

# Anxiety Disorders in Elderly Patients

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**Background:** Late-life anxiety disorders, commonly seen in primary care settings, can coexist with other medical and psychiatric illnesses. A variety of effective treatment options is available for these patients.

**Methods:** MEDLINE was searched for articles published from 1970 to 1996 using the key words "anxiety," "elderly," "aged," "geriatric," "panic," "obsessive-compulsive," "phobia," and "generalized anxiety disorder." Studies of patients older than 65 years were reviewed.

**Results:** Generalized anxiety disorder, phobias, panic disorder, and obsessive-compulsive disorder are the most common late-life anxiety problems seen by primary care physicians. Patients with these disorders complain of diffuse multisystem symptoms, motor restlessness, and such physiologic symptoms as tachycardia or tachypnea. Comorbid illnesses include depression, alcoholism, drug use, and multisystem disease. Behavioral strategies to address anxiety include an open discussion of the issue, an anxiety diary, psychosocial support, and cognitive-behavioral techniques. Pharmacologic strategies include carefully monitored benzodiazepine, buspirone, or antidepressant therapy.

**Conclusions:** Clinical trials of all anxiety interventions are needed for elderly primary care patients to clarify further whether findings from mixed-age population studies are generalizable to the elderly. (J Am Board Fam Pract 1997;10:280-9.)

Caring for an anxious elderly patient can be a challenge for the primary care physician. The distress experienced by such patients can overwhelm already strained families, caregivers, and community support systems. Accurately diagnosing the source of the anxiety and providing appropriate, effective treatment are critical for quality of life and health maintenance.

## Methods

MEDLINE was searched for articles published from 1970 to 1996 using the key words "anxiety," "elderly," "aged," "geriatric," "panic," "obsessive-compulsive," "phobia," and "generalized anxiety disorder." Studies of patients older than 65 years were reviewed. Additional studies were selected from article references. Epidemiologic literature was studied using clinical and diagnostic categories according to the *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV*.<sup>1</sup> A survey of the medical literature provided a summary of

medical causes and treatments for anxiety. Finally, treatment literature (including all case report and double-blind study data) was reviewed to summarize nonpharmacologic and pharmacologic anxiety treatment interventions.

## Epidemiologic Studies

### Prevalence

Anxiety in elderly patients is a state of hyperalertness in which excessive autonomic arousal results in diminished patient coping strategies. Anxiety becomes manifest in both subjective and objective ways. Subjectively patients might describe uneasiness, worry, fear, or unrealistic apprehension. On the other hand, patients might also complain of somatic symptoms and be unaware they are anxious. Objective symptoms to monitor include sweating, muscle tension, tachycardia, facial grimacing, restlessness, and pacing.

Ten to 20 percent of older patients experience clinically important symptoms of anxiety.<sup>2</sup> In an elderly community-dwelling population of the Duke Epidemiologic Catchment Area, Blazer et al<sup>3</sup> found that the 6-month incidence for all anxiety disorders was 19.7 percent. In Flint's synthesis<sup>4</sup> of eight surveys consisting of community-dwelling elders, the following ranges in preva-

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lence emerged: all anxiety disorders, 0.7 to 18.6 percent; phobic disorder, 0.7 to 10 percent; generalized anxiety disorder, 0.7 to 7.1 percent; obsessive-compulsive disorder, 0.1 to 0.6 percent; and panic disorder, 0 percent. In community-based studies generalized anxiety disorder and phobias are the most common forms of anxiety in elders, although agoraphobia and obsessive-compulsive disorder might occasionally occur de novo in late life.<sup>4</sup>

These low rates are deceiving because of psychiatric comorbidity. When elderly patients have symptoms of depression, 33 percent also have considerable comorbid anxiety.<sup>5</sup> In an elderly cohort, Ben-Arie and colleagues<sup>6</sup> found a high correlation between panic disorder and depression. Treatment for these patients' conditions consisted largely of benzodiazepine therapy, which neglected their depression and its contribution to anxiety symptomatology.

Determining the source of anxiety can be a clinical challenge. In late life anxiety can be precipitated by losses—such as loss of health, mobility, financial status, lifelong partners, and support systems—and fears of losses. Brief anxiety reactions that do not impair ongoing coping abilities should be considered normal. Nervousness that consistently impairs the senior's life and becomes functionally overwhelming, however, is pathologic.

