

*Series Editor: T. S. Dharmarajan, MD, FACP, AGSF*

## **An Older Adult with Forgetfulness and an Irregular Heart Rhythm**

*T. S. Dharmarajan, MD, FACP, AGSF*

*Ajit J. Kokkat, MD*

### **CASE PRESENTATION**

#### **Patient History**

A 77-year-old man who had recently moved into the area was brought by his son to the geriatric clinic for his first visit. The patient's medical history was significant for congestive heart failure, angina pectoris, atrial fibrillation, abdominal aortic aneurysm (AAA), valvular heart disease, hypertension, and recent history of excessive alcohol consumption. His son removed 30 cans of beer from the patient's home 2 weeks prior to the office visit.

The patient experienced several falls over the past 2 years; the most recent fall occurred during his birthday party 2 months ago, after which he appeared confused and unable to recognize friends and family for a few hours. The subject also reported recurrent episodes of epistaxis, one of which resulted in a visit to the emergency department a week earlier. He did not experience headache, dizziness or other symptoms along with the epistaxis. His son reported that his father would use up to a box of tissues daily to "clear his nose."

The son observed that his father had had a tremor for more than 10 years and that it had worsened over the past 2 years. The tremor, visible to the clinician, did not interfere with routine activities such as eating and writing and was somewhat ameliorated by the use of alcohol. The only other complaint was occasional self-limiting abdominal discomfort.

The visit was initiated by the son because of his concern about his father's forgetfulness and the need for help with instrumental activities of daily living (eg, managing finances, preparing a shopping list), although he could perform basic activities of daily living independently. Basic calculations appeared to be fraught with errors, notable considering that he had been a chief accountant for a city firm until his retirement 10 years ago. Frustration caused by these difficulties was associated with mood swings and temper

tantrums and with a lack of willingness to take advice, even from his son. Rarely, his choice of clothing would be inappropriate for the environment. The patient apparently had stopped driving 4 years ago because he was getting lost, even in his own neighborhood, and feared having an accident.

Current medications included digoxin (0.125 mg once daily), furosemide (20 mg 5 times per week), aspirin (325 mg 3 times daily), enalapril (10 mg once daily), and isosorbide mononitrate (30 mg once daily). In addition, he took 1 multivitamin tablet daily, vitamin A (10,000 IU 3 times daily), ginkgo biloba, and St. John's wort. The patient admitted to periodically skipping his medications.

Although the patient (confirmed by caregiver) stated that he recently has totally abstained from drinking, his past history was suggestive for excessive alcohol consumption. He ingested up to 5 or 6 cans of beer most days of the week for the past 2 years. His last drink was 2 weeks prior to his current visit. No hospitalizations for alcohol-related illness were reported.

The patient brought in several test results provided by his previous primary care physician. Laboratory results from tests performed 1 month prior to his present visit were unremarkable, except for a serum urea nitrogen level of 40 mg/dL and a serum creatinine level of 1.4 mg/dL. Prothrombin time and activated thromboplastin time were normal, as were results of thyroid function tests.

Four months prior to the current visit, the patient underwent several diagnostic tests. Electrocardiography

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*Dr. Dharmarajan is Chief of the Division of Geriatrics and Director of the Geriatric Medicine Fellowship Program, Our Lady of Mercy Medical Center, Bronx, NY; an Associate Professor of Medicine, New York Medical College, Valhalla, NY; and a member of the Hospital Physician Editorial Board. Dr. Kokkat is a Senior Fellow in Geriatric Medicine, Our Lady of Mercy Medical Center, Bronx, New York.*

revealed atrial fibrillation with ventricular rate of 66/min and left ventricular hypertrophy. Echocardiography indicated the presence of mitral regurgitation, aortic insufficiency, biventricular enlargement, and left ventricular systolic dysfunction. A chest radiograph demonstrated a widened mediastinum and cardiomegaly. A computed tomographic (CT) scan of the brain indicated mild cerebral atrophy. A CT scan of the abdomen (for evaluation of the abdominal discomfort) revealed an AAA with a diameter of 4 cm.

