Common Urinary and Bowel Disorders in the Geriatric Population

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KEYWORDS

• Gastrointestinal motility • Small intestinal bacterial overgrowth • Lactose intolerance • Constipation • Irritable bowel syndrome • Diverticular disease • Fecal incontinence • Lower urinary tract symptoms (LUTS)

KEY POINTS

- Urinary incontinence and lower urinary tract symptoms (LUTSs) can have a significant impact on a person's health as a result of the association with depression and anxiety, social isolation and embarrassment, sexual dysfunction, falls, and infections.
- Anticholinergic/antimuscarinic medications may be associated with a risk of cognitive impairment and caution should be taken when prescribing these to geriatric patients.
- LUTSs in older adults are treatable conditions and appropriate counseling and management can lead to significant improvements in quality of life.
- Constipation and fecal incontinence are common treatable conditions in elderly patients.

URINARY DISORDERS

Introduction

The prevalence of urinary incontinence and other lower urinary tract symptoms (LUTSs) increases with older age. Urinary symptoms are more noticeable in men after the seventh decade of life and in women after menopause. Changes in the lower urinary tract and the nervous system that support this observation are multifactorial and often incorrectly categorized as part of normal aging. LUTSs can have a significant impact on a person's health, including physical, psychological, and emotional or social well-being. This article summarizes the current literature regarding the occurrence of lower urinary tract symptoms in the geriatric population.

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Definitions

LUTSs can be grouped into 4 main categories[1]:

- Urinary incontinence symptoms.
- Bladder storage symptoms (including increased daytime urinary frequency, nocturia, urgency, and overactive bladder).
- Sensory symptoms or the departure from normal sensation or function experienced during bladder filling.
- Voiding and postmicturition symptoms, including changes in normal sensation or function during or following micturition, such as hesitancy, straining to void, incomplete bladder emptying.

The prevalence of many LUTSs, and in particular nocturia, urinary urgency, and urgency incontinence, increases with advancing age.

There are 3 main types of urinary incontinence. First, stress urinary incontinence (SUI), the involuntary loss of urine on effort, physical exertion, sneezing, or coughing. Second, urgency urinary incontinence (UUI) is the involuntary loss of urine associated with urgency, and often combines with the complaint of inability to reach the toilet in time. This symptom is typically caused by involuntary detrusor contractions. Mixed urinary incontinence describes signs and symptoms of both SUI and UUI. Frequency is the complaint of voiding too often. Urgency is the complaint of a sudden compelling desire to pass urine that is difficult to defer. Urgency can occur with or without incontinence. Nocturia is the complaint of waking at night 1 or more times to void. Third, overactive bladder syndrome (OAB) is urinary urgency, usually accompanied by frequency and nocturia, with or without incontinence, in the absence of a urinary tract infection or other obvious disorder. A less common subtype is overflow incontinence, which involves the involuntary loss of urine when the bladder does not empty completely, and is associated with high residual urine volumes or urinary retention.

Physiologic changes in the kidneys and bladder can predispose older adults with risk factors to developing LUTSs. Bladder sensation and contractility decrease with age. In men, the prostate enlarges, and, in women, sphincter strength and urethral length decrease.[2] Reduced urine production by the kidneys combined with increased bladder collagen content and involuntary bladder contractions can result in an increase in postvoid residual volume.[2] Thus, these physiologic changes combined with additional challenges that the geriatric population faces are important to keep in mind when caring for these patients.

DISCUSSION

Epidemiology

The most comprehensive longitudinal study of lower urinary tract symptoms in community-dwelling population 60 years of age and older is the Medical, Epidemiologic and Social Aspects of Aging (MESA) study.[3] MESA established the 24-hour urinary frequency and nocturnal urinary pattern in the elderly. Of 500 men 60 years of age and older studied, 36.2% without urinary symptoms of incontinence, bladder irritability, or difficulty emptying voided 4 to 5 times in a 24-hour period. Nearly 80% of these men had a frequency of 4 to 8 times throughout a 24-hour period. Only 12% voided more than 8 times per day and 8.2% voided 1 to 3 times per day. Among 560 asymptomatic women, 34.8% voided 4 to 5 times per day, 47.3% voided 6 to 8 times per day, 12.3% voided more than 8 times per day, and 5.5% voided fewer than 4 times per day. Among 400 asymptomatic men, 34.8% did not experience nocturia, 40.5% voided 1 time at night, 17.8% voided twice, and 6.9% voided 3 or more times at night.

