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Also in This Issue
Dear Colleagues:

Caring for geriatric patients with complex medical issues is a challenging, but rewarding endeavor. The unique needs of the elderly often require multidisciplinary evaluation and management, coordinated with the care and attention provided by dedicated primary care physicians.

To ensure the best care possible for older adults, it is vital to continue to pursue basic and translational research, enroll older adults in clinical trials to test interventions that might improve the quality of their lives, and share new findings and best practices with colleagues and caregivers everywhere.

In this edition of Geriatric Times, our goal is to reach out to physicians, nurses, therapists, other clinical health personnel, and caregivers to share our knowledge and show how we can improve care for the oldest and most frail of our patients.

Topics covered here include educating the healthcare workforce, specifically nurse practitioners who are increasingly tasked with caring for older patients; the multiple facets of treatment for urinary incontinence, including minimally invasive surgery, neurostimulation, physical therapy, and reducing polypharmacy; sleep disorders; the musculoskeletal system; cancer screening; and others. We are also updating you on the Lou Ruvo Center for Brain Health in Las Vegas, and our new geriatrician at the West Palm Beach wellness facility.

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 you find this publication informative and worthy of your review. To receive more information or to refer a patient here, please call 216.444.8091.

Kind regards,

Barbara Messinger-Rapport, MD, PhD
Interim Chair, Geriatric Medicine
Cleveland Clinic Medicine Institute
Cancer remains the second leading cause of death in American women, with incidence increasing with age. In fact, 60 percent of all cancers are diagnosed in people over 65. Lung, breast, colorectal, pancreatic, and ovarian cancers constitute more than 60 percent of all cancers in women.

The United States Preventative Services Task Force and the American Cancer Society have published guidelines for cancer screening implemented in primary care. These guidelines typically indicate when screening should be done, as well as the frequency of performance. Screening mammography is recommended once yearly for women starting at age 40. Colonoscopy is recommended once every 10 years starting at age 50. Cessation of screening is not addressed by many of the guidelines. Consequently, only 20 percent of women over 80 get annual mammograms, according to a study recently published in the *Journal of Clinical Oncology*.

The debate about what age to stop cancer screenings in the elderly shows no signs of quieting down. Some in the medical community feel that screenings are a waste of time and money for a population of people who will likely die from something else. Others urge healthcare professionals to look past age when deciding on tests and treatment. A vigorous 80-year-old may live many more years with the proper care, while a 55-year-old with other health issues could die within the year.

In 50-year-old females, the risk of dying from breast cancer ranges from 2.0-4.3 percent. In contrast, the risk of dying from breast cancer in 80-year-old women ranges from 0.7-2.4 percent. Risk of dying from colorectal cancer in 50-year-old females ranges from 1-3.8 percent; for women age 80 years, this risk ranges from 0.8-3 percent.

Estimated life expectancy for 50-year-old females can range from 24.5-40 years. These estimates are based on individual functional and health status. For 80-year-old females, those able to perform all activities of daily living with only one comorbid illness such as hypertension (better than average health), may have a life expectancy of 13 years. However, women of similar age with numerous health problems (heart failure, diabetes, end stage renal disease) and dependent in many of the activities of daily living might only have a life expectancy of 4.6 years.

Statistically, about 95 women age 50 in good health would have to be screened in order to prevent one breast cancer-related death. For 80-year-old females in good health, about 240 screening mammograms are necessary to obtain a similar benefit. Cancer screening is useful if life expectancy is long enough and risk of dying from cancer is high enough that screening can confer added life to the individual. Finding this balance is more difficult as individuals age. Though population studies show diminishing rates of return for cancer screening in lives saved in later decades of life, the decision to continue or stop routine cancer screening should remain a very individualized one.

Weighing life expectancy, risks of cancer screening (including procedural sedation and trauma from false positive tests), benefits of identifying pre-cancerous/early cancerous lesions early, and the decision of whether or not treatment for cancer would be pursued (chemotherapy, surgery, radiation therapy) should all be discussed between the patient and the physician.

Dr. Factora is a staff member in the Section of Geriatric Medicine. He specializes in functional assessment, dementia and delirium. To refer a patient to Dr. Factora, call 216.444.8091.
Geriatricians emphasize the importance of a multidisciplinary approach for the treatment of the elderly in order to improve overall quality of life. Occupational and physical therapists are vital members of the health care team in geriatrics. They assess and treat the whole patient, recognizing the individual’s leisure and vocational activities and their desire to maintain a healthy and productive lifestyle regardless of their age. Age is not seen as an excuse or reason for a complaint; instead impairments are investigated and treatment is provided to optimize functional status.

Co-morbidities are common in the elderly, and geriatricians provide a comprehensive approach to addressing various medical diagnoses. Management of chronic medical conditions also supports the need for clinicians, including therapists, to collaborate so that elderly patients maintain stable health, rather than facing frequent episodes or exacerbations that ultimately lead to a decline in health and functional status. Occupational and physical therapists may see these patients at least once a week during their therapy period and thus be able to detect changes in a patient’s physical, medical and even cognitive status. Sharing these observations with appropriate healthcare providers, such as geriatricians, allows for more timely and comprehensive treatment of patients with chronic conditions.

Therapists have the unique opportunity to spend a significant amount of time with patients and their family members, thereby establishing a strong rapport with them. This relationship also allows therapists to address multiple issues that arise and tailor treatment to the unique needs of patients based on their family, work and societal roles. Therapists spend a considerable amount of time educating patients and their family members during treatment sessions to optimize compliance with recommendations. Therapists also employ a variety of teaching methods, including verbal, written and videotaped information in order to promote learning for all patients, and particularly for those patients with low health literacy. This individualized relationship facilitates the practice of “therapist of choice” so that the patient and family identify with a particular clinician to improve consistency and compliance.

Therapists address the wellness needs of older adults as well. Transitioning a patient from a structured rehabilitation setting to a community-based exercise program is crucial in order to improve compliance, and promote socialization and long-term health and wellness. In Cleveland Clinic’s Rehabilitation
Department, physical therapists offer wellness classes for aquatic and yogalates, as well as a neuro-exercise class. Therapists also provide guidance and resources for appropriate exercise programs offered in the community, such as YMCAs or senior centers.

