services, outpatient services, and Geriatric Day Hospital (AH, CGH). IMH also runs two satellite psychogeriatric clinics at Geylang Polyclinic and Queenstown Polyclinic.

## III. MEDICOLEGAL ISSUES

### Mental Capacity

Capacity is determined by cognitive ability to understand & appreciate the contexts & decision. It is a legal, clinical and ethical construct. It underpins people's right to make autonomous decisions about their own affairs.

Legally, acting without a capable person's consent constitutes assault & battery, while failure to safe guard an incapable person best interest could constitute negligence.

Early in the course of a dementing illness, the function of decisional capacity may be relatively intact. They are sufficiently competent to manage their own affairs, consent to medical treatment, and keep, be responsible for, maintain, and control all their property, as well as their civil rights and duties. Late in the course of the dementing illness, it is likely that these capacities will be impaired to different extent at different juncture of the disease trajectory. Those who cannot comprehend complex situations may still possess the capacity to make simple decisions. It is decision-specific and time-specific. For example, a person may be able to make simple decision about a simple purchase, but incapable of making complex matters about an investment portfolio. Capacity may also vary between domains—for example, a person may be able to make medical treatment decisions, but not financial decisions.

The Mental Capacity Act 2008, which was passed by Parliament in Sep 2008 is expected to be implemented in 2009. It will enforce the rights of people with incapacity to be involved as much as possible in decision-making, and their rights to the least-restrictive care that can be effectively achieved. Their views and values, both in their incapacitated state and before they lost capacity, will also be given legal weight. Unlike under the current law, they will, when competent, be able to appoint individual(s) (called donee(s)) to make personal welfare and financial decisions for them when they lose capacity.

Excluded from MCA 2008 are:

1. Registering or withdrawing an objection under the Human Organ Transplant Act in respect of removal of an organ from the person upon his death;
2. Making or revoking an advance medical directive under the Advance Medical Directive Act ;
3. Making or revoking a gift of a body or any part thereof under the Medical (Therapy, Education and Research) Act;
4. Making or revoking a nomination under the Central Provident Fund Act.

Registered medical practitioners (including General Practitioners) can opt to be trained and accredited to make assessment of mental capacity. Therefore, it is important for clinicians, early in the process of treating persons with dementing illness, to call these gradually evolving issues to the attention of patients and their families.

## Testamentary Capacity

It is fundamental that the person making a will (testator) must do so with no undue influence or under duress. He or she must understand what a will is, the nature and extent of his or her property, be aware of the persons who have claims on his bounty, and possess judgement, memory and understanding so as to be able to assess the relative strength of the claims. Patients diagnosed with dementia should be encouraged to make a will as soon as feasible. At times, it might be prudent to obtain a formal assessment of the testamentary capacity before the will is made to prevent any possible future legal challenge.

## Driving

The diagnosis of a dementing illness per se is not in itself a reason to deny a person from driving. The decision should be based on dementia severity or a demonstration of impaired driving competence[57]. Longitudinal data suggests that driving performance deteriorates as the severity of dementia progresses over time[58].

During the early course of the illness, the patient may voluntarily exercise constraints on driving (e.g. only during the day or only to and from fixed places). Drivers with moderate-to-severe stages of dementia pose a significant safety issue[59]. A useful question to families is 'Would you allow your relative to drive your children (or grandchildren)?'

A negative answer to this strongly suggests the need for the doctor to refer the patients for on-road driving test, which has been shown to provide an accurate and reliable functional assessment of driving ability[57]. Other options include keeping the car key or selling the car! When the cognitively impaired persons pose a risk to self or others, doctors should enlist the help of family members to persuade patient to stop driving and surrender their driving licence. If it fails, then it is then ethically justified for the doctor to breach doctor-patient confidentiality and file a report to the relevant licensing authorities.