Among 479 asymptomatic women, 37.2% did not experience nocturia, 38.8% voided 1 time at night, 16.7% voided 2 times, and 7.3% voided 3 or more times at night. The 24-hour urinary frequency and the nocturnal urinary pattern increased significantly in both men and women when there were associated urinary symptoms, such as incontinence, difficult bladder emptying, or bladder irritability. Specifically, in women with incontinence, approximately 30% voided 9 or more times in a 24-hour period and 41% voided 2 or more times at night.

Prevalence rates for urinary incontinence range from 8% to 34% in the geriatric population.[4] The prevalence of incontinence among women 60 years of age and older living in the community was 38% and, among men 60 years of age and older, it was 19%.[3] In a multinational cohort study,[5] prevalence of all LUTSs increased in association with increasing age, with 62.9% of men and 58.7% of women 60 years of age and older reporting any LUTSs. Similarly, an age-associated increase was observed in the prevalence of urinary urgency, from 7.1% in men and 9.7% in women less than 40 years of age to 19.1% in men and 18.3% in women 60 years of age and older. The prevalence of incontinence (of any cause) increased from 2.4% in men and 7.3% in women less than 40 years of age to 5.4% and 19.5%, respectively, in those 60 years of age and older. Similarly, the Norwegian Epidemiology of Incontinence in the County of Nord-Trøndelag (EPINCONT) study[6] described a cohort of 27,936 community-dwelling women with a 40% prevalence of urinary incontinence in those 90 years of age and older.

Furthermore, urinary incontinence prevalence among nearly 1000 85-year-old community-dwelling men and women in Goteborg, Sweden, was 29%,[7] whereas 84% of adults residing in nursing homes or hospitals experienced incontinence. Similar rates were found in Moscow and Malaysia.[8,9] In an American survey reporting on specific types of incontinence, the median age of women with urge incontinence was 61 years.[10] Stress incontinence was more common in younger women aged 30 to 49 years, 78% compared with 57% for those 50 to 89 years of age. Urge incontinence predominated in the older population, 67% compared with 56% in women less than 50 years of age.[11]

Impact on Health

Urinary incontinence and LUTSs can have a significant social impact, with associated depression, anxiety, social isolation, embarrassment, and sexual dysfunction.[12,13] Medical consequences of LUTSs in older adults include an increased risk of falls, occurring 1.5 to 2.3 times more often in older women with urinary urgency or urge incontinence,[14] as well as an increase in perineal and urinary tract infections (UTIs). UTIs are the second most common infection in geriatric populations.[15] Urinary incontinence, impaired cognitive function, and limited activity increase the susceptibility of the elderly to infections.[16] Furthermore, loss of independence and increased caregiver burden highlight the negative impact of LUTSs on the elderly.[17,18] From 6% to 10% of nursing home admissions in the United States are attributable to urinary incontinence.[19] The overall morbidity, mortality, and health care costs on older adults secondary to LUTSs have a profound impact on overall quality of life.

EVALUATION

History

Any evaluation for LUTSs should include a medical, surgical, and (for women) gynecologic history. Clinicians should elicit the patient's symptoms and severity, assess impact on quality of life, evaluate for comorbid conditions, and identify any reversible causes of urinary incontinence. A useful mnemonic for other causes of urinary

incontinence is DIAPPERS (delirium, infection, atrophy, pharmacology, psychology, endocrinopathy, restricted mobility, and stool impaction). Women should also be evaluated for pelvic organ prolapse (POP).

Validated questionnaires can be used to elicit a symptom history, such as the International Consultation on Incontinence Questionnaire, Overactive Bladder Questionnaire, Pelvic Floor Distress Inventory, Urogenital Distress Inventory, Incontinence Severity Index, Incontinence Impact Questionnaire, Pelvic Floor Impact Questionnaire, and the POP/Urinary Incontinence Sexual Questionnaire. Bladder diaries are often useful tools in which the patient records the volume and frequency of fluid intake and voiding as well as symptoms of frequency and urgency and episodes of incontinence for at least 24 hours, and ideally for 2 to 3 days.