Evidence-based practice is regularly utilized in order to offer each patient the highest quality care, using the vast experience of clinicians at Cleveland Clinic. Research is in progress in several specialty areas, and functional outcomes are tracked on all patients in order to positively impact each patient’s pain, fatigue level, mobility status or risk for falls. Several standardized tests are utilized to provide normative data and detect functional change; Dynamic Gait Index, Berg Balance Scale and the Timed Up and Go are a few examples of these tests for gait assessment and balance testing.

Transitioning a patient from a structured rehabilitation setting to a community-based exercise program is crucial in order to improve compliance, and promote socialization and long-term health and wellness.

Among the specialty areas of focus at Cleveland Clinic are:

**OSTEOPOROSIS:** Treatment focuses on education about the diagnosis, instruction in trunk extensor strengthening, recommendations regarding weight-bearing exercise, and general conditioning and proper body mechanics training to limit spinal flexion. Physical therapists may offer preventive therapy for elderly patients not currently experiencing symptoms.

**EDEMA/LYMPHEDEMA:** Swelling occurs for a variety of reasons and is often related to vascular insufficiencies within the elderly. Education regarding proper skincare, circulatory exercises and compression therapy can be beneficial in decreasing edema and improving function, especially related to safety and speed of gait.

**LOW VISION:** Although occupational therapists cannot improve the quality of vision for geriatric patients who suffer from macular degeneration, cataracts, glaucoma, diabetic retinopathy and other debilitating eye diseases, those trained in low vision specialty programs play a significant role in teaching patients and caregivers how to maximize the use of remaining vision. Through the use of adaptations, modifications and development of practical systems of organization, they enable individuals with low vision to regain confidence and independence in their daily routine.

**VESTIBULAR REHABILITATION:** Patients with peripheral and central vestibular disorders, as well as those who have headaches or mechanical neck/facial pain, benefit from evaluation and treatment of their vestibular and balance problems. Therapists also treat BPPV through re-positional testing. Exercises are individualized to each patient’s needs and often include a combination of lower extremity stretching/strengthening, neck mobility, higher level balance exercises and walking with head movements to decrease risk of falls, improve gait and the patient’s perceived level of disability/symptoms related to dizziness or imbalance.

**DRIVER REHABILITATION:** There are two occupational therapists in Cleveland Clinic’s system who can evaluate older adults for driving risk for certain diagnoses. An OTR/L may recommend therapy and/or adaptive equipment following an evaluation session. Recommendations regarding continuing driving independently, driving with adaptive equipment, or driving cessation are given to the patient and family verbally and in writing, as well as to the referring physician.

Ms. Wenger is a Clinical Team Leader in Outpatient Therapy in Physical Medicine & Rehabilitation. To refer an elderly patient to a Cleveland Clinic occupational or physical therapist, please call 216.445.8000.
A Multimodal Approach to Treatment of Alzheimer’s Disease

Randolph B. Schiffer, MD, Neurological Institute

Later-life neurodegenerative disorders such as Alzheimer’s disease (AD) have responded poorly to single-modal therapies. To impact diseases of higher-order functioning such as cognition, we may need an integrated treatment platform that includes non-pharmacologic therapies, which appear to amplify the effects of cognitive-enhancing drugs, at least in the short term. It is this hypothesis that has guided the establishment of Cleveland Clinic’s Lou Ruvo Center for Brain Health.

After 25 years of dedicated clinical research, we have only two approved therapies for AD: the cholinesterase inhibitors and one nMDA receptor blocker (memantine). These therapies are weaker in efficacy than any of us would like. Many potential new therapies have undergone clinical trial since the early 1990s, but none has proved successful.

The difficulty in developing new therapies for AD is not fully understood. Perhaps we are starting our interventions too late in the disease course, after too much irreversible damage to neurons has occurred. Perhaps we lack the right scientific tools, or we do not yet adequately understand the disease.

Or, perhaps we need a larger toolbox to effect improvements in our early management of AD. Although the science does not yet fully support it, preliminary reports suggest that short-term improvements in cognitive functioning may accrue with a multimodal approach much like that used in management of diabetes and cardiovascular disease.

Four-Domain Treatment

The Lou Ruvo Center for Brain Health, a collaboration of Cleveland Clinic and the Lou Ruvo Brain Institute in Las Vegas, brings together an interdisciplinary team of clinicians, researchers, surgeons, therapists, imaging specialists and other experts to improve diagnosis and treatment and advance our knowledge of cognitive loss syndromes. In addition to AD, our immediate focus includes Huntington’s disease and concussive head trauma, now recognized as a robust risk factor for AD. Longer term, we will treat amyotrophic lateral sclerosis patients as well.

Currently, however, our primary focus is AD, a growing societal and personal concern as more than 75 million members of the baby boom generation progress through middle age. With the goal of ameliorating symptoms in patients with early cognitive impairment — and, eventually, preventing or delaying onset — we will utilize a four-domain treatment platform. Ideally, this integrated approach will have a synergistic effect.

- **COGNITIVE-ENHANCING PHARMACOTHERAPY.** This is quite possibly the mainstay of the future as innovative new medications are developed.

- **INDIVIDUALLY TAILORED COGNITIVE REHABILITATION.** We know that AD is not a diffuse disorder; patients exhibit identifiable patterns of cognitive deficit.
that vary, depending upon which neural networks are impacted. Thus, although AD is often equated with memory loss, neuropsychological testing demonstrates that some early AD patients retain immediate and delayed memory. They may, however, register measurable decline in other functional skills such as language, attention and concentration, and visuospatial construction. Much as physical exercise targets specific muscle groups, we will individualize rehabilitative treatment according to the deficit patterns that particular patients display.

- **CONTROLLED PHYSICAL EXERCISE.**
  Among the virtually numberless risk factors for AD is a sedentary lifestyle in middle age. Preliminary evidence indicates that we may be able to improve our therapeutic protocols for AD with the addition of a disciplined exercise regimen for patients. Adapting a template that Francois Bethoux, MD, designed for patients at Cleveland Clinic’s Mellen Center for Multiple Sclerosis Treatment and Research, we will implement a structured, supervised aerobics program with the goal of elevating patients’ heart rates for 30 minutes three times a week. Compliance data will be gathered.