Some authors categorize anxiety as primary and secondary,<sup>7</sup> in which primary anxiety results from psychiatric conditions, and secondary anxiety has a medical cause. In the *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV*,<sup>1</sup> secondary anxiety has been relabeled as anxiety disorder caused by a general medical condition. Distinguishing between psychiatric and medical causes is especially difficult in the older patient, as comorbid medical and psychiatric conditions almost always exist.

### Psychiatric Sources of Anxiety

Table 1 summarizes the DSM-IV anxiety disorder categories with disorder-specific symptom clusters for each diagnosis. Generally, these clusters include physiologic symptoms, intense internal discomfort, situationally focused fears, or recurrent obsessive worries with anxiety-relieving repetitive behaviors. The degree of anxiety varies with each disorder. While elders can have realistic

**Table 1. Psychiatric Sources of Anxiety.**

| Disorder                         | Symptom Summary   |
|----------------------------------|---|
| Adjustment disorder with anxiety | Anxiety caused by a recent stressor   |
| Generalized anxiety disorder     | Diffuse constant anxiety and worry  |
| Obsessive-compulsive disorder    | Intrusive thoughts and repetitive behaviors   |
| Panic disorder                   | Episodic overwhelming anxiety and autonomic signs   |
| <b>Phobias</b>                   |   |
| Agoraphobia                      | Fear of being trapped in a place from which escape might be difficult and anxiety might occur |
| Social phobia                    | Fear of social embarrassment  |
| Specific phobia                  | Fear of specific object or situation  |
| Posttraumatic stress disorder    | Traumatic event reexperienced, creating anxiety   |

fears and worries, such as the fear of robbery, falls, or strangers, phobias are considered irrational fears of a specific object or situation. If a worry becomes so incapacitating that it causes irrational avoidance behaviors and high levels of distress, it may be considered a phobia. In primary care settings, up to 7 percent of patients older than 65 years can have phobias.<sup>8</sup>

The new onset of panic disorder in late life is rare.<sup>4</sup> Panic disorder is most often a preexisting condition associated with other medical or psychiatric conditions. Raj et al<sup>9</sup> studied an elderly community-dwelling population and found that patients with panic disorder also had chronic pulmonary disease, vertigo, and Parkinson disease. They also found high rates of depression (40 to 52 percent) in these patients. In mixed-age primary care settings, Katon<sup>10</sup> found that 6 percent of primary care patients experienced panic disorder.

Generalized anxiety disorder is common in late life and accounts for up to 50 percent of all anxiety in this population.<sup>4</sup> In primary care settings, generalized anxiety occurs in up to 10 percent of patients older than 65 years.<sup>8</sup> Because this anxiety is often unrelenting, caring for such patients can challenge the family and physician. Instructing a patient not to worry is fruitless and can frustrate all involved.

Obsessive-compulsive disorder is a lifelong disorder that rarely starts in old age.<sup>3</sup> In the elderly population obsessive-compulsive disorder is more common among institutionalized women than in other community-based populations.<sup>4</sup> Obsessions

**Table 2. Medical Conditions Associated With Anxiety.**

| System           | Medical Condition   |
|------------------|---|
| Cardiovascular   | Angina<br>Arrhythmia<br>Myocardial infarction   |
| Endocrine        | Diabetes mellitus<br>Hypercalcemia<br>Hyperthyroidism<br>Hypocalcemia<br>Hypothyroidism<br>Pheochromocytoma |
| Gastrointestinal | Pancreatic tumor<br>Peptic ulcer disease  |
| Genitourinary    | Urinary tract infection   |
| Immunologic      | Carcinoid syndrome<br>Systemic lupus erythematosus  |
| Metabolic        | Hypoglycemia<br>Hyperkalemia<br>Hyponatremia<br>Porphyria   |
| Neurological     | Delirium<br>Dementia<br>Parkinson disease<br>Seizure disorder<br>Tumor                                      |
| Pulmonary        | Chronic obstructive pulmonary disease<br>Hypoxemia<br>Pneumonia<br>Pulmonary embolus                        |

in nursing facility patients can manifest as rigidity about medication, excessive toileting needs, and overwhelming demands upon the nursing staff.