Diagnostic Tests

A urinalysis and/or urine culture can evaluate for microscopic hematuria or UTI as a cause of urinary symptoms. A postvoid residual (PVR) measurement can aid in diagnosing overflow incontinence or urinary retention. Most clinicians consider an abnormal PVR to be greater than 150 mL. If an increased PVR is identified, the test should be repeated.

Cystourethroscopy assesses the anatomy of bladder and urethra for abnormalities and the presence of foreign bodies. Urodynamic studies assess the physiologic function of the bladder during filling, storage, and voiding. Multichannel cystometrics can be used for patients with complex symptoms or voiding complaints. Urodynamic evaluation is not required in the assessment of all patients with urinary incontinence symptoms (even those planning for an anti-incontinence procedure) but should be considered as a tool to aid in diagnosis for certain patient populations. At-risk populations include prior history of incontinence surgery, history of pelvic radiation, failure to respond to treatments for incontinence, neurogenic voiding dysfunction, mixed incontinence symptoms, or concern for overflow incontinence.

TREATMENT

Conservative Treatment of Lower Urinary Tract Symptoms/Urinary Incontinence

Conservative treatment options for most types of LUTs, including OAB/UUI, SUI, or mixed incontinence, can be effective as initial strategies. Lifestyle modifications that are recommended include weight loss; avoidance of dietary irritants, including reduction of caffeine intake; smoking cessation; and management of daily fluid intake. Weight loss has been found to be more effective for stress incontinence than OAB/UUI but may be beneficial for both. Bladder retraining, which involves scheduled voiding with progressive increases in the interval between voids, and urge suppression techniques are effective for people with OAB/UUI. Prompted and scheduled voiding may be warranted in geriatric patients with cognitive impairment or difficulty with mobility. Pelvic floor muscle exercises (PFMEs) requiring repeated voluntary pelvic floor muscle training (ie, Kegel exercises), may be used in conjunction with bladder retraining. PFMEs performed in a supervised pelvic floor physical therapy program are more effective than exercises performed independently. In addition to PFMEs, fitness exercises have been found to be beneficial in improving incontinence in extremely frail and deconditioned nursing home residents.[20,21]

Nonsurgical Treatment of Stress Urinary Incontinence

Women can be fitted for a vaginal support device, known as a continence pessary, for SUI. Care of the pessary must be demonstrated. Pessaries can be used

independently or in conjunction with PFME. Pharmacologic therapy is not recommended for SUI in men or women because of lack of efficacy and high rates of adverse side effects.

Surgical Treatment of Stress Urinary Incontinence

The midurethral sling is considered the gold standard procedure for treatment of SUI in women and can be placed via a minimally invasive retropubic or transobturator approach. Midurethral polypropylene mesh slings have been found to be as effective as other surgical procedures for SUI (eg, fascial slings or Burch colposuspension) with the benefit of shorter operative time and decreased morbidity,[22] which is especially significant when factoring in recovery time in older adults. Retropubic urethropexy procedures are now less commonly performed because of increased morbidity relative to the less invasive midurethral slings. These procedures include the Burch retropubic colposuspension and the Marshall-Marchetti-Krantz.

In men, the most common treatments for SUI are the artificial urinary sphincter (AUS) and a variety of male slings. The AUS was first introduced more than 30 years ago and is considered by many urologists to be the gold standard for male SUI treatment.[23]

Urethral bulking agent injections may be appropriate in patients with SUI with or without urethral hypermobility (ie, mobility of <30°) who are unwilling or unable to tolerate a surgical procedure.

Conservative Treatment of Overactive Bladder Syndrome

First-line treatment of OAB includes behavioral and lifestyle modifications, such as weight loss, avoidance of bladder irritants, PFMEs, and bladder retraining with or without pharmacotherapy. If these methods provide unsatisfactory results, advanced therapies can be pursued.