- **MANAGEMENT OF CARDIOVASCULAR RISK FACTORS.** As with aerobic exercise, reports suggest that short-term gains in cognitive function may be possible with interventions to tightly control cardiovascular risk factors such as glucose and lipid levels, and blood pressure. We have yet to finalize a structure for this domain. We plan to document our clinical results, leveraging the tools of Cleveland Clinic Neurological Institute’s Knowledge Program, a clinical data archival project that we are systematically using to analyze patient care and improve outcomes.

**A Treatable Disease**

In reviewing a century of AD therapy, it is humbling to consider how powerless medical science has been. The multiplicity of apparent risk factors — not only age, but gender, genetics, lifestyle choices, physical and psychological health status — defies a neat prescription for prevention. But this dreaded disease is treatable now. Promising new drug therapies are in development. Earlier diagnosis will enable us to implement multimodal therapy earlier in the disease course, when there is real hope of delaying onset. At Cleveland Clinic, we believe this platform is the future of AD treatment, and the future will be brighter than the past.

Dr. Schiffer is Director of Cleveland Clinic’s Lou Ruvo Center for Brain Health. He may be reached at 216.445.7132, or by email at schiffer@ccf.org.
Weight loss is often applauded in younger, overweight adults, since it usually leads to better outcomes in terms of hypertension, hyperlipidemia, heart disease, diabetes control and mobility. In older adults, weight loss, particularly when rapid, can result in loss of bone density and muscle mass. Weight loss in older adults is associated with an increased risk of falls, hip fractures and institutionalization, even with intentional weight loss. A screening tool such as the Nutritional Screening Initiative, the Instant Nutritional Assessment, or SCALES may be helpful in detecting incipient rapid weight loss. Even two questions can be helpful (see Figure 1).

Older adults may have undernutrition, even if they have not lost weight. Persons 70 years and over, particularly women, consume protein at 10-20 percent below the US RDA. Protein calorie undernutrition is associated with an increased susceptibility to infection, a higher incidence of skin breakdown, delayed healing and a higher disease-specific death rate.

Weight loss may have a single cause, or problems such as social isolation, polypharmacy and medical nutritional therapy may exist simultaneously. Interventions should include targeting the likely causes; identifying reasonable goals; addressing sarcopenia (muscle loss) when suspected; and should be achievable with the patient’s existing resources. In general, a multifactorial approach is needed and should address loosening of dietary restrictions, flavor enhancement and medication reduction. Improving socialization during meals also is beneficial, since studies indicate that people eat up to 44 percent more in groups than when they eat alone.

Calorie- and protein-dense foods should be offered at times of the day when the person is most interested in eating, and served first at each meal. For example, instead of allowing the person to fill up on soup, which generally has very little protein, offer the main course first. Although it is not necessary to offer liquid meal supplements in place of high-quality food items, consider offering three to four ounces of a high density supplement in place of water every time a medication is taken. Just four ounces taken four times daily between meals can add nearly 1,000 calories to the diet.

Most elders will gain weight with this approach, but they may not reach their previous weight. Some will continue to lose weight despite these interventions. In elders who have advanced dementia, or an advanced chronic disease such as severe heart failure or chronic obstructive pulmonary disease, hospice may be the best alternative. Although these individuals may gain weight.

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**FIGURE 1: MALNUTRITION SCREENING TOOL**

<table>
<thead>
<tr>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you lost weight recently without trying?</td>
<td>2 to 4 depending upon loss</td>
</tr>
<tr>
<td>Have you been eating poorly because of a decreased appetite?</td>
<td>1</td>
</tr>
</tbody>
</table>

---

Score ≥ 2 malnutrition risk

Ferguson, Nutrition, 1999. Validated in Hospital
**CAUSES OF WEIGHT LOSS**

<table>
<thead>
<tr>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor oral health (dental hygiene)</td>
</tr>
<tr>
<td>Anosmia (loss of smell)</td>
</tr>
<tr>
<td>Compliance with restrictive medical diet (low salt, low animal fat, restricted carbohydrate concentration, etc)</td>
</tr>
<tr>
<td>Compliance with dysphagia diet (use of thickeners)</td>
</tr>
<tr>
<td>Social isolation (includes self-neglect, neglect by caregiver)</td>
</tr>
<tr>
<td>Inadequate resources for transportation/shopping/cooking (financial or caregiver)</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Dementia</td>
</tr>
<tr>
<td>Inflammatory disease (flare of an inflammatory condition such as ulcerative colitis, Crohn’s disease, Wegener’s, rheumatoid arthritis, etc)</td>
</tr>
<tr>
<td>Hyperthyroidism; in rare cases hyperparathyroidism</td>
</tr>
<tr>
<td>Infectious process such as osteomyelitis, viral or bacterial diarrhea, tuberculosis</td>
</tr>
<tr>
<td>Malignancy</td>
</tr>
<tr>
<td>End-stage disease such as heart failure or chronic obstructive pulmonary disease.</td>
</tr>
</tbody>
</table>

**MEDICATIONS ASSOCIATED WITH WEIGHT LOSS**

<table>
<thead>
<tr>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ace-inhibitors, lithium, antihistamines (altered taste or saliva)</td>
</tr>
<tr>
<td>SSRI and SNRI antidepressants (anorexia)</td>
</tr>
<tr>
<td>Benzodiazepines, antipsychotics (excessive sedation)</td>
</tr>
<tr>
<td>Non-steroidal, amiodarone, digoxin, iron, opiates (gastrointestinal complaints)</td>
</tr>
</tbody>
</table>

**INTERVENTIONS TO REVERSE UNINTENTIONAL WEIGHT LOSS**

<table>
<thead>
<tr>
<th>Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loosen dietary restriction</td>
</tr>
<tr>
<td>Offer energy dense, high-protein foods at a time of day when the person is most interested in eating</td>
</tr>
<tr>
<td>Serve high-protein foods first at each meal</td>
</tr>
<tr>
<td>Optimize presentation - smaller meals more often to allow grazing; finger food if the person wants more independence and/or has trouble with utensils; brightly colored plates/bowls to garner more attention</td>
</tr>
<tr>
<td>Provide a pleasant, low-stress environment - aromas such as fresh bread or cookies</td>
</tr>
<tr>
<td>Use flavor enhancers like ginger, Mrs. Dash, salt if cardiovascular conditions are controlled</td>
</tr>
<tr>
<td>Improve oral health where needed</td>
</tr>
<tr>
<td>Increase the level of exercise (both aerobic to increase the appetite, and strength training to reduce muscle and bone loss)</td>
</tr>
<tr>
<td>Add dried milk (2 tablespoons has 3 grams of protein) to foods with creamy textures such as mashed potatoes, oatmeal and smoothies</td>
</tr>
<tr>
<td>Add olive oil to vegetables and other foods to improve flavor and add calories</td>
</tr>
</tbody>
</table>

with placement of a PEG and use of artificial nutrition, this intervention is not recommended in this population. Hospice will keep the patient comfortable and provide education and solace to the family.

