Aortic Stenosis: 
Early Intervention Improves Outcome

As life expectancy rises, the number of octogenarians referred for cardiac surgery is increasing, particularly those with aortic valve disease. Valve disease is common in this population, with as many as 4 percent of people over 80 suffering from severe aortic stenosis. Fortunately, there is strong evidence that elderly patients who undergo valve repair can do extremely well, significantly prolonging their lives and improving quality of life.

“One of the difficulties in treating this group is that some of our oldest patients are very sick by the time they come for surgery. They have been compensating for symptoms such as shortness of breath and syncope for many years by doing less and less,” says Brian Griffin, MD, Department of Cardiovascular Medicine. “Our experience shows that even in the absence of symptoms, patients who have very narrow valve areas (less than 0.6 cm) should be referred for prophylactic surgery rather than waiting for symptoms to occur, when they may be considerably older and sicker.” Once the pressure gradient across the aortic valve is greater than 60 mm of mercury, 75 percent to 80 percent of patients will have developed symptoms within two years without surgery.

At Cleveland Clinic, the mortality rate for aortic valve surgery is less than 1 percent, even in older patients. Rates are higher if surgery is emergent; if there is concomitant heart or kidney failure; or if this is a second aortic valve surgical procedure.

Most aortic valve replacements can be done through a 3- to 4-inch incision, avoiding the long mid-sternum incisions of the past. This minimally invasive approach reduces blood loss and trauma, enabling patients to get on their feet quickly and return home sooner. Survival of octogenarians following aortic valve replacement with or without concomitant bypass surgery is about 80 percent at one year and 78 percent at two years. Studies of functional ability indicate much improvement in overall function and reduced disability with surgery compared with those who do not undergo surgery.

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Dear Colleagues:

I am pleased to present this issue of Geriatric Times. Our goal is to reach out to physicians, nurses, therapists, social workers, other clinical health providers and caregivers to share our knowledge on improving the care of our oldest and most frail patients.

In this issue, we describe our new Center for Geriatric Medicine. The center will serve as the nidus of geriatric and gerontological clinical, educational and research activity throughout 10 hospitals and 15 family health centers. It will coordinate programs, and advise and assist clinicians throughout the system. In addition, this issue includes a review of management of behavioral problems in dementia; evidence for the benefit of aortic valve replacement in the elderly; and a review of some of the most potentially harmful drugs for older adults seen in primary care practices. Please consider downloading our more extensive list to share with your patients. These articles represent a small sample of the multidisciplinary approach used here to help make a real difference in the quality of our patients’ lives. We hope that you find this publication informative and worthy of your review.

To receive more information or to refer a patient, please call 216.444.5665, or email rapporb@ccf.org.

Kind regards,

Barbara Messinger-Rapport, MD, PhD
Chair, Center for Geriatric Medicine
Cleveland Clinic Medicine Institute
Newer Procedure Under Investigation

Cleveland Clinic also is involved in the Partner Trial, a randomized study comparing traditional surgical repairs to a percutaneous procedure awaiting FDA approval that has been used successfully in Europe. The procedure uses a stented valve placed via balloon catheter.

“...To be a candidate for percutaneous intervention, the patient’s estimated surgical mortality must be above 10 percent, according to Society of Thoracic Surgery guidelines,” says Dr. Griffin. “We won’t know if this procedure is as effective as surgical replacement for quite some time, but in patients who are very ill and have several co-morbidities, it may prove to be a better approach.”

Medical Options Explored

Cleveland Clinic is interested in medical interventions to slow the progression of aortic disease, which in the elderly occurs because of accumulation of calcification in the valve. Unfortunately, although several retrospective studies suggested a benefit of statin treatment in aortic valve disease, prospective studies in patients who would not have been on statins using current guidelines seem to show no benefit to statin therapy. Therefore, Cleveland Clinic cardiologists currently do not recommend statins for patients with aortic stenosis unless they meet the criteria for treatment of hyperlipidemia.

Other studies have linked the loss of bone-mineral density in osteoporosis to progressive vascular and valvular calcification. It is well recognized that osteoporosis and aortic stenosis share certain associated conditions, including dyslipidemia, estrogen deficiency (in women), chronic inflammation and abnormalities of vitamin D metabolism. Cleveland Clinic physicians are now examining the connection between osteoporosis treatment and aortic valve disease. “We’re examining other possible ways of modulating the progression of aortic narrowing, including agents that deter calcification such as bisphosphonates used for osteoporosis,” says Dr. Griffin.

The Miller Family Heart & Vascular Institute at Cleveland Clinic is one of the largest valve surgery centers in the world, offering options including aortic valve repair, aortic valve replacement using several types of replacement options, and minimally invasive aortic valve surgery. For information or to refer a patient to Dr. Griffin, call 216.444.6812.