Medical Management of Overactive Bladder Syndrome

At present there are 2 classes of medications that are typically used for the treatment of OAB: anticholinergics/antimuscarinics and beta3-agonists. Medications may be combined with behavioral therapies to improve efficacy. Anticholinergics/antimuscarinics inhibit involuntary detrusor contractions and act primarily by increasing bladder capacity and decreasing urgency through blockade of muscarinic receptor stimulation by acetylcholine during bladder storage.[24] There are 6 antimuscarinic medications available in various formulations in the United States: darifenacin, fesoterodine, oxybutynin, solifenacin, tolterodine, and trospium. They have minimal differences in efficacy.

Dry mouth is the most common side effect, as well as dry eyes and constipation. These medications are not recommended in patients with closed-angle glaucoma or impaired gastric emptying. A large study showed an associated increased dementia risk in patients taking these anticholinergics/antimuscarinics.[25] Caution should be taken when prescribing anticholinergic medications in frail or cognitively impaired geriatric patients, and when needed using the lowest effective dose or alternatives.

Mirabegron is a beta3-agonist that relaxes the detrusor muscle during storage and increases bladder capacity by augmenting sympathetic nervous system stimulation of the bladder. Mirabegron should not be used in patients with uncontrolled hypertension but has an overall favorable side effect profile compared with anticholinergics. Antimuscarinic and beta3-agonist medications can be used together in patients with persistent symptoms who are unable to increase medication dose

secondary to side effects or dose limits. In trials comparing mirabegron plus solifenacin in various dosage combinations with solifenacin alone, combination therapy resulted in improved OAB symptoms compared with either monotherapy dose.[26,27]

Tricyclic antidepressants such as imipramine improve bladder hypertonicity and compliance. Efficacy is not well established, and adverse effects are common, therefore imipramine is not commonly used for treatment of OAB.

Surgical Management of Overactive Bladder Syndrome

For patients who have failed conservative management or desire to avoid the side effects of medications, surgical management of OAB may be considered. Advanced therapies include sacral nerve root neuromodulation, posterior tibial nerve stimulation, and chemodenervation with intradetrusor injection of onabotulinumtoxinA. Invasive procedures such as augmentation cystoplasty or urinary diversion via an ileal conduit are reserved for severe refractory cases.

Treatment of Mixed Urinary Incontinence

Older adults with mixed urinary incontinence should be counseled that primary treatment of SUI does not treat UUI symptoms. Patients should be assessed to determine whether symptoms are stress or urge predominant, because this effects treatment. PFMEs, behavioral therapy, and lifestyle modifications can affect both types of incontinence, but treatment beyond these should be tailored to the patient's symptoms.

Clinics Care Points

- Physiologic changes in the kidneys and bladder can predispose older adults with risk factors to developing LUTSs.
- Urinary incontinence and LUTSs can have a significant impact on a person's health as a result of the association with depression and anxiety, social isolation and embarrassment, sexual dysfunction, falls, and infections.
- Conservative treatment options for most types of LUTs, including OAB/UUI, SUI, and mixed incontinence, can be effective as initial strategies. These strategies include weight loss and avoidance of dietary irritants, including reduction of caffeine intake, smoking cessation, and management of daily fluid intake.
- For patients with OAB and urgency incontinence, reliable evidence indicates that caution should be taken when prescribing anticholinergic medications in frail or cognitively impaired geriatric patients. Providers should prescribe the lowest effective dose or consider alternative medications in these high-risk elderly patients.
- Mirabegron, a beta3-agonist, should not be used in patients with uncontrolled hypertension, but has an overall favorable side effect profile compared with anticholinergics.

BOWEL DISORDERS

Introduction

Gastrointestinal (GI) and digestive disorders may occur at any age, but physiologic changes and decline related to aging lead to increased prevalence of these GI diseases in the elderly. Nearly 16% of the world population will be 65 years of age and older by the year 2050.[28] There are common GI bowel disorders affecting geriatric patients, and this article focuses on clinical characteristics, diagnostic tools, and management of bowel disorders.