### **Physical Examination**

On examination, the patient appeared alert, cooperative, and cheerful. His weight was 70 kg (154 lb). Vital signs revealed normal temperature, irregularly irregular pulse at 68 bpm, blood pressure of 140/90 mm Hg, and a respiratory rate of 12 breaths/min. The nasal mucosa appeared dry; the nostrils were normal with no sign of bleeding. Rigidity and resting tremor were absent, with range of movement normal at all joints. Results of the neurologic examination were normal, including the ability to perform tandem walking and the finger-nose test; nystagmus was absent. Bilateral hand tremor was evident when the arms were extended and was exaggerated by activity. Gait was slow without noticeable abnormalities. The remainder of the physical examination was normal. Vision and hearing appeared intact. The Mini-Mental State Examination (MMSE) yielded a score of 24 out of 30.

### **GENERAL CONSIDERATIONS**

Geriatric patients tend to have multiple disease processes; further, many of these disorders manifest atypically in comparison with presentation of the same illness in younger individuals. Silent disease is not uncommon and is often brought out during the course of evaluation. The elderly tend to be on numerous medications, which may play a role in the presentation and complicate management. In cases in which a cure is not possible, the primary care provider can nevertheless strive to help the older patient by improving function and quality of life.

This case represents a pattern commonly seen in geriatric medicine. The presentation involved multiple problems, including (but not limited to) cardiac and neuropsychiatric disease and an AAA. The patient is on numerous medications. Multiple comorbid processes and polypharmacy, both apparent here, are commonplace in this age group. However, the main concern that prompted the son to seek medical attention for his father was the issue of cognition and suspicion of possible dementia.

### **APPROACH TO DEMENTIA**

- **Does this patient have dementia?**

#### **Assessing Cognition**

Dementia is a syndrome characterized by the gradual development of cognitive impairment substantial enough to cause a decline from prior functional status.<sup>1</sup> The recognition of early dementia rests on obtaining an adequate history. It is important to pay close attention to changes in a patient's ability to perform instrumental activities of daily living (eg, financial affairs, problem solving) and capacity for independent social functioning, as well as changes in personal hygiene or personality.<sup>2</sup>

Results of assessment scales for cognitive function are often normal in patients with early dementia. The MMSE is a commonly used tool for assessing cognition.<sup>3</sup> Of a maximum score of 30 points, 24 points and above is generally considered a normal score. Age and education affect performance on the MMSE; scores tend to be higher in younger subjects and in those with a college education.<sup>2</sup> Although MMSE score on its own does not confirm or exclude a diagnosis of dementia, serial testing helps document progressive deterioration (or improvement) in cognitive function. The case patient scored 24, a borderline normal result. In addition, he required help with instrumental activities of daily living; taken together, these factors are indicative of cognitive impairment.

Another tool to assess cognition is the Mini-Cog; this test requires only a few minutes to administer and includes a 3-item recall test and a clock drawing test.<sup>4</sup> The Mini-Cog compares favorably with the MMSE as a screening test for dementia but has not been validated in the general population.

#### **Distinguishing Dementia from Other Disorders**

It is of paramount importance to rule out conditions that can masquerade as cognitive impairment. These include depression, delirium, alcohol abuse, and adverse drug effects or drug interactions from polypharmacy. In particular, dementia must be differentiated from delirium. Delirium is a syndrome characterized by a disturbance in consciousness developing over a course of hours to days, with fluctuation in severity and inability to sustain attention; a causative medical illness is usually apparent. Delirium is associated with a high mortality unless the causative factor is corrected.

#### **Discussion of the Case**

Several points in the case patient's history are suggestive of dementia (**Table 1**). These include his tendency

to be lost in familiar surroundings, his inability (as a former accountant) to perform basic calculations, his occasionally inappropriate dress habits, and changes in his personality with tantrums resulting from basic frustrations, including the periodic inability to communicate with his own son (the caregiver). Note that his vision and hearing were intact. His termination of driving due to impairment of executive functioning (no other basis is apparent) and inability to manage his finances represent a clear decline from prior functional status.