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Paul Muller, MD, a 94-year-old retired obstetrician, presented to the Department of Cardiovascular Medicine with aortic stenosis, atrial fibrillation and hypertension. He was active and living independently, including driving, walking, managing his household and caring for his wife. However, he noted a need to slow down his activity. For example, he was an avid golfer and found himself doing less walking and more riding over the past year. In the two months prior to referral, he noted lower extremity swelling. His aortic valve, noted to be mildly narrowed 10 years earlier, was now considered the culprit limiting his active lifestyle.

Dr. Muller had explored his options regarding valve repair in particular, he was interested in a percutaneous procedure offered at Cleveland Clinic through the Partners Trial. During his initial visit, Dr. Muller learned that despite his advanced age, his overall risk was too low to meet the trial criteria. As a result, he underwent aortic valve replacement surgery at Cleveland Clinic on July 17, 2009, followed by a brief rehabilitative stay in the subacute unit. He completed outpatient rehabilitation in Indiana near his wife and family. He is now exercising daily, has returned to driving his car, and hopes to be back on the golf course as soon as the weather clears.
Common behavioral problems in dementia can reduce the quality of life of the patient and disrupt the home life of family members. These problems include apathy, depressive symptoms, agitation and aggression. Unfortunately, there are no proven pharmaceutical solutions. Managing the behavioral symptoms of dementia requires attention to the environmental and psychosocial context in which they occur, as well as to comorbidities and potential adverse drug effects.

Behavioral symptoms associated with dementia vary according to the stage and type of the condition. Beside the adverse affects these symptoms pose for patients, they create additional burden for family members and caregivers. Caregivers who are educated about the dementing process and who can learn to meet their own needs, as well as the needs of the patient, may be better able to keep the patient in the community rather than placing him or her in the nursing home.

Primary care physicians charged with treating behavioral problems in adults with dementia must first assess any medical conditions or medications that might precipitate the behavior. For example, detecting and treating problems such as hypoglycemia or pain may improve behavior; removing antimuscarinic or anticholinergic drugs may resolve hallucinations; and stopping propoxyphene may improve sleep and night-time behavior problems. Conservative measures, such as behavioral and environmental modifications, should be the mainstay of treatment. Keeping the patient safe should he or she wander is important; keeping the environment familiar, routine and even boring helps keep him or her calm.

Possible causes of noncognitive symptoms

- Adverse effect of a drug, especially an antimuscarinic or anticholinergic
- Delirium associated with an acute medical illness, such as urinary infection, dehydration or upper respiratory infection
- Chronic medical condition causing dyspnea, chest pain or arthritis pain
- Cognitive symptoms, such as frustration from memory problems
- Unmet physical needs (hunger, toileting, lack of exercise)
- Unmet psychological needs caused by separation from spouse or family (such as when a spouse is hospitalized or placed in a nursing home)
- Environmental precipitants (noise, crowded conditions or strangers in the home)

While drugs can be used effectively to treat behavioral problems in dementia, it is important to weigh their efficacy, as well as potential for adverse effects.

Antipsychotic Drugs

Although antipsychotic drugs, both typical and atypical, are frequently used to treat dementia-related behaviors, benefit is controversial and potential adverse effects can be serious (hyperglycemia, cerebrovascular events and death). Even in the few situations in dementia in which antipsychotics prove efficacious, a trial of dose-reduction and possible discontinuation is a part of the appropriate plan of care. Symptoms such as aggression and delusions may decrease as the underlying dementia progresses.

Antidepressants

Depression in dementia is associated with lower quality of life, greater disability in activities of daily living, a faster cognitive decline, a high rate of nursing home placement, a higher death rate, and a higher frequency of depression and burden in caregivers. But depression can be difficult to diagnose in patients with dementia, particularly since apathy is a common symptom in both dementia and depression. Additionally, screening tests for depression have not been validated in the demented elderly. Antidepressant treatment may improve quality of life, even if the patient does not meet all the criteria for a major depressive disorder.