### REFERENCES


1. Thompson S, Lanctot KL, Herrmann N. The benefits and risks associated with cholinesterase inhibitor therapy in Alzheimer's disease. Expert Opin Drug Saf. 2004, 3(5), 425-40.
2. Winblad B, Wimo A, Engedal K. 3-year study of donepezil therapy in Alzheimer's disease: effects of early and continuous therapy. Dement Geriatr Cogn Disord 2006;21:353-63.
3. Birks J. Cholinesterase inhibitors for Alzheimer's disease. (Cochrane Review). In: The Cochrane Library, Issue 1, 2006. Oxford: Update Software.
4. Winblad B, Kilander L, Eriksson S, et al. Donepezil in patients with severe Alzheimer's disease: double-blind, parallel-group, placebo-controlled study. Lancet. 2006;367:1057-65.
5. Winblad B, Jelic V. Long-term treatment of Alzheimer disease: efficacy and safety of acetylcholinesterase inhibitors. Alzheimer Dis Assoc Disord, 2004, 18 (Suppl 1), S2-8.
6. Small GW, Kaufer D, Mendiondo MS, Quarg P, Spiegel R. Cognitive performance in Alzheimer's disease patients receiving rivastigmine for up to 5 years. Int J Clin Pract, 2005, 59(4), 473-7.
7. Erkinjuntti T, Roman G, Gauthier S. Treatment of vascular dementia--evidence from clinical trials with cholinesterase inhibitors. J Neurol Sci, 2004, 15, 226(1-2), 63-6.
8. Erkinjuntti T, Kurz A, Gauthier S, et al. Efficacy of galantamine in probable vascular dementia and Alzheimer's disease combined with cerebrovascular disease: a randomized trial. Lancet, 2002, 359, 1283-90.
9. Kaufer DI. Cholinesterase inhibitor therapy for dementia: novel clinical substrates and mechanisms for clinical response. CNS Spectr, 2002, 7, 742-750.
10. Maidment ID, Fox C, Boustani M. A review of studies describing the use of acetyl cholinesterase inhibitors in Parkinson's disease dementia. Acta Psychiatr Scand, 2005, 111(6), 403-9.
11. McKeith I G, Ballard CG, Perry RH, et al. Prospective validation of Consensus criteria for the diagnosis of dementia with Lewy bodies. Neurology, 2000, 54, 1050-8.
12. Wild R, Pettit T, Burns A. Cholinesterase inhibitors for dementia with Lewy bodies (Cochrane Review). In: The Cochrane Library, Issue 3, 2003. Oxford: Update Software.
13. McKeith IG, Del Set T, Spano P, et al. Efficacy of rivastigmine in dementia with Lewy bodies: a randomised, double-blind, placebo-controlled international study. Lancet 2000; 356:2031-6.
14. Shea C, MacKnight C, Rockwood K. Aspects of dementia: donepezil for treatment of dementia with Lewy Bodies: a case series of nine patients. Int Psychogeriatr, 1998, 10, 229-38.
15. Reisberg B, Doody R, Stoeffler A, et al. Memantine in moderate to severe Alzheimer's disease. N Eng J Med, 2003, 348, 1333-41.
16. Winblad B and Parotis N. Memantine in severe dementia: results of the M-BEST study (benefit and efficacy in severely demented patients during treatment with memantine). Int J Geriatr Psychiatry, 1999, 14, 135-46.
17. Rossom R, Adityanjee, Dysken M. Efficacy and tolerability of memantine in the treatment of dementia. Am J Geriatr Pharmacother, 2004, 2(4), 303-12.
18. Areosa SA, Sherriff F, McShane R. Memantine for dementia. Cochrane Database Syst Rev, 2005, 3, CD003154.
19. Peskind ER, Potkin SG, Pomara N, et al. Memantine treatment in mild to moderate Alzheimer's disease: a 24-week randomized, =controlled trial. Am J Geriatr Psychiatry 2006;14:704-15.
20. Courtney C, Farrell D, Gray R, et al. Long-term donepezil treatment in 565 patients with Alzheimer's disease (AD 2000): randomized double-blind trial. Lancet 2004; 363:2105-15.
21. McShane R, Areosa Sastre A, Minakaran N. Memantine for dementia (Cochrane Review). In: The Cochrane Library, Issue 2, 2006. Oxford: Update Software.
22. Garfield FB, Getsios D, Caro JJ, et al. Assessment of Health Economics in Alzheimer's Disease (AHEAD). Treatment with Galantamine in Sweden. Pharmacoeconomics 2002;20:629-37.
23. National Institute for Health and Clinical Excellence. Appraisal consultation document: donepezil, rivastigmine, galantamine (review) and memantine for the treatment of Alzheimer's disease. London: NICE, 2006, http://www.nice.org.uk/page.aspx?0=245 098.
24. Wynn ZJ, Cummings JL. Cholinesterase inhibitor therapies and neuropsychiatric manifestations of Alzheimer's disease. Dement Geriatr Cogn Disord. 2004;17(1-2):100-8.
25. Finkel SI, Lyons JS, Anderson RL, et al. A randomized, placebo-controlled trial of thiothixene in agitated, demented nursing home elderly. Int J Geriatr Psychiatry, 1995, 10, 129-36.
26. Devanand DP, Marder K, Michaels KS, et al. A randomised, placebo-controlled dose-comparison trial of haloperidol for psychosis and disruptive behaviours in Alzheimer's disease. Am J Psychiatry, 1998, 155(11), 1512-20.
27. Schneider LS, Pollock VE, Lyness SA. A meta-analysis of controlled trials of neuroleptic treatment in dementia. J Am Geriatr Soc, 1990, 38, 553-63.
28. Lanctot KL, Best TS, Mittmann N, et al. Efficacy and safety of neuroleptics in behaviour disorders associated with dementia. J Clin Psychiatry, 1998, 59(10), 550-61.