Dr. Messinger-Rapport is Interim Chair of Geriatric Medicine. She can be reached at 216.444.6801.
Consequences of Caregiving Can’t Be Ignored

Elena Dyer, MD, Cleveland Clinic Florida

Caregiving has been known to have serious adverse health and personal consequences for caregivers. According to a 2004-2005 California statewide survey of caregivers of brain impaired adults (those with Alzheimer’s disease, Parkinson’s disease, etc.) 77 percent of caregivers were female. Female caregivers may spend as much as 50 percent more time providing care than male caregivers. And the adverse affects are staggering; 43 percent showed clinically significant depressive symptoms; 10 percent quit their jobs to give care; and 11 percent reduced their work hours.

Predictors of caregiver depression are older caregiver age, female gender, living with the patient, less education, being the spouse or daughter of the patient, more time spent care giving, and worse physical function. Patients’ characteristics associated with higher caregiver depression were younger patient’s age and dementia severity.

Caregivers are less likely to engage in preventive health behaviors. They experience reduced immune function, poor wound healing, and are at higher risk for serious illnesses. Being a caregiver is an independent risk factor for mortality among elderly spousal caregivers, with a mortality risk 63 percent higher than that of non-caregiving adults.

Caregivers continue to be at risk for adverse health outcomes after the patient is institutionalized. Depressive symptoms continue after long-term care placement of a family member. Changes in financial situation, loss of control over care, frequent trips to the nursing home, new responsibilities of coordinating and monitoring care, and personal guilt contribute to persistent depression.

The greatest caregiver needs in the California survey were general information (68 percent), emotional support (59 percent) and respite care (.53 percent). Some states like California offer resources through their Caregiver Resource Centers, and other states through Departments on Aging. The National Center on Caregiving provides an online guide for local caregiver support services.

Primary care physicians are in a unique position to identify family members who are adversely affected by caregiving demands. Family members will benefit from multifacted programs available through agencies on aging or the Alzheimer’s Association. But it’s important to refer families for consultations and care planning, short-term counseling, support groups, respite care, and legal and financial consultations early in the disease process.

In 2006, Steven Belle and associates at the University of Pittsburgh, reported on an assessment of multicomponent intervention on quality of life and depression in caregivers. Participants represented various cultures in five cities throughout the United States. Twelve in-home and telephone sessions over six months were offered to caregivers in an intervention group. Caregiver education, management of troublesome behaviors, social support, cognitive strategies for reframing negative emotional responses, strategies for enhancing healthy behaviors and managing stress were offered to the group. Caregivers in the intervention group reported greater quality of life and reduced depression rates (12.6 percent vs. 22.7 percent).

Dr. Dyer is a staff physician in the Cleveland Clinic Florida Health and Wellness Center in West Palm Beach, Fla. She focuses on preventive medicine, annual exams and women’s health, targeting the baby boomer population of “young old.” To reach Dr. Dyer, call 877.463.2010.
Researchers are finding that stem cells from younger donors could help older patients who are recovering from heart attacks or aortic stenosis.

Marc Penn, MD, Stem Cell Biology and Regenerative Medicine and Cleveland Clinic’s Department of Cardiovascular Medicine, investigates how hearts damaged by heart attacks attract adult stem cells by sending out “homing” signals. Stem cells found in the bone marrow respond to this signal and migrate to the damaged area to become new heart tissue cells.

Dr. Penn’s research has expanded to also focus on how aging might affect the homing process and the stem cells’ ability to specialize, or differentiate, properly and efficiently.

Dr. Penn induced aortic stenosis in mice. Stem cells from the bone marrow of an older generation of the mice were transplanted into younger mice with the condition. The younger mice didn’t respond well and the condition worsened.

However, stem cells from the younger mice’s bone marrow were transplanted into the older generation — with noticeable improvement to the older mice’s cardiac health.

“It would appear that stem cells may tire out over time. There’s evidence that aging does play a role in stem cell function. Now we’re trying to determine if it’s the heart not sending out the message to stem cells, or the stem cells not responding to the signal,” Dr. Penn says. “The heart needs to grow new vessels to nourish the new cells. But if the stem cells aren’t getting to the heart, the heart dilates and the patient develops heart failure in response to aortic stenosis.

“We hope that by deciphering the signaling process we will be able to develop new therapies for patients with aortic stenosis and weak hearts.”

To coordinate the range of stem cell and regenerative medicine research projects focused on cardiovascular diseases, Dr. Penn organized the Center for Cardiovascular Cell Therapy. The center currently has six clinical trials involving laboratories at Lerner Research Institute and Cleveland Clinic, as well as being a founding partner in the National Institutes of Health’s Cardiovascular Cell Therapy Research Network. Additionally, Dr. Penn directs the Skirball Laboratory for Cardiovascular Cellular Therapeutics and is Director of Cleveland Clinic’s Earl and Doris Bakken Heart-Brain Institute.

“The new center and our role in the NIH’s consortium are working to actually bring what we’re learning about cardiovascular cell therapies to patients,” he says.

Dr. Penn is director of the Experimental Animal Laboratory in the Department of Cell Biology, and director of the Bakken Heart-Brain Institute.
Physical Therapy Effective in Treating Incontinence

Megan Edgehouse, MPT, Physical Medicine & Rehabilitation

Urinary incontinence affects approximately one third of women over the age of 60 and is a debilitating problem for both elderly women and men, negatively impacting quality of life. But physical therapy treatment can minimize and even abolish the unwanted leakage of urine.