#### **Key point**

Dementia is characterized by gradual onset of cognitive dysfunction sufficient to cause a decline from prior social and occupational function. Although the MMSE does not confirm or exclude a diagnosis of dementia on its own, serial examinations can help to document such a decline.

- **What is the likely etiology of the case patient's dementia?**

#### **Etiology of Dementia**

Dementia is present in as many as 8% of community-dwelling adults older than 65 years and in approximately 75% of residents in skilled nursing facilities.<sup>5</sup> Alzheimer's disease, which increases with age, is the most common etiology, followed by vascular dementia. Other causes include Lewy body dementia, frontotemporal dementia, Parkinson's disease, and vitamin B<sub>12</sub> deficiency.

Given the case patient's history of hypertension and atrial fibrillation, vascular dementia is a likely basis, although mixed dementia (vascular basis combined with Alzheimer's disease), which has been increasingly recognized, is possible. Cognitive impairment has been linked to long-standing hypertension; high systolic and diastolic blood pressures predispose not only to large-vessel involvement but also to small vessel ischemic disease in the brain.<sup>6</sup> Antihypertensive therapy with adequate long-term control of blood pressure has been shown to decrease cerebrovascular disease and prevent development of vascular dementia.<sup>6</sup> The chronic excessive intake of alcohol in the case patient also may have played a role in the development of cognitive dysfunction.

Although dementia is usually irreversible, an attempt to detect reversible causes of dementia must always be made. Vitamin B<sub>12</sub> deficiency, neurosyphilis, hypothyroidism, space-occupying brain lesions or subdural hematoma, hearing or visual impairment, depression, and normal pressure hydrocephalus are examples of treatable conditions that may present as dementia.

**Table 1.** Clues Suggesting a Diagnosis of Dementia

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Alteration in personality with frequent mood fluctuations
Decline in ability to perform instrumental activities of daily living (eg, finances)
Failure to take cues, particularly in Alzheimer's disease
Getting lost in familiar surroundings (eg, one's own neighborhood)
Inappropriate choice of clothing for the environment
Lack of interest in activities that were previously pursued
Misplacing objects and inability to find commonly used items
Word-finding difficulties (especially common words) with substitutions

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#### **Key point**

Alzheimer's disease, a degenerative disorder, is the most common cause of dementia, accounting for two thirds of cases, followed by vascular and mixed dementia.

#### **Diagnostic Testing**

Neuroimaging can be helpful in determining the cause of dementia if focal neurologic signs are present, particularly for the diagnosis of vascular dementia. Magnetic resonance imaging can help to detect small vessel disease but is more expensive than computed tomography.<sup>5</sup> Serum vitamin B<sub>12</sub> levels (to assess for cobalamin deficiency) and serologic tests for syphilis would be helpful in evaluating the case patient. Additional diagnostic tests (eg, electroencephalography, HIV testing, lumbar puncture) are indicated in select cases (**Table 2**).

Neuropsychological evaluation can help to differentiate age-associated memory impairment, mild cognitive impairment, and dementia; the first two may precede the eventual development of dementia. Such testing assesses memory, attention, language, speed of information processing, and visuospatial and executive functions.<sup>5</sup> It should be noted that results of these laboratory tests are not abnormal in Alzheimer's disease, and complete evaluation (including genetic and neuropsychological testing) may not necessarily yield a definitive diagnosis.

#### **Key point**

Reversible causes of dementia should be excluded.

#### **APPROACH TO ATRIAL FIBRILLATION**

- **How should the case patient's atrial fibrillation be managed? Is anticoagulation indicated?**

**Table 2.** Evaluation of Dementia

**Routine elements of evaluation**

Focused history and physical examination  
 Medication review  
 Mental state examination  
 Auditory and visual testing  
 Complete blood count  
 Metabolic panel  
 Thyroid function tests  
 Vitamin B<sub>12</sub> level  
 Syphilis serology  
 Neuroimaging

**Additional tests\***

Lumbar puncture  
 Neuropsychological testing  
 HIV status  
 Electroencephalogram  
 Serum protein electrophoresis  
 Toxicology screen  
 Genetic testing  
 Ceruloplasmin level  
 Lyme disease titer

\*Use restricted to individual cases.