Small Intestine

The functional capacity of the small intestine in the geriatric population is comparable with younger populations. In terms of small bowel motility, small bowel transit time in young adults is between 2 and 6 hours. There are few studies estimating the transit time in the elderly population, but patterns of motility seem to be unchanged during aging.[29] Animal models of mucosa show age-related differences in the small intestine, such as increase in villous height and crypt depth and decrease in the mucosal surface area, but no such changes were observed in the duodenum in the elderly population.[30,31] Hormone secretion and absorptive capabilities of the small bowel are also not significantly different in geriatric adults.[32] Physiologic changes with aging have shown altered absorption of calcium, zinc, and magnesium. Lactase-phlorizin hydrolase disaccharide enzyme is significantly reduced in function with advancing age. A study by Di Stefano and colleagues[33] showed subjects more than 74 years old with statistically significant lower lactose absorption using breath hydrogen analysis compared with younger subjects. Interestingly, elderly patients with malabsorption had fewer reported symptoms of lactose intolerance. In terms of mucosal immunity in the intestine, aging seems to be associated with reduced immunity. There is progressive decline in the production of antigen-specific immunoglobulin A in the elderly.[34,35] Bacterial and viral pathogens in the GI tract are more commonly seen in the elderly population and more frequently lead to complications compared with young adults.

Small intestinal bacterial overgrowth (SIBO) is defined as the presence of excess bacteria in the small bowel. The prevalence of SIBO is much higher in the geriatric compared with younger populations, 15.6% and 5.9%, respectively.[36] Factors that predispose the elderly to SIBO are achlorhydria, anatomic abnormalities such as bowel resection, and small intestinal dysmotility. Moreover, the risk of SIBO is increased in patients treated with proton pump inhibitors. Gastric emptying delay can also contribute to bacterial stasis in the GI tract. Other medical conditions that are associated with increased risk of SIBO are scleroderma, polymyositis, portal hypertension, chronic kidney disease, and diabetes. In a study by Haboubi and colleagues,[37] small intestinal biopsies from patients with SIBO showed blunting of intestinal villi, and increased levels of intraepithelial lymphocytes, which were reversed after antibiotic therapy. Classic symptoms of SIBO include nausea, vomiting, and diarrhea. The presenting symptoms in the elderly might be vague, with nonspecific symptoms of abdominal bloating and distension. Malabsorption, such as vitamin B_{12} deficiency, could be the first clue for SIBO in the geriatric population. Vitamin K and folic acid levels are normal in these patients because they are produced by the bacteria.[38,39] The simplest method to diagnose SIBO is breath testing using a carbohydrate such as lactulose or glucose. The exhaled gas (hydrogen and/or methane) produced by the bacterial metabolism is measured to perform the study.[40,41] Medical therapy consists of dietary modifications with a low-carbohydrate diet/low-FODMAP (fermentable, oligosaccharides, disaccharides, monosaccharides, and polyols) diet, prokinetic agents to improve GI motility, and antibiotic therapy to reduce the bacterial overload in the small bowel. In the elderly, antibiotic therapy needs to be used cautiously because of an increased risk of *Clostridium difficile* colitis and increased rates of complications of *C difficile* colitis. The benefits of adding new prokinetic medications should be weighed against the adverse effects of polypharmacy.

Large Intestine

Data on transit time in the colon in elderly patients are conflicting. Hanani and colleagues[42] examined myenteric ganglia in human colonic specimens between the

ages of 10 days and 91 years and concluded that there are increased abnormalities in the human myenteric plexus with increasing age, which could be affecting the colonic motility in the elderly population. Southwell and colleagues[43] observed that, in the human sigmoid colon, there are reductions in the levels of neurotransmitters, such as nitric oxide and vasoactive intestinal peptide in the nerve fibers, with growth from the pediatric age group to late adolescence but no significant differences with aging in the healthy elderly group. Further studies will help reach a consensus regarding effects of aging on the function of the large intestine. It seems that comorbid conditions, lifestyle factors such as inactivity, polypharmacy, and medication side effects play a crucial role in development of constipation. The leading group of medications associated with constipation are opioids and anticholinergics.

