

MEDICATIONS USED FOR THE MANAGEMENT OF DEMENTIA AND RELATED BEHAVIORAL COMPLICATIONS*

R.Ron Finley, B.S Pharm, R.Ph,CGP, Aimee Loucks, Pharm. D., Gil D. Rabinovici, M.D

The following is intended to be a review of medications commonly prescribed for the management of dementia and associated psychiatric behavioral complications. At this time, no medications are approved by the FDA for the treatment of psychiatric behavioral conditions related to a dementia; however, one second generation antipsychotic, risperidone, is approved in the United Kingdom for treating aggressive/assaultive behavior due to Alzheimer's disease. Hopefully, this will serve as a guide to caregivers and healthcare providers in the safe and appropriate use of medications for these indications.

Dementia is a syndrome, or a collection of symptoms, characterized by a progressive loss of cognitive abilities that interferes with an individual's ability to function at work or in their usual personal activities. Dementia can affect memory, thinking, language, visual perception, judgment, and behavior. In early stages, an individual may be able to fully compensate for cognitive problems and continue to function independently. A condition known as "mild cognitive impairment" (MCI) may, in some individuals, result ultimately in a diagnosis of AD. In the final stages, dementia prevents an individual from taking care of themselves or providing for their basic needs. Dementia can be caused by a variety of brain diseases and medical illnesses. An accurate diagnosis of the underlying cause of dementia is the first step in selecting optimal drug therapy. The major causes of dementia are Alzheimer's disease (AD), vascular dementia, mixed dementia (vascular and Alzheimer's combined), frontotemporal dementia (FTD) and Lewy-body dementia (LBD). There are other recognized types of dementia, such as those due to human immunodeficiency virus (HIV), Parkinson's disease, Huntington's disease, major organ dysfunction (e.g. heart, lung, liver or kidney failure) and substance abuse, but these are beyond the scope of this article. The following suggestions and comments will focus primarily on AD, which is the leading cause of dementia in the United States and Europe.

A few general principles regarding medications are important to consider before initiating therapy in individuals diagnosed with a dementia

- A complete medication history must be obtained and reviewed before starting any new medication. This history must include prescription medications, but also non-prescription drugs, herbals, alternative treatments, and vitamins. It is also important to accurately include daily consumption of caffeine, alcohol, and nicotine, and any drug allergies or sensitivities.
- As people age, medications may affect their bodies differently. The same dose of a drug that a person tolerated very well at 35 years of age may be "too strong" at 75 years of age. Certain medications should generally be avoided in the elderly, such as benzodiazepines (like Valium® or Ativan®) or antihistamines (like Benadryl®). Ativan® may be useful to reduce anxiety or agitation when administered prior to a surgical, some dental procedures or prior to some diagnostic tests. Elders in general are more sensitive to the effects of drugs like Ativan®.
- As a rule, all medications should be started at a low dose and titrated slowly upward to the lowest effective dose.

- For many medications, a few days to weeks are needed to observe the full effect; so stopping the medication prematurely may be unwise. The healthcare provider who prescribed the medication should be contacted before a medication is stopped. Some medications, if stopped abruptly, may produce unpleasant side effects.
- All medications are associated with side effects. Luckily, most of these are mild and lessen with time. A physician or pharmacist should be consulted about any side effects to watch out for when beginning a new medication.
- An abrupt change in one's behavior or mental ability may be related to dementia, but it is important to first rule out other causes. For example agitation can be related to infection, stroke, head trauma, pain, or constipation. Also, certain medical illness can aggravate dementia. Some of these include low oxygen, diabetes, thyroid disorders, alcohol abuse, and sensory deprivation (vision or hearing loss). Medications can also cause new symptoms. Starting or stopping a medication can result in behavioral or cognitive symptoms.
- A patient's medication profile should be routinely reviewed to determine if all medications are still necessary. This is especially true for behavioral medications. After several weeks of therapy, it may be appropriate to attempt to reduce the dose or withdraw medications used to treat behavioral symptoms, especially if the goals have been met.
- Medical studies suggest that aggressive control of high blood pressure, diabetes, and high cholesterol may lessen the risks of developing dementia. It is appropriate to continue to treat all these conditions in patients with dementia in order to prevent complications that can contribute to further cognitive decline (e.g. stroke, kidney or heart disease, etc.).