**Etiology of Atrial Fibrillation**

Atrial fibrillation occurs in more than 5% of the geriatric population, with its prevalence increasing with age.<sup>7–9</sup> Its most serious complication is stroke. The case patient has multiple predisposing factors for the arrhythmia, including male gender, older age, hypertension, heart failure, and valvular heart disease.<sup>9</sup> Left atrial enlargement, left ventricular hypertrophy, impaired systolic function, coronary artery disease, pericarditis, chronic lung disease, and overt and subclinical hyperthyroidism are associated with the occurrence of atrial fibrillation.<sup>8</sup> Alcoholism has been linked to paroxysmal atrial fibrillation.

**Risk for Stroke**

The risk for stroke in patients with atrial fibrillation is 4 to 5 times that of the general population; this increase is attributable to stasis, left atrial thrombosis, and a hypercoagulable state.<sup>9</sup> Clinical risk factors for stroke in patients with atrial fibrillation include hypertension, prior stroke or transient ischemic attack (TIA), prosthetic heart valves, rheumatic mitral stenosis, diabetes mellitus,

**Table 3.** Guidelines for Anticoagulation in Patients with Atrial Fibrillation

**Presence of risk factors for stroke\***

Any age: warfarin

**No risk factors for stroke**

Age < 65 years: aspirin  
 Age 65–75 years: aspirin or warfarin  
 Age > 75 years: warfarin

Data from Peters et al,<sup>7</sup> Tong and Albers,<sup>10</sup> Fuster et al,<sup>11</sup> and Falk.<sup>12</sup>

\*Risk factors: advancing age, hypertension, prior stroke or transient ischemic attack, prosthetic heart valve, rheumatic mitral stenosis, diabetes, coronary artery disease, and congestive heart failure

coronary artery disease, and congestive heart failure.<sup>7,10,11</sup> The factor associated with the highest relative risk for stroke and systemic embolism is previous stroke or TIA.<sup>11</sup>

Currently, warfarin is indicated for anticoagulation in patients with atrial fibrillation who are older than 75 years irrespective of risk factors and in those age 65 to 75 years with any risk factor.<sup>10</sup> For patients age 65 to 75 years without risk factors, warfarin or aspirin may be used, depending on the risk-benefit assessment<sup>10</sup> (Table 3). Although advanced age is a risk factor for stroke as well as for warfarin-associated bleeding, the relative risk for stroke in patients with atrial fibrillation exceeds that of bleeding from warfarin; therefore, when possible, warfarin therapy is recommended.<sup>10</sup> Based on age-related pharmacokinetics and pharmacodynamics, lower doses of warfarin in older patients provide the same degree of anticoagulation as in younger adults.<sup>13</sup> Drug interactions involving warfarin are common in practice; bleeding risk is affected by dietary factors and concomitant medication use (prescribed and over-the-counter).<sup>10</sup>

**Discussion of the Case**

The time of onset of the case patient's atrial fibrillation cannot be determined; it is conceivable that paroxysmal episodes of atrial fibrillation may have contributed to his falls. He was taking digoxin; however, this drug is not particularly effective in chemical cardioversion of this arrhythmia.<sup>12</sup>

The patient was noncompliant with medications, had recurrent falls with a potential risk for head injury, and had an AAA with risk for rupture or bleeding in the future. The risk-benefit ratio in this individual hence does not appear to favor the use of warfarin for atrial fibrillation, although he appears prone to complications from atrial fibrillation. The use of aspirin might be an option.

**Key point**

Atrial fibrillation is associated with an increased incidence of stroke. Anticoagulation therapy is indicated for elderly patients with atrial fibrillation, unless the risks of therapy outweigh the benefits.

**APPROACH TO ABDOMINAL AORTIC ANEURYSM**

- How should the case patient’s abdominal aortic aneurysm be approached?