Anxiety disorders can also coexist with depression. Parmelee et al<sup>11</sup> found that in elderly patients with generalized anxiety disorder, 60 percent also had major depression. Ben-Arie et al<sup>6</sup> noted that depressed patients had a much higher likelihood of coexisting generalized anxiety. Blazer and colleagues<sup>12</sup> observed longitudinally a cohort of depressed middle-aged and elderly adults and found that those with persistent anxiety symptoms also had incomplete recovery from depression. Because physicians might recognize anxiety symptoms but fail to diagnose the underlying depression, the actual anxiety catalyst (the patient's depression) is neglected.

### The Medical Evaluation

It is important to separate medical from psychological factors when evaluating anxiety in an older patient. A critical first step is a thorough patient history. In addition to noting the patient's clinical signs and symptoms, obtaining information about

when the condition began and whether such episodes are recurrent can help determine the cause. As most primary anxiety disorders have their origins earlier in life, a history of recurrent episodes would suggest to the clinician a primary anxiety disorder. Clarifying how the illness came about and in what order symptoms occurred can help. A medical illness that might have caused physical signs and symptoms before anxiety became a problem can lead the physician to suspect that the medical illness is driving the anxiety symptoms. A family history is also helpful because panic disorder can be inherited.<sup>13</sup> A patient who complains of anxiety and who has no family or earlier life history of such disorder could have a medical illness as the source of anxiety.

After a thorough medical history and drug and alcohol inventory, the patient should have a mental status evaluation to assess cognitive and perceptual abilities as well as a complete physical examination. Symptom-focused laboratory studies, including urinalysis; blood glucose, electrolytes, and thyroid-stimulating hormone measurements; and a complete blood count will help pick up any medical illnesses that might cause anxiety. If the patient gives a poor history and there is evidence of drug toxicity, he or she should be screened for drugs. Pulse oximetry provides helpful information about hypoxemia-driven agitation. Patients who have cardiac symptoms associated with anxiety should have an electrocardiogram.

### Medical Illnesses and Reversible Anxiety

Some medical conditions can cause anxiety symptoms, and if the condition is addressed, the anxiety might abate. Table 2 lists specific medical illnesses that are associated with anxiety. Likewise, Table 3 suggests a number of drugs that can cause anxiety.

Patients with pulmonary problems, such as chronic obstructive pulmonary disease (COPD) or asthma, can experience hypoxia as an anxiety symptom. Hypercapnia associated with COPD leads to increased locus caeruleus stimulation, a possible noradrenergic mechanism for anxiety episodes in susceptible patients.<sup>14</sup> Restoring ventilation and oxygen-carbon dioxide balance can eliminate the anxiety.<sup>15</sup>

Hyperthyroidism can mimic panic disorder without any other accompanying physical symptoms and can be associated with nervousness, excitability, irritability, pressured speech, or a fear of

impending death.<sup>16</sup> Assessment of thyroid functions in an anxious patient might show elevations in thyroxine and triiodothyronine and decreased thyroid-stimulating hormone levels. By treating thyroid conditions, the physician can treat anxiety symptoms.

Although rare, pheochromocytoma can cause major anxiety symptoms. In patients with pheochromocytoma, sustained hypertension is often accompanied by paroxysmal headaches, sweats, hypermetabolic states, and evidence of such associated conditions as neurofibromatosis or medullary cancer of the thyroid.<sup>17</sup> Anxious patients should be tested for pheochromocytoma if they have these symptoms or are consistently unresponsive to psychiatric interventions. Diagnostic studies for pheochromocytoma include a 24-hour urine assay for catecholamine, metanephrine, and vanillylmandelic acid.

Drug toxicity and withdrawal are common causes of reversible anxiety symptoms (Table 3). Alcoholism often coexists with anxiety. Although alcohol abuse or dependence does not automatically increase the risk of anxiety disorders in elderly patients, they might self-medicate anxiety symptoms with alcohol.<sup>4</sup> Stockwell et al<sup>18</sup> suggest that alcohol abuse and withdrawal have a kindling effect on the sympathetic nervous system and prime the brain for a later anxiety disorder.

Caffeine, anticholinergic medications found in cold and allergy preparations, and bronchodilators are among the substances that can induce anxiety. Antipsychotic medications and serotonin reuptake inhibitor antidepressants can precipitate akathisia, a feeling of internal restlessness.<sup>19</sup> Withdrawal from sedative hypnotics can cause anxiety and insomnia symptoms for the elderly patient.<sup>2</sup>

Another reversible source of anxiety is delirium. This acute change in mental status, with perceptual distortions and alternating levels of consciousness, can have prominent anxiety symptoms. Patients can become verbally and physically aggressive with each episode. By medically treating the source of the delirium (Tables 2 and 3), the physician can completely relieve patients' anxiety and restore their sensorium.