MEDICATIONS COMMONLY USED TO TREAT DEMENTIA

In this section, we will review medications that are commonly used to treat dementia.

Cholinesterase Inhibitors

There are four cholinesterase inhibitors currently on the market for treating AD; however, due to severe side effects and high pill-burden, tacrine (Cognex®) is rarely prescribed. Donepezil (Aricept®), galantamine (Razadyne®), and rivastigmine (Exelon®) are the most commonly prescribed cholinesterase inhibitors. Galantamine and rivastigmine have been approved for the treatment of mild to moderate stage Alzheimer's type dementia. Donepezil is approved to treat mild, moderate and severe AD. Rivastigmine is also approved to treat dementia related to Parkinson's disease. At this time there is no scientific evidence to support the use of these medications in mild cognitive impairment (MCI).

There is no substantial evidence any of the current medications approved for the treatment of AD is better than another. All cholinesterase inhibitors may be beneficial in treating LBD, but may have increased adverse effects in FTD. Any possible benefit in treating vascular dementia with a cholinesterase inhibitor as a sole agent or in combination with memantine remains to be elucidated.

While they do not always improve symptoms, some patients will notice small improvements in memory, behavior, functional ability and mood. A portion of patients treated will "stabilize" for a period of time, meaning that the symptoms of their dementia do not worsen. The most consistent finding across studies is that patients who took cholinesterase inhibitors showed less of a decline in memory, cognitive and functional abilities than patients who took a placebo. Unfortunately, this makes it difficult to gauge benefit in individual patients, since it is hard to notice that someone is declining more slowly. Some studies have shown a marked decline in patients with AD who stop taking the medications. We therefore recommend that, in the absence of side effects, patients continue to take cholinesterase inhibitors unless instructed to stop by the prescribing provider. Some clinicians believe it is almost never appropriate to stop these medications due to perceived lack of effectiveness, unless patients are in the end stages of dementia.

Donepezil has the benefit of only being dosed once a day, (both regular release and 23 mg sustained release tablet), while the regular oral forms of rivastigmine and galantamine are dosed twice a day. The sustained release tablet form of galantamine may be dosed once daily. Donepezil may be given in the morning or at bedtime. Giving it nighttime will decrease daytime drowsiness; however, nighttime dosing sometimes results in "vivid dreams" that can cause awakening in the middle of the night. Rivastigmine is now available as a transdermal patch, which may be an attractive alternative for some patients who have difficulty-swallowing pills and fewer side effects than oral rivastigmine. It is also important when utilizing these drugs to slowly increase the dose to the maximum tolerated dose suggested by the manufacturer to ensure the best possible effect.

Donepezil 23 mg (sustained release) tablet should only be considered in patients with moderate-to-severe dementia after an adequate trial period at 10 mg per day. Side effects are higher at the 23 mg dose, and we recommend caution in prescribing this formulation to older patients or patients with significant medical illnesses until a longer track record of safety is available.

Common side effects of these medication include nausea/vomiting and diarrhea. Less common side effects include muscle cramping, fainting, and increased urinary output. These side effects often lessen with time, and slowly increasing the dose up to the maximum effective dose can lessen these side effects. Side effects may return if the patient has stopped taking the

medication even for a short period of time. If this happens, it may be necessary to temporarily decrease the dose, and slowly re-titrate the therapy back to the maximum tolerated dose. Contact your physician for specific instructions. These medications should be used with caution in some patients, including those with certain heart problems, lung problems and stomach problems.