Selecting the appropriate antidepressant is complicated, particularly since very few randomized, controlled trials have been completed for depression with dementia. The following table can be used as a guide to choosing an antidepressant based on published evidence, but organized according to our experience. Our algorithm assumes that the primary care physician has considered whether drugs and coexisting medical conditions might be contributing to the depressive symptoms, and that bipolar disorder has been ruled out as a cause of behavioral symptoms.
### Treatment of depression in dementia

<table>
<thead>
<tr>
<th>Concomitant conditions</th>
<th>Drugs that can be considered</th>
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| No limiting medical conditions | A selective serotonin reuptake inhibitor (SSRI)  
Or a serotonin-norepinephrine reuptake inhibitor (SNRI)  
Or bupropion (Wellbutrin) |
| Hyponatremia, bradycardia, risk of blood loss | Bupropion  
Or an SNRI, eg, venlafaxine (Effexor), duloxetine (Cymbalta)  
Or nortriptyline |
| Renal failure | Sertraline (Zoloft)  
Or 1/2 dose of another SSRI |
| Liver failure | 1/4 dose of sertraline, citalopram (Celexa), or escitalopram (Lexapro) |
| Seizure disorder | An SSRI |
| Cardiac conduction abnormalities | An SSRI (if no bradycardia) or an SNRI (if no hypertension) |
| Parkinsonian symptoms | Mirtazapine (Remeron) |
| Weight loss, failure to thrive | Mirtazapine  
Consider methylphenidate (Ritalin) if rapid response desired and no contraindications exist |
| Agitation | An SSRI, eg, citalopram, escitalopram |
| Difficulty sleeping | Low-dose trazodone (Desyrel) |
| Cannot tolerate drug or does not respond to it | Nefazodone with periodic monitoring of liver function |

### Caveats with SSRIs

Despite the safety profile of SSRIs in older adults, care must be taken when prescribing them to frail elderly patients, given recent data associating SSRIs with falls, fragility fractures and urinary incontinence.

### Anticonvulsant drugs

Given the limited evidence of efficacy of antidepressive therapy in demented elderly patients, nonpharmacologic therapy should be offered concomitantly. Evidence-based nonpharmacologic treatment for depression in dementia includes:

- increasing enjoyable activities and socialization with people and pets,
- reducing the need to perform frustrating activities,
- redirecting perseverative behaviors and speech, and
- addressing caregiver needs.

### Cognitive Enhancers

Acetylcholinesterase inhibitors may improve some behavioral symptoms of dementia, including delusionality, irritability, anxiety, disinhibition and agitation. In addition, acetylcholinesterase inhibitors may reduce symptoms of apathy and improve depressive symptoms in mild to moderate dementia. Cognitive enhancers require several weeks for titration and are not helpful for the acute management of behavioral or depressive symptoms. Memantine, an NMDA receptor antagonist type of cognitive enhancer, may reduce agitation and aggression in moderate to severe dementia.

The content for this article comes from an extensive review in *Cleveland Clinic Journal of Medicine*, March 2009, by Dr. Messinger-Rapport and Kathleen Franco, MD, Psychiatry and Psychology, Cleveland Clinic; and William Schwab, MD, PhD, Chief of Geriatric Medicine at Kaiser Permanente Medical Group, Cleveland. To read the article in its entirety, visit www.ccjm.org/content/76.
Cleveland Clinic Launches System-Wide Geriatric Center

1 What is a “geriatric” patient?
A geriatric patient is an older person with impaired overall function. There is no set age, but he or she is usually over 75 years old with chronic illness(es), physical impairment, and/or cognitive impairment.

2 What is “frailty” and why is it important?
Geriatric patients typically have at least one symptom of “frailty.” Frailty is characterized by weight loss, fatigue, reduced strength, low mobility (gait problems) and a low level of physical activity. The cause is often multifactorial, reflecting the aging immune system, lifestyle choices, comorbidities and the psychosocial setting. Patients and their families note loss of muscle mass, a sense that clothing hangs, low quality diet and reduced level of activity. Frailty places older adults at increased risk of adverse events such as malnutrition, falls, fractures, death, disability and institutionalization.

3 What other problems may geriatric patients have?
Older adults with frailty may have gait abnormalities and recurrent falls; depression; cognitive impairment and/or dementia; behaviors associated with dementia; urinary incontinence; and/or weight loss. They may be prescribed multiple medications and encounter adverse effects from polypharmacy. They may not be making safe decisions for their healthcare, safety or finances. They may be at risk of exploitation, neglect or even abuse.

4 Why is a Center for Geriatric Medicine needed?
Geriatric problems are multifactorial and patients’ needs generally cannot be addressed by one clinician. The Center for Geriatric Medicine will be both a location for care and a center for leadership. Scheduled to open this summer, the facility, at 10685 Carnegie Ave., will allow older adults referred for geriatric assessments to be seen by a nurse and physician trained in geriatric problems on site. Consultations with social services and a geriatric pharmacist can be coordinated on an as-needed basis during the same visit. Several additional specialists will offer services on a part-time basis.