Constipation can arise in all ages, and chronic constipation affects approximately 15% of the US general population.[44] Sonnenberg and Koch[45] observed the incidence of constipation in adults 65 years of age and older to be 30% to 40% as measured by symptom scales. The incidence increases when evaluating geriatric nursing home residents, with nearly 50% affected.[46] According to epidemiologic studies, increased prevalence of laxative use has been reported in the elderly, and up to 74% of elderly patients residing in long-term facilities are being treated with daily laxatives.[47] In the United States, constipation is more commonly seen in women with pelvic floor dysfunction as a consequence of childbirth and pelvic surgery.[48] Constipation is defined using the Rome IV criteria. To fulfill the criteria, patients must have at least 2 of the following symptoms during the last 3 months: fewer than 3 spontaneous bowel movements per week; straining, lumpy, or hard stools; sensation of anorectal blockage or obstruction; sensation of incomplete evacuation; manual maneuvering for facilitated defecation for more than 25% of defecation attempts.[49]

Primary constipation, also referred to as functional constipation, is subsequently divided into 3 subgroups: normal transit constipation, slow transit constipation, and anorectal dysfunction. Normal transit constipation is the most common type in the general population. In the elderly, slow transit constipation and anorectal dysfunction are more commonly seen. Slow transit constipation is defined as increased transit time of stool through the colon with decreased frequency of defecation caused by myopathy, abnormal innervations of the bowel, or evacuation disorders caused by dyssynergy. Anorectal dysfunction is caused by ineffective coordination of the pelvic musculature and poor evacuation technique leading to defecation difficulty. It has been observed that impaired rectal contractions, reductions in internal anal sphincter pressure, reduced pelvic muscle strength, and impaired rectal sensation in the elderly are the physiologic alterations responsible for worsening anorectal dysfunction.[50]

Secondary constipation is defined as a constipation caused by other medications or disorders. It may be a side effect of certain medications such as calcium channel blockers, opioids, or nonsteroidal antiinflammatory drugs, or associated with chronic disorders such as neurologic, endocrine, rheumatologic, or psychiatric conditions. Neurologic conditions include neurogenic bowel dysfunction caused by spinal cord injury, stroke, or multiple sclerosis; autoimmune disorders, such as scleroderma; and endocrine diseases, such as hypocalcemia and hypothyroidism. **Table 1** summarizes the commonly used medical agents for constipation and their potential adverse effects.

Irritable bowel syndrome (IBS) is a functional GI disorder estimated to affect about 10% to 20% of the elderly population.[51] IBS is diagnosed based on the Rome clinical criteria, currently now in version IV. IBS is defined as recurrent abdominal pain in the last 3 months that is associated with alterations in bowel movements, such as stool consistency, frequency, and appearance.[52] There are 4 different subtypes defined

Table 1
Medical management of constipation

Medical Options	Available Agents in Category	Cost	Adverse Potential Effects
Fiber	All psyllium supplements	$	Abdominal discomfort and bloating
Laxatives	Miralax	$	Diarrhea, dehydration
Stimulants and osmotics	Dulcolax Senna Lactulose Milk of Magnesia	$	Diarrhea, abdominal pain, nausea, vomiting, electrolyte disturbance Lactulose additional bloating, flatulence, dehydration
Secretagogues	Lubiprostone Linaclotide Plecanatide	$$$	Diarrhea, dehydration, electrolyte disturbance
Selective serotonin type 4 (5-HT4) receptor agonist	Prucalopride	$$$$	Headache, diarrhea, dizziness, nausea, bloating
Neurologic	Pyridostigmine	$	Twitching, muscle cramps, diarrhea, sweating, blurry vision
Novel phosphate	Tenapanor	$$$?	Diarrhea, abdominal distension, flatulence, dizziness
Enemas	Retrograde enemas Anterograde enemas Anal irrigation	$ $$ $$$	Irritation of anus and rectal area

Single dollar signs ($) indicate least expensive; multiple dollar signs indicate increasing expense.

based on bowel patterns, including constipation predominant (IBS-C), diarrhea predominant (IBS-D), IBS with mixed bowel habits, and unclassified.[53] Overall, few studies address IBS in elderly patients, and this means there is less information about these patients or about patients with coexisting cardiovascular, neurologic, and other comorbidities common to this group. IBS patterns are similar when comparing young and older patients. In older patients, systemic diseases, previous surgeries, medications, and their side effects can significantly alter the presentation.[54] For example, the prevalence of IBS-C subtype seems to be higher in the geriatric populations. The incidence of IBS is more frequent in adolescents, whereas it is infrequently diagnosed in the elderly. It is important for physicians to remember that older adults with new IBS symptoms may have another cause of the symptoms. Geriatric patients with new or worsening symptoms should have organic disorder excluded and undergo a comprehensive investigation to avoid missing a more serious diagnosis, such as bowel ischemia or malignancy. Management of IBS in the elderly includes lifestyle and dietary modifications such as a diet low in FODMAP and fiber supplementation. Cognitive behavior therapy has been shown to have great benefit in some patients. Pharmacologic intervention depends on the subtype of IBS. For IBS-C, patients are first treated with osmotic laxatives when fiber agents such as psyllium have failed, followed by secretagogues such as linaclotide or lubiprostone. Antidepressants such as tricyclics, selective serotonin reuptake inhibitors, and antispasmodics such as dicyclomine are used when trying to control pain as the predominant symptom.[55,56] In a meta-analysis, Black and colleagues[56] investigated 15 trials of secretagogues for