#### **Medical Illnesses Associated With Comorbid Anxiety Disorders**

Some medical illnesses associated with anxiety disorders require ongoing medical and psychi-

**Table 3. Drugs Associated With Anxiety.**

| System                  | Type of Drug   |
|-------------------------|--|
| Cardiovascular          | Antihypertensive<br>Calcium channel blocker<br>Digitalis       |
| Endocrine               | Estrogen<br>Thyroid  |
| Musculoskeletal         | Analgesic<br>Muscle relaxant<br>Nonsteroidal anti-inflammatory |
| Neurologic, psychiatric | Antidepressant<br>Levodopa<br>Neuroleptic                      |
| Otolaryngologic         | Antihistamine<br>Pseudoephedrine                               |
| Pulmonary               | Bronchodilator<br>Steroid<br>Theophylline                      |

atric management to address both conditions. Dementia is one example. Throughout their illness patients with dementia can suffer from agitation, including pacing, wandering, panic attacks, and perceptual disturbances.<sup>20</sup> Management strategies can include behavioral techniques and antipsychotic or anxiolytic therapies.<sup>19,21</sup>

Pulmonary embolus, angina, and arrhythmia are cardiovascular conditions associated with anxiety disorders.<sup>14</sup> In addition, mitral valve prolapse has been strongly connected with panic attacks.<sup>22</sup> Seizure disorders, including temporal lobe epilepsy, are associated with motor restlessness, irritability, and personality change.<sup>14</sup> Patients can experience an aura of impending doom. Treatment for these conditions includes standard medical and psychiatric co-management of each disease process.

#### **Treatment**

Although few large double-blind studies have focused specifically upon older adults, case reports and case-controlled studies have shown that cognitive-behavioral therapies can be effective for older patients.<sup>23</sup> Behavior therapy, using progressive muscle relaxation and breathing exercises,<sup>24</sup> token economies,<sup>25</sup> and cognitive restructuring,<sup>26</sup> has also been successful with elders. With cognitive therapies patients learn to challenge the negative thinking patterns that precipitate or exacerbate anxiety. Treatment in any case should be patient-specific and include frequent follow-up of anxiety symptoms.

Please record each anxiety episode on the following chart. Use one line for each separate episode of anxiety. Rate your anxiety level, what happened before the anxiety began, how you felt, and what you thought about during the episode. Please bring this chart with you to your next doctor's appointment.

| Date | Time | Anxiety Level* | Events Occurring Before Anxiety Episode | Physical Sensations | Fears, Worries, Thoughts | Emotions Felt |
|------|------|----------------|---|---------------------|--------------------------|---------------|
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |
|      |      |                |   |                     |                          |               |

\*On a scale from 1-10, where 1 = none and 10 = worst.

Figure 1. Anxiety diary.

### **Cognitive Strategies**

Cognitive therapy works by exploring and challenging patients' misperceptions and fears. Anxious patients commonly worry about negative evaluation, rejection, failure, or losing control. When challenging negative thoughts associated with anxiety, asking how others would view the patient, exploring the patient's own unrealistic standards, and pointing out all-or-nothing thinking are all helpful anxiety-reducing strategies.

Although some physicians are concerned that asking patients directly about their problems will intensify their anxiety and worsen the problem, most often this response is not the case. Families and support systems should promote open discussion of the stressors a patient faces. Physicians must be prepared to make efficient use of their office time with the patient, however, as discussing anxiety can increase time demands in an already busy practice. Nevertheless, giving patients an opportunity to talk about their worries in a safe environment is therapeutic, and referral for additional therapy would be helpful for insightful patients.

### **Behavioral Strategies**

#### *Diary Keeping*

Ask patients to keep a diary of their anxiety levels (Figure 1). By rating their anxiety several times each day and noting all their symptoms and thoughts, patients can expose previously unrec-

ognized stressors and clarify the negative thinking processes that are often associated with anxiety. For example, if a patient had a panic attack and noted that the physical sensations of panic (tachycardia and tachypnea) caused him to believe death was pending, pointing out that death did not occur challenges this negative thinking. Patients often fear intense physical symptoms, thereby fueling more anxiety.