NMDA Receptor Antagonists

Memantine (Namenda®) is approved for the treatment of moderate to severe AD. It works in a different way than cholinesterase inhibitors, and is most effective when administered with a cholinesterase inhibitor. The cholinesterase inhibitor should be titrated to the maximum tolerated dose, at which time it would be appropriate to consider starting memantine. Current research does not support prescribing memantine for mild AD, MCI, or dementia not due to AD.

Memantine may be prescribed as a single agent in those individuals who cannot tolerate or have a contraindication to cholinesterase inhibitors. However, memantine alone does not appear to be as effective as the combination of memantine plus a cholinesterase inhibitor. The usual dose is 10 mg by mouth twice daily, which is attained after slowly increasing the dose over about a month. Discuss how the dose should be increased with your physician and/or pharmacist. Individuals with impaired kidney function will require a lower dose.

Side effects of memantine include dizziness, confusion, headache, constipation or diarrhea. In clinical trials the memantine side effect profile was similar to placebo.

As with cholinesterase inhibitors, it is difficult to gauge efficacy, as clinical trials have demonstrated less decline rather than improvement in patients taking memantine. Some studies suggest that memantine may reduce agitation in patients with moderate to severe AD. Currently clinical trials are investigating a possible role for memantine in treating FTD.

Other Medications

Many medications have been studied to determine if they could be used to prevent the onset or slow the progression of dementia. These medications include anti-inflammatory drugs, such as ibuprofen and naproxen, estrogens, vitamin E, cholesterol lowering “statin” agents, and ginkgo biloba. The evidence supporting the use of these medications is either lacking or conflicting, and it is not currently recommended that these medications be used to prevent or slow Alzheimer’s disease or other diseases associated with dementia. It is very important to report any herbal, vitamins or alternative treatments to your physician and pharmacist.

There is evidence that the control of other disease, such as cardiovascular disease, can be very beneficial in dementia patients. Adequate blood pressure and cholesterol control should be pursued through medications and lifestyle changes; however, statin drugs, in recent clinical research trials did not reduce the risk for developing Alzheimer’s disease.

BEHAVIORAL TREATMENT ISSUES FOR PATIENTS WITH THE DEMENTIA SYNDROME

Although cognitive disturbances, such as memory impairment and language impairment, are the most recognized symptoms of dementia, the behavioral psychological symptoms of dementia (BPSD) can also be an issue and cause considerable morbidity and disability in people with AD. The (BPSD) symptoms may include delusions, hallucinations, agitation, physical aggression, hostility, restlessness, wandering, pacing, verbal outbursts and/or apathy.

Clinical and research evidence indicate cholinesterase inhibitors reduce the need for psychotherapeutic medications in AD. The addition of memantine to an established cholinesterase inhibitor regimen, at an optimal dose, may enhance this benefit.

Thoughtful consideration of non-medication approaches to managing a problem behavior is important before considering drug therapy.

(http://www.alz.org/alzheimers_disease_treatments_for_behavior.asp)

I. SEVERE AGITATION

Severe agitation may occur, with or without problematic delusions, paranoia, hallucinations, combativeness and psychomotor agitation. Non-pharmacologic interventions should be tried first or in conjunction with medical therapy, such as improving pain management. Medications to treat BPSD should only be initiated if absolutely necessary, because of the potential for side effects.

Antipsychotics

Antipsychotic medications are sometimes prescribed for this indication. Antipsychotics can generally be broken into two broad categories: first-generation and second-generation antipsychotics.

First-generation antipsychotics include haloperidol (Haldol), chlorpromazine (Thorazine®), thioridazine (Mellaril®), perphenazine (Trilafon®), and fluphenazine (Prolixin®). The use of these medications for dementia patients currently should be avoided due to a high incidence of side effects. Haloperidol is sometimes used in the acute or hospital setting for situations requiring immediate control. Common side effects include weight gain, somnolence, constipation, and urinary retention. These medications are associated with disorders of movement such as extrapyramidal symptoms (stiffness, tremor, shuffling gait, falls) and tardive dyskinesia (involuntary movements, often involving the face and mouth). Medications used to prevent extrapyramidal symptoms, such as benztropine (Cogentin®) and trihexyphenidyl (Artane®), can cause delirium (confusion and disorientation) in dementia patients and should generally be avoided.