Pelvic floor rehabilitation is a sub-specialty of physical therapy that is gaining increased attention as the population ages and more patients present with urinary incontinence, pelvic organ prolapse, constipation, pelvic pain and other dysfunctions. While physicians are aware of Kegels or pelvic muscle exercises, pelvic floor physical therapy for incontinence involves much more.

Cleveland Clinic employs a team of therapists who specialize in pelvic floor physical therapy. In evaluating patients with urinary incontinence, they perform a thorough subjective examination including present symptoms; length of time dealing with incontinence; obstetric and gynecological history, including childbirth, trauma and/or pelvic or abdominal surgeries; urinary and bowel history; and pain level if applicable. Outcome measures (the UDI-6 and the IIQ-7) are also performed at baseline and at subsequent visits to track subjective improvement and quality of life scores.

Objective treatment includes general strength and ROM screenings, and visual examination of the pelvic floor. Digital vaginal assessment is used to evaluate the strength and coordination of the levator ani (LA) muscle contraction, hold time, and the pelvic floor muscle dynamics associated with both the contraction and relaxation phases of a Kegel. The muscles of the pelvic floor also are palpated to reveal any internal urgency triggers or painful trigger points.

Biofeedback also may be used utilizing surface electrodes perianally for a quantitative measure of pelvic floor resting tone, quick flick LA contraction amplitude, and 10-second hold LA contraction amplitude. Biofeedback is a particularly useful tool, enabling the patient to visually “see” what the pelvic floor muscles are doing during a contraction. Biofeedback also is an effective medium for patient education in regards to what should be happening, and as a quantitative measure of improvement.

Patient education is an important component of pelvic floor physical therapy. We spend an extensive amount of time educating patients on anatomy and physiology using a 3D model of the pelvis. We describe how the pelvic floor muscles function to maintain continence and what physiological changes take place to the pelvic floor as one ages. We have found this extremely effective in enhancing the patient’s understanding of his or her problem and our treatment approach. We also educate patients on drinking and voiding habits and how their current habits can help or hinder their incontinence issues.

As the patient progresses through physical therapy and symptoms continue to improve, the exercises become more challenging. We increase the duration of the contraction and move towards doing the Kegel contraction while sitting, standing, lunging, jumping, and on all fours. Each patient’s exercise program is tailored to his or her individual needs. We also incorporate transverse abdominal training, since the pelvic floor muscles and the deep layers of the abdominal wall are inherently connected. Our goal is to increase core stability while enabling distal mobility without incontinence. As the patient moves towards the end of the treatment sessions, we complete the outcome measures again. It is very rewarding to see the changes in our patients from start to end of physical therapy; in both their incontinence symptom severity and their attitude and confidence as their quality of life improves.

To refer a patient to a pelvic floor therapist or schedule an appointment, please call 216.445.8000. For more information on the treatment of urinary incontinence or other pelvic floor disorder, call Megan Edgehouse, MPT, at 216.444.0782, or email edgehom@ccf.org
Overactive bladder is estimated to affect more than 33 million adults in the United States alone. Standard treatments for this disorder include behavioral modifications, Kegel exercises, anticholinergic medications and fluid management schemes. However, these first-line measures, including trials of one or more overactive bladder drugs, often fail, leaving patients with refractory overactive bladder.

In the geriatric population, other concerns arise in first-line treatments, including polypharmacy and cognitive side effects from the medications. Neuromodulation represents an ideal therapy for refractory overactive bladder in the geriatric population due to its minimal invasiveness and high efficacy.

To be considered a candidate for sacral neuromodulation, individuals should not have functional cognitive defects, should be able to understand the therapy, should not be in imminent need for an MRI (current contraindication) and should be a satisfactory medical candidate for a short anesthetic. In preparation for sacral neuromodulation (the most popular and efficacious type of pelvic neuromodulation), the patient should undergo a thorough history and physical to assure that no other etiology exists to his or her incontinence that could be treated with other modalities. A three-day voiding diary provides a fluid intake and output log that also tracks for objective urinary frequency and leakage measurements. This process is repeated after a lead is placed for sacral neuromodulation.

Sacral neuromodulation (SNM) is approved by the FDA for urge-frequency, urge incontinence and non-obstructive urinary retention. The procedure is performed as an outpatient, usually under MAC (monitored anesthesia care). Physicians may elect to perform an office percutaneous nerve evaluation (PNE), but the fine wire lead that is introduced into the sacral nerve foramen (S3) is not durable and often is displaced before adequate efficacy can be established. Thus, most implanting physicians perform the staged approach with a durable tined lead placed under MAC in the operating room. If greater than 50 percent objective (voiding diary) and subjective (questionnaire) based improvement is attained, the patient can be implanted with an implantable pulse generator (IPG) or pacemaker in one to two weeks.

While there are no prospective studies in geriatric patients, as advancing age seems to be a negative predictive factor in overall success. Success rates can range for idiopathic refractory overactive bladder between 70 and 80 percent. Still, sacral neuromodulation may be too invasive for some elderly patients. In these patients, percutaneous tibial nerve stimulation (PTNS) may provide relief. This office-based procedure involves placement of a 34 G needle into the posterior tibial nerve (terminal branch of S3) located just above the medial malleolus near the ankle, with low dose stimulation being given on a weekly basis for approximately 12 weeks. Subsequent carry-over effects result in improvement in bladder overactivity, but patients need continued “boost” therapy once a month to maintain the treatment benefit. Advantages of this approach include the office-based nature of the therapy, minimal pain and no need for anesthesia. However, questions remain regarding its efficacy compared with sacral neuromodulation.

While data shows that SNM does not work as well in geriatric voiding dysfunction, it should not deter a referral for consideration of this or PTNS for treatment of the refractory overactive bladder. These therapies can be very beneficial and can significantly improve quality of life.
Surgery Offers Improved Quality of Life in Older Prolapse Patients

Matthew Barber, MD, Ob/Gyn & Women’s Health Institute

Although surgery to alleviate urinary incontinence should be reserved for elderly patients in whom conservative management has failed, many surgical options have high rates of success. Older women with advanced prolapse can expect significant improvement in quality of life after surgery.

Surgical options for elderly women with advanced prolapse can be broadly divided into vaginal reconstructive procedures that preserve sexual function, and obliteratorive procedures such as colpocleisis that effectively treat prolapse but do not leave a functional vagina.