It is crucial that physicians review patient diaries after 1 to 2 weeks of data are collected so they can learn about their patients' anxiety. It is important to reassure patients that anxiety is self-limited, that the negative thinking associated with anxiety is illogical, and that nervousness will not automatically lead to insanity or death.

#### *Relaxation, Distraction, and Role Playing*

Several behavioral techniques, including relaxation therapy, distraction, role playing, rehearsal, and modeling, can help an anxious elder. Relaxation tapes and books (Table 4) describe progressive muscle relaxation, guided imagery, and breathing exercises. Tapes provide a calming voice to guide the listener through muscle relaxation. Guided imagery tapes and books ask the listener or reader to create a relaxing mental picture and focus upon its calming nature. Finally, breathing exercises break the tachypneic respiratory cycle with slow inhalations and exhalations. Each technique must be practiced while the pa-

tient relaxes so it becomes automatic and readily accessible when anxiety strikes.

Using distraction techniques to shift attention to a routine task can help some patients deal with anxiety. Examples are focusing on all of the details of a given object, counting back from 100 in serial 7s, remembering a pleasant experience, or finding a pleasurable activity that completely absorbs one's attention. Becoming absorbed in a favorite hobby or taking short walks are also good techniques.

Finally, role playing can help patients learn adaptive responses to anxiety. Patients practice facing their fears directly and anticipate the anxious response by mentally reviewing the dreaded stressor and imagining the worst possible scenario. During this process they vocalize any fears generated by their experience. By visualizing several outcomes, patients can practice alternate ways to react to the stressor and increase mastery of the event.

#### **Environmental Strategies**

The increasing frailty sometimes associated with aging can necessitate greater environmental support. Patients might not express directly to their families or physicians that they can no longer maintain the same level of independence. Instead, they might become increasingly anxious and distressed and make frequent nonspecific telephone calls, physician appointments, or emergency department visits.

This diffuse anxiety should signal the need for some environmental intervention, such as home health care, case management, or a move to a location with more support services. Family members might need to become more active in the patient's life to help with those activities of daily living, finances, and household tasks that were once easily accomplished by the patient.

#### **Pharmacologic Strategies**

If the patient is unable to participate in cognitive-behavioral therapies, and severe anxiety impairs functioning, a medication should be considered. Initially elderly patients should be prescribed one half the usual adult dose. Hepatic and renal dysfunction can increase the drug effects because of diminished clearance. When prescribing medications, the physician should assess each patient's physiologic vulnerability.<sup>27</sup> If effective, medica-

**Table 4. Tapes and Books To Decrease Anxiety.**

#### **Relaxation tapes**

Hay House, 1154 E. Domingues Street, PO Box 6204, Carson, CA 90749-6204. 1-800-645-5126.

Healing Visions, Whole Person Associates, 210 West Michigan, Duluth, MN 55802-1908. 1-800-247-6789.

Intrinsic Development, Inc, 410 East Main Street, Mechanicsburg, PA 17055. 1-800-354-2858.

SOURCE, PO Box W, Stanford, CA 94309. 1-800-52-TAPES.

#### **Relaxation and stress-reduction books**

Burns DD. *Feeling good: the new mood therapy*. New York: Morrow Publications, 1980.

Davis M, Eshelman ER, McKay M. *The relaxation and stress reduction workbook*. Oakland, Calif: New Harbinger Publications, 1988.

Kabat-Zinn J. *Full catastrophe living*. New York: Delta Trade Paperbacks, 1990.

Ornish D. *Dr. Dean Ornish's program for reversing heart disease*. New York: Ballantine Books, 1990.

tions should be continued for 4 to 6 months, after which the medications should be gradually tapered while the patient is monitored for symptom recurrence.

#### **Benzodiazepines**

Benzodiazepines offer immediate relief from anxiety. Case reports suggest that these agents provide expedient relief for elderly patients who have panic disorder, generalized anxiety disorder, acute social phobia, and anxiety associated with obsessive-compulsive disorder.<sup>27</sup> Benzodiazepines diminish the sympathetic response associated with anxiety, offer muscle relaxation, and provide sedation. Habituation, cognitive impairment, and disinhibition are associated with benzodiazepine use, and elderly patients with diminished renal and hepatic clearance are at risk for these side effects.<sup>28</sup> Because of the potential for cross-addiction, benzodiazepine use should be limited in elderly patients who have a history of substance abuse.