AAAs are usually asymptomatic; vague abdominal pain (as in the case patient) or the presence of peripheral aneurysms (eg, popliteal) may be suggestive clues.<sup>14</sup> A vascular surgery consultation is clearly indicated in this case. A ruptured aneurysm must be considered in patients with a pulsatile abdominal mass, back pain, and/or hypovolemic shock; the condition is usually fatal, with the majority of patients dying before reaching the hospital.

Elective surgery should be considered for aneurysms exceeding 5.5 cm in diameter, unless comorbid conditions substantially increase the risk for mortality. Management of smaller aneurysms is controversial. Patients with an AAA between 4 and 5.4 cm in diameter, as in the case patient, are recommended to undergo periodic monitoring by abdominal ultrasound or computed tomography.<sup>15,16</sup>

**Key point**

AAA should be excluded in older patients with back pain or vague abdominal discomfort and in the presence of peripheral aneurysms.

**APPROACH TO TREMOR**

- How should the case patient’s tremor be approached?

**Types of Tremor**

Tremor may be of several types (**Table 4**). Action tremor occurs with voluntary activities, such as writing or holding the outstretched hands in front of the body. Essential tremor is the most common action tremor and is present in up to 6% of the geriatric population. Essential tremor affects the hands, head, voice, and lower limbs. Intention tremor occurs when the limb approaches a target. Intention tremor with ataxia, nystagmus, scanning speech, and an inability to perform the finger-nose maneuver suggests cerebellar disease. Resting tremor occurs with the limb relaxed and may signify Parkinson’s disease. Physiologic tremor may be

**Table 4.** Characteristics of Tremors in Older Adults

Essential tremor	Action tremor: occurs during activity (eg, writing); mildly asymmetric; affects head, voice, trunk, lower limbs; family history present.
Physiologic tremor	Enhanced by fear, anger, fatigue, smoking, caffeine, hyperthyroidism, and certain drugs (eg, prednisone, $\beta$ -adrenergic bronchodilators, valproic acid, SSRIs).
Cerebellar dysfunction	Intention tremor: coarse, terminal tremor during specific activity. Tremor occurs when hand nears target; associated with ataxia, scanning speech, dysdiadochokinesia.
Parkinson’s disease	Resting tremor: pill-rolling quality; unilateral or bilateral; occurs at rest and during activity at later stage; associated with bradykinesia and rigidity.

SSRI = selective serotonin reuptake inhibitor.

transiently enhanced by stress, caffeine, nicotine, certain medications (eg, selective serotonin reuptake inhibitors, prednisone) or certain disease processes (eg, hyperthyroidism).<sup>17</sup>

Pharmacotherapy is not indicated for mild essential tremor unless it interferes with function. Nonselective  $\beta$ -adrenergic antagonists (eg, propranolol) and the anticonvulsant agent primidone reduce the severity of essential tremor; gabapentin and alprazolam also have shown promise in the treatment of essential tremor.<sup>17</sup> The effectiveness of calcium channel blockers varies—nimodipine has been shown to improve tremor, whereas nifedipine may worsen it.<sup>17</sup>

**Discussion of the Case**

The tremor in the case patient appears to be an essential tremor: relief with alcohol is noted, gait abnormalities and rigidity are absent, and thyroid function is normal. Because his tremor does not interfere with activities of daily living, treatment is not indicated at this time. Although alcohol provides some relief, its use should be discouraged in this patient because of the past history of excessive alcohol use and the adverse consequences of alcohol intake.

**Key point**

Treat essential tremor only if it interferes with function.

**APPROACH TO EPISTAXIS**

- How should the case patient’s epistaxis be managed?