Women who select the obliteratorive approach tend to be older, with stage IV prolapse. Pelvic reconstruction takes longer and has a higher risk of prolapse recurrence than obliteratorive surgery, but has the obvious advantage of allowing continued sexual activity. Regardless of approach, surgical correction of advanced pelvic organ prolapse in older women has been shown to result in clinically important improvements in bladder, bowel and vaginal symptoms, as well as overall quality of life including improved vitality, social functioning and mental health. Careful patient selection and extensive preoperative counseling are key to patient satisfaction with either approach.

In our experience at Cleveland Clinic with urogynecological surgery in women 75 years and older, approximately one-quarter will have a postoperative complication, such as need for a transfusion, or development of heart failure peri-operatively. However, the rate of hospital readmission for complications is low (1.5 percent) and the perioperative mortality rate is only 0.7 percent. Predictors of postoperative complications include longer surgical time, and the presence of peripheral vascular disease or coronary artery disease. Advanced age itself was not a predictor of adverse outcome.

Cleveland Clinic’s urogynecology team offers the full spectrum of pelvic reconstructive surgery including minimally-invasive midurethral and bladder neck sling procedures with high cure rates. These include retropubic sling procedures (the TVT sling procedures and traditional fascial sling procedure), transobturator tape procedures (Monarc sling, TVT-O procedure, and other transobturator sling procedures), and mini-sling procedures (TVT-Secur and Mini-Arc).

Dr. Barber may be reached at 216.445.0439 or by email at barberm2@ccf.org. To refer a patient to the urogynecology team, call 216.444.3428.
Mrs. June is a 78-year-old woman with hypertension and severe urinary incontinence. She was unable to participate in activities she enjoyed, such as hiking, aerobics classes and cycling. She regularly soaked through two thick pads and sometimes the bedclothes, with symptoms worsening in the early hours of the morning. She had only minimal improvement with urinary incontinence therapy.

Cleveland Clinic urogynecologist Mark Barber, MD, performed a tension-free sling procedure, which provided significant improvement. She recuperated quickly. However, her incontinence with exertion was not completely resolved, and she continued to have nocturnal leakage.

Dr. Barber referred Mrs. June to the Geriatric Clinic for consultation, requesting that particular attention be paid to her medications. She complained of edema that was better in the morning; worse in the evening. Medications included amlodipine 10 mg daily, and doxazosin 2 mg daily. Her physical exam was remarkable for BP of 132/70, lower extremity edema and normal neurological exam. Perineum was unremarkable.

We suspected that her edema was related to the dose of amlodipine, and would improve with a lower dose. Nocturnal urination and urinary incontinence often are related to fluid redistribution at night related to edema. The α1-blockade of doxazosin or its cousin terazosin in women, may worsen stress-related incontinence.

With the permission of her primary care physician, we lowered the amlodipine to 5 mg, discontinued the doxazosin, and started hydrochlorothiazide 12.5 mg/d. We also recommended that for two weeks she have no coffee (even decaffeinated), soda pop, alcohol or juices. She was very motivated to try this approach. She returned in two weeks with a blood pressure of 132/78. She had no edema, and incontinence was minimal, requiring only a very small pad that was not wet most days of the week.

Mrs. June expressed her surprise that she had less incontinence with a “water pill” for blood pressure control. We explained that the usually innocuous side effects of the amlodipine and doxazosin can be magnified in an older adult, particularly an older woman, and may be more likely to result in urinary incontinence. We suggested that she loosen her dietary restrictions cautiously to see if she could return to enjoying coffee in the morning and wine with dinner.
Osteoarthritis, while it can result secondary to injury, is generally a pathology that is linked to the aging process. Clinical and radiological assessments are the diagnostic tools of OA. Managing the problem is challenging, as it has both physical and psychological consequences as evidenced by low SF-36 scores and a high prevalence of anxiety and depression. Treatment modalities can be grouped into two main categories; non-operative and operative.

The non-operative approach consists of a combination of medications such as acetaminophen, NSAIDs, COX2 inhibitors; physical therapy; patient education; and weight loss. Once all non-operative options have been exhausted, a patient may choose to consider surgery. The operative approach has gone through a great deal of evolution, resulting in modern day joint replacement surgery. These procedures were initially introduced in the United Kingdom in the late 1960s. Over the last 50 years, several improvements have been made in terms of implant design, bearing surfaces combinations, surgical approaches and intraoperative navigation technology.

The key to successful joint replacement surgery is multifactorial, with preoperative, operative and postoperative management playing equally important roles in a patient’s outcome. The choice of bearing surface combination is another important factor and should be individualized and discussed with every patient. Metal-on-polyethylene is the most commonly used combination. One disadvantage of this combination is a relatively high wear rate, which has led to substantial efforts made by both orthopaedic surgeons and device companies to improve wear resistance. One of the latest improvements is sequentially cross-linked polyethylene, which has shown reduced wear. Vitamin E doped polyethylene is another recently developed option with favorable in vitro results. Metal-on-metal is used in patients with a more active lifestyle, but is contraindicated in patients with chronic renal failure and females in their reproductive years, due to the unpredictable consequences of metallic ions dissemination. First introduced in 1970, ceramics have had three decades of evolution and improved manufacturing techniques. Currently, ceramics are used for high functional demand patients and patients with metal sensitivity.
In TKA, the common surgical approach is the medial parapatellar approach. The main controversy in TKA is whether to retain or sacrifice the posterior cruciate ligament (PCL). Most Cleveland Clinic surgeons retain the PCL unless otherwise indicated (Fig 2 & 3). Other options, useful to have in the armamentarium of the joint replacement surgeon, are the unicompartment knee arthroplasty (UKA) and the patellofemoral arthroplasty. These procedures are beneficial in patients with isolated compartment arthritis, provided that the indications are strictly respected. Otherwise, high failure rates will ensue.

Over the past few years, there has been a trend towards minimally invasive surgery (MIS) with smaller incisions, a subvastus approach, and as much preservation as possible of the extensor mechanism. The goals of MIS are shorter hospital stay, better pain scores and quicker recovery period. Despite showing promising results, long term outcomes are needed to assess its effectiveness. Another area that has been heavily investigated is computer assisted navigation to improve the accuracy of implantation and knee kinematics. I use navigation in cases of extra-articular deformities and retained hardware.