Benzodiazepines with short half-lives, such as lorazepam, oxazepam, and alprazolam, are most appropriate for elderly patients. They should be prescribed in low doses, on a time-limited basis (2 to 3 months), and with frequent physician monitoring. With continued use, falls decrease and drug hangover diminishes.<sup>29</sup> Table 5 displays drug dosing regimens and precautions for this population. Because of the shortened half-life of short-acting benzodiazepines, patients who take them regularly are at risk for increased drug de-

**Table 5. Pharmacologic Management of Anxiety.**

| Drug  | Dose   | Indications   | Adverse Reactions                                    |
|---|--|---|--|
| Azapirone<br>Buspirone (BuSpar)   | 5-15 mg every 8 h  | Generalized anxiety disorder  | Dizziness, nausea, headache                          |
| $\beta$ -Adrenergic agents<br>Propranolol (Inderal)   | 10 mg every 6 h  | Sympathetic symptoms associated with panic disorder, social phobia  | Hypotension, bradycardia                             |
| Benzodiazepines<br>Lorazepam (Ativan)<br>Oxazepam (Serax)<br>Alprazolam (Xanax)   | 0.25-1.0 mg every 4-6 h<br>10-20 mg every 8 h<br>0.25-1.0 mg every 4-6 h | Panic disorder, generalized anxiety disorder<br>Anxiety associated with obsessive-compulsive disorder/social phobia | Sedation, confusion, ataxia                          |
| Selective serotonin reuptake inhibitors<br>Fluoxetine (Prozac)<br>Fluvoxamine (Luvox)<br>Paroxetine (Paxil)<br>Sertraline (Zoloft)<br>Venlafaxine (Effexor) | 10-40 mg/d<br>50-200 mg/d<br>10-40 mg/d<br>25-200 mg/d<br>25-225 mg/d    | Obsessive-compulsive disorder, panic disorder, social phobia  | Activation, headache, nausea, diarrhea, hypertension |
| Tricyclic antidepressants<br>Clomipramine (Anafranil)<br>Desipramine (Norpramin)<br>Imipramine (Tofranil)<br>Nortriptyline (Pamelor)                        | 10-150 mg/d<br>25-200 mg/d<br>25-200 mg/d<br>25-250 mg/d                 | Panic attack, agoraphobia, panic disorder, obsessive-compulsive disorder  | Sedation, orthostasis, constipation, delirium        |

pendency and greater rebound associated with withdrawal.<sup>29</sup> If patients need long-term anxiety management, switching them to an antidepressant or buspirone will provide a safer strategy.

#### *Buspirone*

Buspirone treats generalized anxiety disorder and anxiety associated with general medical conditions. Robinson et al<sup>30</sup> studied 800 elderly patients with generalized anxiety disorder for whom buspirone was prescribed and found drug efficacy comparable to that found in younger populations. Buspirone has not been shown to be effective for panic disorder, phobias, or obsessive-compulsive disorder. Because it is nonhabituating and does not cause withdrawal symptoms, buspirone has less potential for abuse.<sup>31</sup> In addition, it causes less sedation, psychomotor slowing, and pulmonary impairment than do benzodiazepines<sup>30</sup> and is helpful for patients with generalized anxiety disorder who are prone to falls, confusion, or chronic lung disease. Buspirone should be started at 5 mg three times a day and gradually increased by 5-mg increments every 2 to 5 days to a maximum dosage of 60 mg/d. Patient reassurance and careful encouragement might be necessary with buspirone, as it can take 6 to 8 weeks to become effective<sup>32</sup> (Table 5).

#### *$\beta$ -Adrenergic Drugs*

$\beta$ -Blockers work to reduce anxiety by inhibiting brain  $\alpha$ - and  $\beta$ -adrenergic receptors, resulting in diminished noradrenergic stimulation. Peripheral effects are lowered blood pressure, pulse, and autonomic arousal, which cause a subjective feeling of reduced anxiety.  $\beta$ -Blockade is most effective centrally. Propranolol, which is highly lipophilic and easily transported across the blood-brain barrier, is the most frequently prescribed  $\beta$ -blocker.<sup>19</sup>

Although no clinical trials of  $\beta$ -adrenergic agents exist exclusively for patients older than 65 years, Petrie and Ban<sup>33</sup> noted in two case reports that propranolol diminished anxiety in several elderly demented patients, a group that might be considered a target population.  $\beta$ -Blockers should be prescribed with caution for elderly patients because of associated orthostasis and bradycardia.