Second-generation antipsychotics include risperidone (Risperdal), olanzapine (Zyprexa®), quetiapine (Seroquel®), ziprasidone (Geodon®), aripiprazole (Abilify), and paliperidone (Invega). Second generation antipsychotics are better tolerated but are associated with metabolic side effects, such as weight gain, altered cholesterol, and diabetes. Olanzapine appears to be the worse offender. Weight, cholesterol, and blood glucose should be monitored regularly in patients taking second-generation antipsychotics. While tardive dyskinesia is less common with second-generation antipsychotics, this side effect has been reported.

The FDA has recently mandated a warning about all antipsychotic drugs. Use of these drugs for the psychosis of dementia patients increases the risk for morbidity and mortality, usually due to stroke or heart attack. The FDA requires the manufacturers of these drugs to notify health care providers that they are not approved for the treatment of behavior symptoms in the elderly diagnosed with a dementia. In turn prescribers are required to discuss the risks involved with

caregivers and/or patients and obtained signed consent. It is also important to note that antipsychotics increase the risk of falls in elderly patients, and special precautions should be taken to reduce the risk of falls.

In general, first-generation antipsychotics should be avoided and the second generation antipsychotics should be reserved for serious agitated behaviors, such as very aggressive physical acts that pose harm for caregivers or the patient, paranoia, delusions or hallucinations that are very disturbing for the patient and not responsive to non-antipsychotic medications. Older antipsychotics, such as haloperidol may be useful in the hospital setting to manage severe agitation in the short term.

Table I. Second Generation Antipsychotic dosing for Psychiatric Behavioral Conditions in Alzheimer 's disease

Medication	Dosing‡	Special Considerations
Risperidone (Risperdal®)***	Start at 0.25 mg once to twice daily or 0.5 mg at bedtime. Usual maximum in this patient population is 1 mg/day. There is increased risk of side effects at 2mg/day.	Risperidone possesses an active metabolite that is removed via the kidney; patients with kidney impairment may respond at lower than expected doses. Risperidone is associated with mild orthostatic hypotension, but more extrapyramidal issues, such as Parkinson's like symptoms (dose > 1mg/day) (tremor, stiffness and/or gait disturbance as compared to other second-generation antipsychotics).
Quetiapine (Seroquel®)**	Start dose at 25 mg at bedtime, and increase by 25 mg increments up to a total 200 mg daily. Severe assaultive behavior may require higher doses (usually in divided doses). Dosing at bedtime can take advantage of sedative effects.	Quetiapine possesses mild anticholinergic activity, sedation, orthostatic hypotension (drop in blood pressure on standing) some weight gain and increased risk for diabetes. Minimal extrapyramidal issues, such as Parkinson's like symptoms (tremor, stiffness and/or impaired gait). May require periodic eye exams. May be preferred in Lewy Body dementia or Parkinson's dementia.
Olanzapine (Zyprexa®)*	Start dose at 2.5 mg once daily, usually at bedtime. Response at doses up to 10 mg is inconsistent. Dose of 15 mg daily no better than placebo.	Olanzapine is not recommended in Lewy Body or Parkinson's disease due to increase gait disturbances. Olanzapine is associated with higher weight gain, sedation, and hyperglycemia as compared to other second-generation antipsychotics. It also has a higher incidence of extrapyramidal symptoms as compared to medications in this class and mild-moderate anticholinergic activity.
Aripiprazole (Abilify®)**	Start doses of 2 mg/day, increasing to 5 mg and then 10 mg daily. In one large well-designed study 2 mg and 5 mg were no better than placebo. 10 mg daily offered a significant reduction in problem behaviors.	Aripiprazole causes less metabolic side effects as compared to other second generation antipsychotics, but it is associated with increased risk of agitation and insomnia.
Ziprasidone (Geodon®)*	Start doses at 10 to 20 mg daily. This medication has only been studied in this population in case reports, so appropriate maximum doses have not been established.	This medication is more commonly associated with prolonged QT as compared to medications in this class and should be avoided in patients with significant cardiovascular history, congenital prolonged QT, or in patients on other QT-prolonging agents.