IBS-C and concluded that all drugs, including linaclotide, lubiprostone, plecanatide, and tenapanor, were superior to placebo and the efficacy was similar for all the drugs. Interestingly, IBS has been considered a functional disorder because of unclear pathogenesis, but there have been numerous studies in recent years showing inflammatory infiltration, more specifically mast cell hyperplasia and activation in the small and large bowel leading to visceral hypersensitivity and dysmotility. Park and colleagues[57] showed significant increase of mucosal mast cells in the terminal ileum, ascending colon, and rectum of patients with IBS-D compared with controls. In another study, Klooker and colleagues[58] performed a barostat study on 60 patients with IBS to analyze rectal sensitivity before and after 8 weeks of therapy randomized to either ketotifen or placebo. They were able to show that ketotifen significantly decreased abdominal pain and other symptoms of IBS, possibly pointing to stabilizing properties of the histamine receptor antagonist, ketotifen.[58]

Diverticular disease is prevalent in the elderly population, and the highest rates are seen in the Western world. With globalization, prevalence rates have increased in Asian populations as well. Current incidence is 50% of the population more than 70 years of age, and 66% in those more than 85 years of age.[59] Diverticular disease has a spectrum ranging from asymptomatic diverticula to complicated diverticulitis. There are 3 different stages of diverticular disease: asymptomatic; symptomatic uncomplicated, associated with chronic pain and diarrhea; and symptomatic complicated, associated with sepsis, bleeding, fistulization, and abscess formation.[60] Most patients with diverticulosis remain asymptomatic (80%–85%).[61] Clinical presentation of diverticular disease does not change with age, but its severity of episodes may vary from mild to moderate with inflammation, pain, and lower GI bleeding, and even to more severe features, including abscess formation and perforation. Traditional management incorporates bowel rest; antibiotic therapy; pain control; and, in select instances, surgical intervention. Acute diverticulitis responds to conservative therapy most of the time and patients are recommended to receive a colonoscopy 8 weeks after symptom resolution to exclude diverticular colitis or colon cancer. About 15% to 30% of cases need surgical intervention.[62] In terms of diverticular hemorrhage management, most elderly patients are treated nonoperatively with supportive care. Surgical intervention is needed if bleeding persists when medical, endoscopic, and angiographic techniques have failed. Blind resection in the elderly can be associated with higher rates of rebleeding (>60%) and mortality (>30%) from sepsis.[63]

Colorectal cancer (CRC) is the third leading cause of cancer and third cause of cancer death in the United States.[64] Overall, in the past decade there has been a significant decline in the CRC incidence and mortality because of increased CRC screening and surveillance.[65] The American Cancer Society estimates there will be 101,420 cases of colon cancer and 44,180 cases of rectal cancer diagnosed in the United States in 2019. The decreasing trend in colon cancer detection is noted in the populations of older adults, who previously had the highest observed risk of CRC. The increasing incidence of colon cancer in younger adults (<55 years old) has prompted new guidelines to suggest CRC screening begin at 45 years of age.[64,65]