#### *Antidepressants*

Antidepressants effectively treat obsessive-compulsive disorder, panic disorder, and social phobias. Selective serotonin reuptake inhibitors (SSRIs) are antidepressants with few side effects, which makes them appealing for many older adults, even those with severe comorbid cardiovascular illness. Because of the interaction be-

tween cytochrome P-450 and drug metabolism, caution should be used when combining SSRIs with tricyclic antidepressants, antiarrhythmics, codeine, carbamazepine, benzodiazepines, and  $\beta$ -blockers or calcium channel blockers. Blood levels of these medications can increase when SSRIs are added to a patient's regimen, and patients should be observed carefully for clinical evidence of toxicity.<sup>34</sup>

For obsessive-compulsive disorder, fluoxetine and fluvoxamine have been shown to be effective in clinical trials that have included some older adult patients. Feighner<sup>35</sup> studied several hundred geriatric patients treated with fluoxetine, noting significant decreases in Hamilton-D scores after 6 weeks. In a 20-week double-blind study of fluvoxamine versus placebo, Perse<sup>36</sup> found that 81 percent of patients responded to fluvoxamine compared with 19 percent to placebo.

Although not formally approved for panic disorder by the Food and Drug Administration (FDA), paroxetine and venlafaxine have been effective in mixed-age populations. In a double-blind British study, Oehreberg *et al*<sup>37</sup> found that with 12 weeks of treatment the mixed-age cohort had a 50 percent reduction in the total number of panic attacks. Likewise, Geraciotti<sup>38</sup> noted that, in a mixed-age case report series, panic attacks were completely eliminated in 4 patients.

Initial clinical trials have concluded that SSRIs can minimize social phobic symptoms in mixed-age populations. Katzelnick *et al*<sup>39</sup> enrolled 12 socially phobic patients in a double-blind trial of sertraline versus placebo; they found that after 10 weeks 50 percent of the patients taking sertraline reported lessened anxiety compared with 9 percent taking a placebo. In an open-label venlafaxine study of 8 mixed-age patients who had social phobias, Kelsey<sup>40</sup> reported that 75 percent had subjective improvement. Van Ameringen *et al*,<sup>41</sup> in a study of 16 patients with social phobia, noted symptom improvement in the majority of patients taking fluoxetine in doses of 20 to 80 mg/d. Finally, van Vliet and colleagues<sup>42</sup> prescribed fluvoxamine for 30 mixed-age patients and found 46 percent had substantial improvement in social and anticipatory anxiety.

Tricyclic antidepressants have been used in the treatment of panic disorder. Patients with incomplete or complete heart block should not

be given tricyclic antidepressants because these medications can cause a prolonged QRS complex. All elderly patients should have a premedication electrocardiogram as well as serial electrocardiograms throughout treatment to monitor for increased blockade. Zitrin *et al*<sup>43</sup> studied 111 mixed-age patients who received psychotherapy and imipramine therapy; they found that imipramine was superior to placebo, and up to 86 percent of all patients showed moderate to marked global improvement. In a series of 9 adult patients, Rifkin *et al*<sup>44</sup> reported that imipramine and desipramine prevented sodium lactate-induced panic attacks in all patients. Because of their anticholinergic side effects (sedation, confusion, constipation) and  $\alpha$ -adrenergic blockade (orthostasis), tricyclic antidepressants require careful monitoring. Blood level measurements of imipramine, desmethylimipramine, and nortriptyline can help guide drug dosage.<sup>45</sup>

The tricyclic antidepressant clomipramine has been approved by the FDA to treat obsessive-compulsive disorder. Although older patients can be more vulnerable to clomipramine's anticholinergic side effects, Austin and colleagues<sup>46</sup> reported a series of 3 elderly patients, all of whom had good clinical responses to this drug.

For patients who do not respond to initial anxiety interventions, referral to a mental health specialist should be considered. A consulting psychiatrist can help confirm the diagnosis as well as offer unconsidered treatment options. Ongoing therapy can help the elder to regain self-esteem.

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