‡ Dosing in Lewy Body dementia or dementia in Parkinson's disease may be lower.

* Poor evidence supporting use of this medication for this indication.

** Fair evidence supporting use of this medication for this indication.

*** Good evidence supporting use of this medication for this indication.

Newer antipsychotics such as asenapine (Saphris®), paliperidone (Invega®), iloperidone (Fanapt®), or lurasidone (Latuda®) have not been studied in these patient populations and cannot be recommended at this time without additional clinical trials.

Several clinical studies suggest a role for SSRI's , like citalopram for treating behavioral issues related to AD. In two separate clinical trials citalopram at doses between 20 to 40 mg daily was as effective as an antipsychotic (perphenazine or risperidone) in managing agitation, impulsive behavior, delusions and anxiety.

II. SUNDOWNING –

Sundowning consists of agitation, confusion, disorientation, that starts in the late afternoon and become more severe at night. It is suggestive of multiple factors, such as environmental issues, inadequate management of one or more physical issues, such as pain and/or inappropriate medications. Sundowning is not a diagnosis, but a syndrome or collection of symptoms that strongly suggests the need for a careful and detailed patient review.

III. INSOMNIA

Insomnia is a common problem in elderly patients, including dementia patients. It is important to consider lifestyle changes that could be contributing to insomnia. For example, if the patient is awakening to go to the bathroom at bedtime and this is causing insomnia, consider diminishing fluid intake late in the afternoon, toileting prior to bedtime, etc. Good sleep hygiene practices (e.g. avoiding caffeine and alcohol, minimizing daytime naps) should be implemented before initiating medication therapy. Triggers, such as pain, gastrointestinal condition, dry skin and breathing problems should all be considered before starting a sleep medication. Of these pain is probably the most common “cause” for disturbed sleep.

If lifestyle modifications fail, certain medications can be useful for treating insomnia in dementia patients. Trazodone (Oleptro®) is a reasonable first choice (doses ranging from 12.5 mg to 150 mg at bedtime). The use of zolpidem (Ambien®) or medications in this class can be considered, but should be used with caution as these medications may have a stronger effect in the elderly. Small doses of mirtazapine (Remeron®) **(7.5 mg to 15 mg at bedtime) are another option.** Certain over-the-counter products, such as those including diphenhydramine (Benadryl®, Tylenol PM®, Advil PM®), should be avoided in patients with AD and many elders. Benzodiazepines are also not recommended for insomnia in AD.

IV. Anxiety

Selective serotonin reuptake inhibitors (SSRIs) are the preferred treatment for anxiety associated with dementia. SSRIs include fluoxetine (Prozac®), paroxetine (Paxil®), sertraline (Zoloft®), citalopram (Celexa®), and escitalopram (Lexapro®), These medications were initially indicated for depression but can also help to treat anxiety, reduce insomnia, and may be effective treatment for mild to moderate agitation in the Alzheimer's patient. Paroxetine and fluoxetine are not recommended because both medications have numerous drug interactions. Additionally, paroxetine possesses anticholinergic activity and is associated with problematic withdrawal symptoms if suddenly discontinued.

It is recommended that the lowest, effective dose be used for the treatment of anxiety. While the use of these medications may be discontinued once symptoms are under control, SSRIs should not be stopped abruptly. The medications should be slowly tapered to prevent a discontinuation syndrome associated with flu-like symptoms, nausea, anxiety, and palpitations.

Common side effects associated with these medications include stomach upset, insomnia, headache, fatigue, and sexual dysfunction. If a dementia patient is not able to tolerate one

SSRI, it is reasonable to try a different SSRI, because they may tolerate a different medication better. See section below for additional considerations related to specific SSRIs.