After four decades of continuous evolution and improvement, total joint arthroplasty has proven to be one of the most successful elective surgeries. It has excellent potential for increasing the quality of life of the patient, and is second only to cataract surgery in this respect.

Dr. Barsoum is Vice Chairman of Cleveland Clinic’s Department of Orthopaedic Surgery. Physicians may contact him at 216.444.7515, or by email to barsouw@ccf.org
Vulnerable Elders: Moving the “Medical Home” Where it Belongs

Steven H. Landers, MD, MPH, Physical Medicine & Rehabilitation

The growing population of older adults with multiple coexisting chronic conditions and functional limitations presents a significant challenge to the United States healthcare system. These vulnerable elders account for the majority of expenditures in the Medicare program, yet in spite of the high spending, they often suffer without the holistic, coordinated and integrated care that could address their complex healthcare needs.

Primary care physicians have traditionally been responsible for taking a whole-person approach to care integration and coordination. However, existing Medicare payment policies have pushed the typical office-based practice toward high volumes of brief encounters. These practices are often unable to provide the non-encounter-based care coordination needed by the highest-risk elders who frequently transition between different venues of care and multiple types of providers.

In light of these challenges, primary care organizations and policymakers, including the Medicare Payment Advisory Commission (Med-PAC), have embraced a reform called the “Medical Home.” If enacted, the Medical Home initiative would provide additional capitation reimbursement to primary care practices that are able to provide added accessibility, quality improvement, care coordination and self-management support for patients with chronic conditions.

Ironically missing from the “Medical Home” initiative as currently articulated is an emphasis on care provided in the actual homes of high-risk, low-mobility older patients. Many of the vulnerable elders driving the high costs at which the Med-PAC reforms are aimed have significant functional limitations, and they may not be regularly able to access office-based primary care.

The medical home initiative could be improved by adding elements that make the immobile patient’s home the main venue for primary care. Such reforms would empower informal caregivers, home health aides, social workers, home health and hospice field nurses, and home care therapists to provide ongoing direct care in the home under the leadership of primary care physicians.

Home health providers and hospice agencies can bring a multidisciplinary team of clinicians into the patient’s home to partner with family caregivers. However, Medicare’s existing home health and hospice benefits limit the ability of these teams from taking on a more prominent ongoing care role, and do not facilitate needed physician leadership and collaboration.

The home health and hospice benefits could be strengthened by:

• expanding home health episodes beyond 60-day periods for certain high-risk patients,
• ensuring a loose interpretation of “homebound status,”
• providing payment for “hospital at home” programs,
• expanding access to personal home health aide care,
• removing the requirement for a prognosis of six months or less for hospice care, and allowing those with end-stage illnesses and palliative goals to receive in-home hospice services,
• revising the self-referral “Stark” laws, which apply to home health agencies,
• mandating active medical directors for home health agencies,
• improving reimbursement for in-home physician services,
• providing physician reimbursement for multidisciplinary team meetings and geriatric assessment, and
• enhancing medical education initiatives to address geriatric issues.

Dr. Landers, Medical Director of Cleveland Clinic Home Care Services, provided this summary of his commentary “The Other Medical Home” JAMA (2009 Jan 7;301(1):97-9). If you would like to comment or contact Dr. Landers, please call 216.636.7870, or email landers@ccf.org.
Sleep Disorders in the Geriatric Patient Require Careful Diagnosis and Treatment

Charles Bae, MD, Sleep Disorders Center

Sleep disorders are a common but underdiagnosed problem in the geriatric patient population. Sleep deprivation in geriatric patients often is associated with short-term memory loss, depression and decreased cognition, which can contribute to a misdiagnosis of dementia or other cognitive impairment. It also is associated with an increased risk of falls, an important cause of morbidity and mortality in the elderly.

Misconceptions about sleep and the elderly are one reason that sleep disorders often go undocumented and untreated in this population. Many studies have demonstrated that sleep disorders, not aging itself, are the cause of decreased sleep in geriatric patients.

Patterns of sleep do undergo change as a result of aging. The relative amount of rapid eye movement (REM) sleep remains unchanged until extreme old age. However, the duration of stage one and two light, non-REM sleep increases with age, while the percentage of stage three and four deep, non-REM sleep decreases with age. In patients in their 90s, stages three and four may be completely absent.

Sleep disorders that occur relatively frequently among older patients include sleep apnea, restless leg syndrome and circadian rhythm changes. These are distinct from true insomnia, a condition in which the individual has difficulty falling asleep due to worry or anxiety. Beyond these disorders, interrupted sleep in geriatric patients also may be traced to independent factors that include pain, dementia, medication or medication interactions.

Although sleep apnea may cause choking, snoring, restless sleep or nighttime waking, the affected individual may be unaware of the problem. Restless leg syndrome also causes interrupted sleep. Circadian rhythm changes, in contrast, are more likely to result in either difficulty falling asleep or waking up too early without feeling rested.

Each of these problems has a unique pathophysiology, underscoring the importance of the primary care physician obtaining a complete history from the patient that includes specific inquiries about sleep habits as the first step in diagnosing and treating a sleep disorder. Complaints about depression, fatigue or memory issues should be red flags to the physician that quantity or quality of sleep may be inadequate.

Reports of difficulty falling asleep, staying asleep or interrupted sleep may be a reason to refer the patient for a comprehensive sleep evaluation, a polysomnogram. This overnight test records physiologic data during various stages of sleep and wakefulness, including body position, brain waves, eye movement, blood oxygen saturation levels, respiration, muscle tone and heart rate, as well as snoring and general sleep behavior. Data from the study allow a sleep specialist to diagnose problems such as sleep apnea and restless leg syndrome, or to identify non-medical causes of sleep disturbance such as sleep hygiene or body position.

Determining the etiology of the sleep disorder is essential for planning appropriate treatment. Depending on the underlying cause, some sleep disturbances can be corrected by changes in sleep hygiene, exposure to light, behavioral techniques or relaxation.

Medication is effective in treating some sleep disorders, including restless leg syndrome, but should be used sparingly in geriatric patients. Benzodiazepine receptor agonists, the newest class of prescription sleep medications, have fewer side effects than older types, but still pose certain risks in the elderly. These include an increased risk of daytime falls, confusion and forgetfulness the next day, and drug interactions.