The new facility is notable for its accessibility, with close-in patient parking in the front and a check-in desk near the outside door. Elders with or without mobility difficulties will be accommodated. Wide hallways, accessible restrooms and large examination rooms that accommodate the patient and up to two family members provide additional patient comfort. A quiet consultation room offers private space for patient and family counseling and education.

The Center for Geriatric Medicine will serve as an umbrella for geriatric learning, research and clinical activities throughout the Cleveland Clinic health system’s 10 hospitals and 15 family health centers. The center will serve as a resource to guide hospitals with their geriatric activities including protocols for falls and delirium. Tools available through Cleveland Clinic’s electronic medical record enable coordination of nursing assessment. Metrics for cognitive and physical function are common to all care sites, which facilitates harmonization of practice and improved quality of care throughout the system. The Center for Geriatric Medicine will develop common protocols for managing geriatric problems, and will maintain a centralized listing of geriatric resources throughout the system, such as locations of driver evaluations, neurological rehabilitation, geriatric oncology, etc. Current plans include the addition of new outpatient geriatric assessment offices throughout the region.

5 What types of geriatric specialists practice in the Cleveland Clinic health system?
Family medicine and internal medicine physicians with specialty certification in geriatrics are based at the main campus, as well as several hospitals and family health centers throughout the system, including the Weston and West Palm Beach Cleveland Clinic facilities. A family physician/geriatrician is the medical director of Cleveland Clinic Home Care and runs the mobile physician (house call) service. Our care team also includes psychiatrists and pharmacists with geriatric certification. Several system emergency department specialists have grants to study geriatric health in that setting. Multiple specialists, including cardiologists, gynecologists, urologists, neurologists, neurosurgeons and orthopedists, focus on problems that are prevalent in the older population. Therapists who specialize in problems common to geriatric patients, such as cognition, swallowing disorders, incontinence, osteoporosis, balance and others, support the Center for Geriatric Medicine.
6 How can I refer a patient to the Center for Geriatric Medicine?

Patients can be referred to the new center by calling 216.444.5665.

Theodore Suh, MD, Ronan Factora, MD, and Barbara Messinger-Rapport, MD, currently see patients at the center. A fourth geriatrician, Amanda Lathia, MD, will join the team this summer.

Individual physician numbers and additional sites for geriatric care can be found at clevelandclinic.org/geriatrics.
Caution Urged in Geriatric Drug Management

Marigel Constantiner, RPh, Drug Information Center

Prescription and over-the-counter drugs (OTC) are a vital part of medical care for older adults. However, potential inappropriate use of these medications remains a serious problem. It is important to recognize and understand medications considered as “high risk” in older adults in order to avoid them whenever possible and to explore whether safer alternatives are available. By maintaining a list of all medications taken by older adults, including OTC drugs, herbal medicine and vitamins, and reviewing this information at each medical visit, providers can help patients avoid dangerous interactions.

Among the most problematic prescription medications are:

Amitriptyline (Elavil), which can cause dry mouth, constipation, drowsiness, confusion and even hallucinations

Propoxyphene (Darvon) and combination products that include it (Darvocet-N). Any opioid can cause constipation, urinary retention, drowsiness and confusion. However, propoxyphene, the main ingredient in Darvon and Darvocet, is particularly problematic. Propoxyphene provides no more pain relief than acetaminophen and may interfere with sleep and cause confusion.

Benzodiazepines (long-acting) such as Flurazepam (Dalmane); Diazepam (Valium); Chlordiazepoxide (Librium); Quazepam (Doral); Clorazepate (Tranxene), which have long-lasting effects (often days). These medications can produce prolonged sedation and increase the incidence of falls and fractures.

OTC preparations to avoid in the geriatric population include:

Cimetidine (Tagamet), used to treat heartburn, indigestion or ulcers. Typical doses of cimetidine may have side effects, especially confusion.

Diphenhydramine (Benadryl), which may cause confusion and sedation. Diphenhydramine should not be used to aid sleep. For allergies, consider using a non-sedating antihistamine like loratadine as an alternative. If diphenhydramine is used to treat emergency allergic reactions, use the smallest possible dose.

Combination Cold Medications (Aleve Cold and Sinus, Alka-Seltzer Plus Cold and Sinus, Dimetapp Cold and Fever, Robitussin Cold Severe Congestion, Sudafed Cold and Sinus, TheraFlu Severe Cold and Congestion), which contain antihistamines and decongestants. These ingredients may cause confusion, increased blood pressure, urinary incontinence or retention, and sedation. Also, some products contain alcohol and sweeteners that may interact with prescription drugs.

Cleveland Clinic geriatricians and pharmacists have prepared a list of the prescription and OTC drugs that pose the greatest risk in older adults. To download a copy, please visit clevelandclinic.org/geriatrics-dangerousdrugs.