**Table 5.** Some Clues Suggesting Alcoholism in Older Adults

Falls and accidents
Loss of motivation
Personality disorder
Poor compliance with medication regimen
Self-neglect, poor hygiene
Uncontrolled hypertension
Unexplained cognitive decline
Unexplained delirium
Unexplained macrocytosis

The nasal septum is rich in vascular supply, and epistaxis frequently results from digital trauma. Nose-picking and accidental trauma are common causes of epistaxis in older adults; cold dry air or warm air without adequate humidification increase the occurrence of epistaxis. Inflammation of nasal mucosa (eg, from infection or allergic rhinitis) also may lead to epistaxis. Heavy alcohol consumption increases bleeding time by altering platelet activity. The presence of an intranasal foreign body should be excluded, particularly in demented subjects. Medications associated with epistaxis include aspirin, nonsteroidal anti-inflammatory drugs, warfarin, furosemide, corticosteroid nasal sprays, and anticholinergic drugs. The case patient has hypertension; however, studies have not substantiated hypertension as a true etiology for epistaxis.<sup>18</sup>

Contributors to epistaxis in the case patient include diuretics, aspirin, alcohol, and probably frequent nose-picking (as evidenced by his liberal use of tissues). This patient would benefit from the use of saline nasal sprays to prevent drying of nasal mucosa, but in view of coexisting dementia, compliance could be a problem. Therefore, a humidifier for his home would be an alternative to reduce recurrent epistaxis.

**Key point**

Suspect the presence of an intranasal foreign body if a unilateral bloody discharge occurs in a person with dementia.

**APPROACH TO EXCESSIVE ALCOHOL CONSUMPTION**

- Does alcoholism play a role in the case patient’s clinical presentation?

**Presentation of Alcoholism in Geriatric Patients**

Alcoholism is a common but underrecognized disorder in the elderly. Prevalence of alcohol abuse range

from 10% to 22% in the geriatric population, with a higher prevalence in men compared with women.<sup>19</sup> Predisposing factors include social isolation, death of a loved one (eg, spouse), retirement, new onset of a medical condition, deterioration in economic status, and prior substance abuse and/or psychiatric disorders.<sup>20,21</sup>

Presentation of alcoholism in the geriatric population can differ from that in younger patients. Manifestations include uncontrolled hypertension, cognitive decline, falls, personality disorder, malnutrition, and self-neglect (Table 5). A high index of suspicion, with use of focused history-taking and the appropriate use of screening instruments for alcohol abuse (eg, the CAGE questionnaire) can help identify the problem in elderly patients.<sup>21</sup> A nutritional evaluation is indicated in patients with a history of alcoholism because it typically is associated with consumption of a poorly balanced diet. Folic acid and thiamine levels should be obtained and liver function assessed.

Alcohol consumption can lead to falls via several mechanisms, including impaired balance and judgment, orthostatic hypotension, cerebellar degeneration, myopathy, neuropathy, and global cognitive impairment.<sup>21</sup> Dementia and alcohol use share a complex relationship; postulated links include direct neurotoxicity, Wernicke-Korsakoff syndrome, and delirium.<sup>19</sup> Alcoholism is considered a risk factor for other forms of dementia, including Alzheimer’s disease; eliminating alcohol intake thus is essential in any person with cognitive impairment.<sup>19</sup>

**Discussion of the Case**

The case patient has a history of excess drinking and fits the risk factor profile for alcoholism. However, although excessive alcohol consumption may have contributed to his memory loss and falls, he had stopped drinking 2 weeks earlier and had no manifestations of withdrawal (delirium tremens). He should receive long-term follow-up for recurrence of his drinking problem.

**Key point**

Alcoholism is a common yet unrecognized problem in older adults. Screening for alcohol use should be included in a comprehensive geriatric assessment.

**REVIEW OF MEDICATIONS**

- Is this patient’s drug regimen appropriate? Are changes indicated?

A careful review of medications is an important part of a comprehensive geriatric assessment. In cognitively

impaired patients, a periodic review of medications should be performed by the caregiver or visiting nurse. Several alterations in pharmacokinetics occur with aging, often requiring dosage adjustments. Renal function influences drug kinetics and is often abnormal in older adults as a result of aging or disease. Renal function can be estimated using the Cockcroft and Gault formula:

$$\text{Creatinine clearance in males (per min)} = \frac{(140 - \text{age in years}) \times (\text{body weight in kg})}{72 \times \text{serum creatinine concentration in mg/dL}}$$

In females, the result is multiplied by 0.85.