Benzodiazepines are commonly used to treat anxiety; however, these medications should be avoided in elderly patients or patients with dementia. If a benzodiazepine is deemed necessary the lowest possible dose should be prescribed. When a patient's symptoms resolve, the medication should be slowly tapered down and discontinued

V. DEPRESSION

Early in the dementia process, depression and depressive symptoms may require treatment. The drugs of first choice are SSRIs. The depressive symptoms in patients with dementia are usually the same as in other patients but may be missed because they resemble symptoms of medical illnesses. For example, weight loss; sleep disturbances, fatigue, or impaired concentration. The clinician needs to evaluate for symptoms of poor sleep and appetite and other non-verbal signs of being depressed. If the depression is determined to be significant, the following is a list of SSRI medications that might be considered.

Table 2. Dosing of Antidepressants Used for Depression in Patients with Alzheimer's disease

Medication	Class	Dosing	Special Considerations
Sertraline (Zoloft®)	SSRI	Start at 6.25 – 12.5 mg daily in AM. Usual maximum dose is 100 to 200 mg daily. In AM	This medication may be somewhat activating, and may increase anxiety in some patients. It also may have a higher incidence of nausea, and diarrhea.
Citalopram (Celexa®)	SSRI	Start at 5 - 10 mg daily at bedtime The current maximum recommended daily dose is 40 mg per day.	This medication has fewer drug interactions and is a reasonable option. It may cause nausea sedation, so recommend that patients take at bedtime, and may be best choice for patients with depression and insomnia. Higher doses of citalopram >40 mg increase the risk of QT prolongation and Torsades, and should be used with caution in patients with increased risk (cardiac disease,
Escitalopram (Lexapro®)	SSRI	Start doses at 5 mg daily. Usual maximum dose is 20 mg daily.	Similar to citalopram, this medication has few drug interactions. It appears to cause minimal sedation or activation. It is not currently available in generic formulations, so may be a more costly alternative for patients
Mirtazapine (Remeron®)	Alpha-2 Antagonist	Start doses at 7.5 mg orally at bedtime, increase to 15 mg if necessary with a max dose of 45 mg daily	Effective in treating depression, anxiety and disturbed sleep. Doses of above 15 mg daily may result in reduced sedative effect. This medication also possesses anti-emetic properties and can increase appetite and cause weight gain. Has an anti- emetic effect, so nausea/vomiting not an issue.
Venlafaxine	SNRI	Start extended release	May provide some benefit in patients

(Effexor®)		formulation at 37.5 mg daily. Doses below 150 mg daily primarily have serotonergic effects. Doses between 150 to 225 mg have dual effect (noradrenergic and serotonergic).	with neuropathic pain and reduce symptoms of 'hot flashes' associated with peri-menopause. Carries many of the same side effects of SSRIs, but is also associated with increased blood pressure.
Duloxetine (Cymbalta®)	SNRI	Start doses at 20 mg once to twice daily. Increase to 40 to 60 mg (frequency?) as tolerated.	May provide some benefit in patients with neuropathic pain. Carries many of the same side effects of SSRIs, but is also associated with increased blood pressure and increased risk for liver impairment in elders. Reduced doses if significant kidney impairment.
Bupropion (Wellbutrin®)	DRI	Start 37.5 mg twice daily of immediate release product or 100 mg once daily for sustained release formulations. Titrate to a total of 150 mg twice daily as tolerated. A once a day formulation is available.	This medication is known to increase risk of seizures in patients with a history of seizures, May be mildly stimulating. Less likely to impair sexual performance Sometimes added to existing antidepressant to "boost" antidepressant effect.

DRI=dopamine reuptake inhibitor; SSRI=serotonin reuptake inhibitor; SNRI=serotonin norepinephrine reuptake inhibitors

Note: This list is not intended to be comprehensive and complete prescribing instructions. Side effects, dosing, and monitoring parameters should be reviewed prior to initiation of therapy.