29. Street JS, Clark WS, Gannon KS, et al. Olanzapine treatment of psychotic and behaviour symptoms in patients with Alzheimer's disease in nursing care facilities: a double blind, randomized, placebo-controlled trails. The HGEU Stuy Group. Arch Gen Psychiatry, 2000, 57(10), 968-76.
30. Brodaty H, Arnes D, Snowdon J, et al. A randomized placebo-controlled trial of risperidone for the treatment of aggression, agitation and psychosis of dementia. J Clin Psychiatry, 2003, 64(2), 134-43.
31. Risperdal (risperidone) and cerebrovascular adverse events in placebo-controlled dementia trials: letter to healthcare professionals. Toronto, Janssen-Ortho. October11, 2002.
32. Zyrexa (olanzapine) and cerebrovascular adverse events in placebo-controlled dementia trials: letter to healthcare professionals. Toronto, Eli Lilly Canada Inc.
33. Gill SS, Bronskill SE, Normand SL, et al. Antipsychotic drug use and mortality in older adults with dementia. Ann Intern Med 2007;146:775-86.
34. Van Reekum R, Clarke D, Conn D, et al. A randomized, placebo-controlled trial of the discontinuation of long-term antipsychotics in dementia. Int Psychogeriatr 2002;14:197-210.
35. Ballard CG, Thomas A, Fossey J, et al. A 3-month, randomized, placebocontrolled, neuroleptic discontinuation study in 100 people with dementia: the neuropsychiatric inventory median cutoff is a predictor of clinical outcome. J Clin Psychiatry 2004;65:114-9.
36. McKeith IG, Ballard CG, Harrison RW. Neuroleptic sensitivity to risperidone in Lewy body dementia. Lancet, 1995, 9, 346 (8976):699.
37. Burke WJ, Wengel SP, Roccaforte WH, et al. The use of selective serotonin reuptake inhibitors for depression and psychosis complicating dementia. Int J Geriatr Psychiatry, 1997, 12, 519-25.
38. Katona CI, Hunter BN, Bray J. A double-blind comparison of the efficacy and safety of paroxetine and imipramine in the treatment of depression with dementia. Int J Geriatr Psychiatry, 1998, 13, 100-8.
39. Nyth AL, Gottfries CG. The clinical efficacy of citalopram in treatment of emotional disturbance in dementia disorders. A Nordic Multicentre study. Br J Psychiatry, 1990, 157, 894-901.
40. Thompson S, Herrmann N, Rapoport MJ, et al. Efficacy and safety of antidepressants for treatment of depression in Alzheimer's disease: a metaanalysis. Can J Psychiatry 2007;52:248-55.
41. Lawlor BA, Racliffe J, Molchan SE, et al. A pilot placebo-controlled study of trazodone and buspirone in Alzheimer's disease. Int J Geiatr Psychiatry, 1994, 9, 55-9.
42. Sultzer DL, Gray KF, Gunay I, Wheatly MV, Mahler ME. Does behavioural improvement with haloperidol or trazodone treatment depend on psychosis or mood symptoms in patients with dementia? J Am Geriatr Soc 2001; 49(10):1294-300.
43. Roth M, Mountjoy CQ, Amrein R. Moclobemide in elderly patients with cognitive decline and depression: an international double-blind, placebo-controlled trial. Br J Psychiatry, 1996, 168(2), 149-57.
44. Livingston G, Johnston K, Katona C, et al. Systematic review of psychological approaches to the management of neuropsychiatric symptoms of dementia. Am J Psychiatry 2005;162:1996-2021.