Using the Cockcroft and Gault formula, the creatinine clearance in the case patient is 42.6 mL/min, reflecting a reduction in glomerular filtration rate. Other relevant age-related changes that affect drug kinetics and dynamics include an increase in total body fat with a decline in total body water and lean body mass. Water-soluble drugs (eg, digoxin) hence will achieve higher concentrations with the potential for adverse drug events at regular maintenance doses.

#### Key point

Estimate creatinine clearance to adjust the dosage of renally excreted medications.

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#### Discussion of the Case Patient's Drug Regimen

Several changes can be made to the case patient's drug regimen. Furosemide is probably ineffective at the prescribed low dose; given the degree of renal dysfunction, the effective dose for this patient would be higher. Enalapril should be titrated to the maximum tolerated dose to achieve full benefit for the treatment of his hypertension and congestive heart failure. However, the additional use of isosorbide mononitrate for coronary artery disease may place the patient at risk for orthostatic and postprandial hypotension and consequent falls. Digoxin helps control the heart rate and improves morbidity associated with congestive heart failure; however, in view of the case patient's history of recurrent falls, digoxin may well account for drug-related arrhythmias. The patient's dose of digoxin should be reduced and titrated for renal function.

Vitamin A toxicity is not uncommon in older adults; the fat-soluble vitamin is retained in fat depots and deficiency is rare. Hypervitaminosis A presents with fatigue, bone pain, dry skin, xanthosis, neurologic disturbances, headache, hepatomegaly, and abnormal liver function.<sup>22</sup> Alcohol potentiates the hepatotoxicity

of vitamin A. Because the case patient already is ingesting a multivitamin tablet daily that contains vitamin A, there is no indication for the use of additional vitamin A; in fact, he should be counseled to stop this vitamin.

Aspirin at a daily dose of up to 325 mg is an option for coronary artery disease and stroke prophylaxis; the case patient is needlessly increasing the risk for gastrointestinal bleeding by taking larger doses (975 mg daily). If pain from osteoarthritis is the reason for the higher dosage, acetaminophen would be a safer choice for analgesia.

Herbal remedies are not regulated by the US Food and Drug Administration; however, according to a large US survey, 11% of men and 14% of women 65 years or older used herbal products or other natural supplements.<sup>23</sup> Precise pharmacokinetic data is lacking for these supplements; several interactions with prescription drugs have been recognized. The case patient takes ginkgo, which increases the effect of warfarin and risk for bleeding, and St. John's wort, which induces the cytochrome P450 system, thereby interacting with many medications, including digoxin.<sup>24</sup>

#### Key point

Every symptom does not need to be treated with a drug. Medications should be reviewed during every office visit, and unnecessary medications should be discontinued.

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#### CONCLUSION

In summary, the 77-year-old patient presented here manifested multiple medical problems. His cognitive impairment appears to be from dementia, likely of vascular etiology, although Alzheimer's disease or a mixed basis cannot be excluded. Cognition should be assessed periodically; assessment should include discussions with the son regarding any need for additional help at home and/or long-term institutionalization. Alcohol is a likely contributory factor to the patient's dementia and falls; follow-up visits should include screening for recurrence of alcoholism.

Owing to the patient's history of falls and the presence of cognitive impairment and an AAA, he does not appear to be a candidate for anticoagulation with warfarin for his atrial fibrillation. The patient's essential tremor is mild, does not interfere with function, and therefore does not warrant pharmacologic treatment. The asymptomatic AAA needs surveillance with ultrasonography or a CT scan and periodic re-evaluation by a vascular surgeon. Epistaxis could be minimized with the use of nasal saline sprays or a humidifier at home.

A revision of the patient's drug regimen would certainly be beneficial, with review of medications performed on an ongoing basis. It would be appropriate to discuss the institution of advance directives with this patient while he still has decision-making capacity. In conclusion, much can be done to help this patient, even though a "cure" is not possible for many of his problems. The ultimate objective of management in this case would be to improve or preserve the patient's function and quality of life. **HP**

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