As a class, side effects of SSRI's include tremors, sweating, nervousness, insomnia/somnolence, dizziness and various gastrointestinal (nausea) and sexual disturbances such as impotence or decreased sexual desire. Antidepressant therapy increases fall risk.

Other classes of antidepressants include selective-serotonin norepinephrine inhibitors (SNRIs), norepinephrine reuptake inhibitors, tricyclic antidepressants, and monoamine oxidase inhibitors. SNRIs include venlafaxine (Effexor®), duloxetine (Cymbalta®) and desvenlafaxine (Prestiq®). These medications may be effective in select individuals in treating individuals with depression, especially if they have not responded to SSRIs. They may also offer additional benefit in managing chronic pain. They share many of the same side effects of SSRIs, but also have the ability to increase blood pressure.

It is important to note that SSRIs and SNRIs generally should not be stopped suddenly, because this may result in unpleasant side effects (nausea, vomiting, tremors, anxiety, or insomnia). Also, they should be used cautiously in combination or with other serotonergic agents (e.g. tramadol, mirtazepine) due to risk of serotonin syndrome, a rare but potentially fatal side effect.

Tricyclic antidepressants include amitriptyline (Elavil®), doxepin (Sinequan®), desipramine (Norpramin®) and nortriptyline (Pamelor®). These medications are generally not recommended in the elderly, because they have anticholinergic side effects that can provoke or increase confusion and are associated with orthostatic hypotension. They also have the potential to prolong QTc increasing the risk for heart arrhythmias – a feature also associated with many

antipsychotic medications. Monoamine oxidase inhibitors are also not recommended, due to the higher risk of serotonin syndrome and multiple drug and food interactions.

Bupropion (Wellbutrin®) is a dopamine-reuptake inhibitor. It can sometimes be used as an adjunct to SSRIs to boost the antidepressant effect, but it has the potential to cause agitation and insomnia (monitor caffeine intake). It should be avoided in patients who have a history of seizures. Mirtazapine (Remeron®) is an alpha-2 antagonist. While it has less evidence for treatment of depression than SSRIs, it offers some benefits in this patient population, because it promotes sleep and weight gain.

There are some new medications, including vildalazone (Viibryd®) and milnacipran (Savella®) that have become available for the treatment of depression, and fibromyalgia; however, these medications are too new to discuss in depth because at this time the full range of side effects are not known. They are also likely associated with higher out-of-pocket costs.

Mood Stabilizers for Psychiatric behavioral conditions in Dementia

Various medications indicated for seizures and or bipolar disorders have been considered for the management of dementia related psychiatric behaviors, such as agitation, aggressive behavior etc. These medications include: divalproex sodium (Depakote®), carbamazepine (Tegretol®), lamotrigine (Lamicatal®) and lithium.

Carbamazepine, although one small well-controlled study suggested some benefit, should be avoided due to many drug interactions and potential serious side effects. Divalproex, although sometime prescribed, is not supported by scientific research and is known to be a risk factor for liver toxicity. Lamotrigine can cause serious skin reactions and lithium has not demonstrated an ability to improve psychiatric issues in AD and has a narrow margin for error in the elderly. In General these medications should Not be prescribed for the management of behavioral problems in elders diagnosed with Alzheimer's disease

***This monograph is not intended to be all-inclusive or offer patient specific drug treatment- only your health care provider who knows the patient and his/her diagnosis can do that. It is intended to offer a sampling of the issues, dilemmas, and clinical considerations to be considered when selecting medications for psychiatric behavioral issue related to a dementia-like Alzheimer's disease.**

Credits:

**Richard Ron Finley, B.S. Pharm.,R.Ph, CGP
Clinical Pharmacist, UCSF Memory and Aging Center
Lecturer (Emeritus) UCSF, Department of Clinical Pharmacy
Clinical Professor, UCSF School of Pharmacy**

**Aimee Loucks, PharmD
Pharmacy Practice Resident
University of California, San Francisco**

**Gil Rabinovici, MD
Assistant Professor of Neurology
UCSF Memory & Aging Center**