45. Verkaik R, van Weert JC, Francke AL. The effects of psychosocial methods on depressed, aggressive and apathetic behaviours of people with dementia: a systematic review. Int J Geriatr Psychiatry 2005;20:301-14.
46. Ayalon L, Gum AM, Feliciano L, et al. Effectiveness of nonpharmacological interventions for the management of neuropsychiatric symptoms in patients with dementia: a systematic review. Arch Intern Med 2006;166: 2182-8.
47. Spira AP, Edelstein BA. Behavioural interventions for agitation in older adults with dementia: an evaluative review. Int Psychogeriatr 2006;18: 195-225.
48. Ripich, DN. Functional communication with AD patients: a caregiver training program. Alzheimer Dis Assoc Disor, 1994, 8, 95-109.
49. Erde EL, Nadal EC, Scholl TO. On truth telling and the diagnosis of Alzheimer's disease. J Fam Pract, 1988, 26, 401-6.
50. Heyn P, Abreu BC, Ottenbacher KJ. The effects of exercise training on elderly persons with cognitive impairment and dementia: a meta-analysis. Arch Phys Med Rehabil 2004;85:1694-704.
51. Rolland Y, Pillard F, Klapouszczak A, et al. Exercise program for nursing home residents with Alzheimer's disease: a 1-year randomized, controlled trial. J Am Geriatr Soc 2007;55:158-65.
52. Sitzer DI, Twamley EW, Jeste DV. Cognitive training in Alzheimer's disease: a meta-analysis of the literature. Acta Psychiatr Scand 2006;114:75-90.
53. Woods B, Spector A, Jones C, et al. Reminiscence therapy for dementia. Cochrane Database Syst Rev. 2005, 18(2), CD001120.
54. Gerdner L. Music, art, and recreational therapies in the treatment of behavioural and psychological symptoms of dementia. Int Psychogeriatr, 2000; 12 (Suppl 1), 359-66.
55. Sung HC, Chang AM. Use of preferred music to decrease agitated behaviours in older people with dementia: a review of the literature. J Clin Nurs, 2005, 14(9), 1133-40.
56. Vink AC, Birks JS, Bruinsma MS, et al. Music therapy for people with dementia. Cochrane Database Syst Rev. 2004, 3, CD003477.
57. Hunt LA, Murphy CF, Carr D, et al. Reliability of the Washington University Road Test. A performance-based assessment for drivers with dementia of the Alzheimer type. Arch Neurol 1997;54:707-12.
58. Duchek JM, Carr DB, Roe CM, et al. Longitudinal driving performance in early-stage dementia of the Alzheimer type. J Am Geriatr Soc 2003;51:1342-7.
59. Lucas-Blaustein MJ, Filipp L, Dungan C, Tune L. Driving in patients with dementia. J Am Geriatr Soc 1988; 36:1087-91.

**LEARNING POINTS**

- **The various treatment strategies in dementia target the 'ABC' domains of the disease: 'ADL-Activities of daily living (ADL)', 'BPSD' (Behavioural and Psychological Symptoms of Dementia) and 'Cognitive' functions.**
- **They encompass pharmacological and psychosocial interventions for the patients, and supportive services for the caregivers.**
- **The medico-legal issues include decisional capacity and driving risk assessment. These should be addressed early.**
- **The services are provided by a plethora of health and social agencies and professionals and the integration of such services is a major challenge.**
- **Primary care practitioners can play a bigger role by participating in training and shared care programme.**