Sleep medication use in the geriatric patient requires careful monitoring to avoid development of dependence or tolerance. Ideally, these medications should be used on a short-term basis only or, if required for an extended period of time, on an as-needed basis rather than daily, and always under the supervision of a physician. Elderly patients may require lower doses, and potential drug interactions must be evaluated in advance of prescribing.

As a general rule, referral to a sleep specialist for diagnosis and treatment may be appropriate when sleep disturbances lead to impaired functioning the next day, over an extended period of time.

Dr. Bae sees patients at main campus and the Willoughby Hills Family Health Center. Physicians may contact him at 216.444.3323, or by email at baec@ccf.org.
Proper Exercise Can Minimize the Effects of Osteoporosis

Bruce Long, MD, Rheumatologic & Immunologic Disease

During a time-crunched medical appointment for an older adult with osteoporosis, it’s easy to reach for a prescription pad to write for medication that prevents further bone loss.

But many physicians forget that exercise plays an equally important role in both building bone and helping an individual achieve better balance to prevent the falls that break bones and can be deadly. In 2005, almost 16,000 people over the age of 65 died as the result of falls, according to the National Osteoporosis Foundation.

“Most of the information that physicians have at their fingertips has focused on pharmacologic treatment of osteoporosis, and many physicians are well versed in that,” says Bruce Long, MD, staff physician in the Center for Osteoporosis & Metabolic Bone Disease at Cleveland Clinic. “We tend to focus on strengthening the bone, which is important. But decreasing the risk of falling is of equal importance.”

There isn’t a good clinical measurement of bone fragility, explains Dr. Long. For example, a patient on steroids will fracture more quickly than a patient who might have lower bone density, but is not on steroids.

That’s why it’s easy to recommend exercises that are good for all older patients, regardless of bone density. Some exercises will benefit even the most fragile patients.

“When possible, standing exercises are best because they engage the whole chain of trunkal stability, hip stability and lower extremity stability,” Dr. Long says.

He recommends:

• **STANDING:** For patients with poor balance, simply standing can be difficult. It’s important to stress that patients always should have something in front of them, such as a walker, kitchen counter, desk or chair, when starting a new exercise, and they should hold on as lightly as possible.

• **MARCHING:** Alternating legs up and down increases balance. Have the patient do this in one place with something in front of them to hold on lightly. Make sure they are able to walk well before recommending marching around the room.

• **TOE TAPS:** Stand on one foot and tap the opposite toes against a book, a step stool, a box or a lower stair.

• **ONE-LEG STANDS:** Have the patient balance on one leg as long as possible, and then the other.

• **HIP ABDUCTION:** If the patient can balance on one leg by lifting it up, next have him or her try to lift the leg out to the side, opening up the hip. The patient should try not to lean, but stand as straight as possible while moving one leg to the side; then switch legs.

• **THE TREE:** If the patient’s balance is very good, this yoga pose where they stand on one leg and put the sole of the foot against the inside of the leg, is an option. To achieve even better balance, place the sole of the foot above the knee and raise the arms above the head.

• **SIDE STEPPING & CROSS-OVERS:** Once the patient demonstrates the ability to balance in place, he or she can try to take simple side steps. Steps should be small at first, ultimately becoming about shoulder width apart. The patient should start in one direction and then go in the opposite direction.

• **YWT:** This can be done standing or sitting. For the Y, bring both hands forward and raise them above the head. For the W, bend the elbows, bringing the palms together and then out to the
side, parallel to the shoulders. To form the T, straighten the elbows out, and stretch the arms out to the side until they are parallel to the shoulders. This exercise is particularly good for patients with spinal deformities, such as kyphosis (Dowager’s curve).

**IMPACT LOADING:** These are only for patients with good balance and without severe osteoporosis. Those with frail spines should not do this. Rise up on the tip-toes and then come down.

“There are some exercises that you don’t want to have a patient do,” cautions Dr. Long. “These include bending forward, scrunching or doing sit ups.”

In addition to these exercises, Dr. Long recommends that elderly patients sit on a balance ball. A partner should stand behind the person.

Formal yoga and Tai Chi classes, as well as dancing are good not only for building strength and balance, but also for socializing, which helps keep older adults mentally alert, says Dr. Long.

Finally, if a physician doesn’t have time in an office visit to demonstrate exercises, giving the patient a handout or a few visits to a physical therapist will help.

“At the very least, physical and occupational therapy should be at the back of every physician’s mind at every visit,” Dr. Long says.


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Clinical Nurse Practitioners Can Fill the Gap

With a dire shortage of healthcare providers in geriatric medicine and a rapidly aging population, Cleveland Clinic geriatricians are helping to train new practitioners. Staff members are making inroads by participating in the training of students in the Cleveland Clinic Lerner College of Medicine and managing rotations of internists through the Section of Geriatrics. This year, they added rotations for clinical nurse practitioner trainees interested in the field.

Anne Marie McNeill, RN, a Cleveland Clinic data registry nurse who is nearing completion of her clinical nurse practitioner training, was among those who took advantage of the chance to rotate in Geriatric Medicine.

What drew you to a rotation in Geriatrics?
I live in that world! I’ve been taking care of older relatives my whole life. Most recently, my mother-in-law lived with us for two years before going into assisted living. She had some pretty significant health issues. When other people in the family couldn’t deal with her problems, I always could.

How much time have you spent in Geriatrics?
I’ve spent 12 hours a week for 15 weeks in the outpatient Geriatric Clinic. I am putting in additional time in the Aging Brain Clinic.

What have you learned?
I have learned a lot about how to assess the geriatric patient. Physical assessment is a big thing in geriatrics. I’ve learned how geriatric patients actually relate to healthcare professionals. They don’t always tell you exactly what you think they should. Sometimes you have to dig to find out what they really need. For example, they may need respite services or Meals on Wheels. This department provides so much information related to available resources in the community that can be both helpful and keep patients out of crisis.

What has been the most valuable part of your rotation in Geriatrics?
Being able to help an elder person remain independent and feel worthwhile is very rewarding. The clinicians I have worked with have a very good perception of what is helpful and what is not, and of how best to direct a geriatric patient’s care. They are good educators of other clinicians, but are also excellent educators of family members, which ultimately gets the patients what they need. Geriatricians really have an impact on how older patients live their lives.