CRC presentations can vary. The most common symptoms in the elderly between the ages of 65 and 79 years are change in caliber of stool, GI bleeding, constipation, and abdominal pain. Weight loss is also seen, but is more common in the age group more than 80 years of age. Adenomatous and advanced polyps with villous and tubulovillous features, size larger than 10 mm, with high-grade dysplasia have an increased prevalence in the older age group.[66] Moreover, right-sided polyps along with other types of polyps, such as sessile serrated adenomas, have been linked with increasing age.[67] The guidelines related to screening patients older than 85 years has become a

complex, multifactorial discussion. At present, the US Preventive Service Task Force recommends cessation of screening in patients greater than 85 years old for CRC. They also recommend against screening for CRC between the ages of 76 and 85 years, with some modifications based on the individual patient.[68] Ongoing CRC screening in older patients should take into account risks and benefits of further screening based on the individual patient's goals of care, comorbidities, life expectancy, and functional status.[69,70] When life expectancy is less than 10 years, CRC screening should not be performed and the reasoning documented in the record. After the shared decision making about whether to screen, CRC screening types may be reviewed and a plan for follow-up of a positive finding should be discussed. More invasive testing options include colonoscopy, sigmoidoscopy, capsule colonoscopy, and computed tomographic colonography. Noninvasive options include stool-based tests: guaiac fecal occult blood test (FOBT), fecal immunochemical test (FIT), stool DNA testing, and blood testing. In the elderly, noninvasive testing has increased false-positive rates and therefore it is crucial to discuss the possibility of a need for invasive testing with a colonoscopy in these scenarios. In the right patients, FOBT and FIT provide an easier alternative in the elderly between the ages of 75 and 85 years or older and, if the results are negative, provides a less risky method of testing compared with the invasive options.[71,72] It is worth mentioning that recent studies have shown that CRC resection in geriatric patients is not associated with higher incidence of postsurgical mortality or complications, or reduced survival rates.[73–75]

Fecal incontinence (FI) is another common problem among the older age group. It is a health issue that leads to significant distress with serious impact and interference with daily activities and quality of life. The overall prevalence of FI increases with age from 2.6% to 15.3% when comparing patient populations between the ages of 20 to 29 years and greater than 70 years, respectively. The nursing home population encompasses 40% to 50% of residents with FI. Because of obstetric history, FI seems to affect more women than men in the younger populations, but, with age, the difference in prevalence becomes tapered with women (8.9%) and men (7.7%).[76,77] Factors and physiologic changes that lead to bowel incontinence include anal sphincter muscle weakness and sensory abnormalities, history of anorectal surgeries, rectal prolapse, rectocele, chronic constipation, and fecal impaction, as well as immobility and dementia.[78] In order to diagnose this condition, detailed history and physical examination should be conducted by the physician. Many primary care physicians do not ask the difficult questions or document symptoms related to FI in the medical record, which leads to a higher number of undiagnosed and untreated patients.[79,80] Further testing might include stool studies to identify an infectious cause, colonoscopy or anoscopy to evaluate the mucosa, anorectal manometry, and MRI defecography. As noted by Leung and colleagues,[80] impaired sphincter function, decreased rectal sensation, and sphincter dyssynergia, a risk factor for constipation and fecal impaction, were observed in high magnitudes in nursing home residents with the complaint of incontinence. Treatment options include dietary modifications, bulking agents to enhance stool consistency, and pelvic floor muscle training with physical therapy with or without biofeedback. A placebo-controlled randomized clinical trial by Bliss and colleagues[81] showed psyllium fiber supplementation increasing stool bulking compared with other types of fiber via fermentation in the colon, therefore improving FI. Moreover, a randomized clinical trial evaluating loperamide versus psyllium fiber for management of FI resulted in no significant difference between the groups, but noted improvement of FI episodes and severity in each group. Loperamide was associated with more side effects, such as constipation, with 29% versus 10% in the psyllium group.[82] In another randomized trial, Jelovsek and colleagues[83] studied 300 women

randomly assigned to different treatments (loperamide, exercises, biofeedback). The study suggested that there are no significant differences between loperamide compared with placebo, anal exercises with biofeedback compared with educational pamphlet, loperamide combined with biofeedback versus placebo and biofeedback, or loperamide combined with an educational pamphlet. The combination of the first-line medical therapies as well as exercise and biofeedback interventions can help guide the therapy for FI. The role of biofeedback and anal exercises is under-recognized for the effective management of FI symptoms.[83]

Summary

Urinary conditions are likely to increase in prevalence because of the growth of the older population. Patients may be reluctant to initiate discussions about their incontinence and urinary symptoms because of embarrassment, lack of knowledge about treatment options, or fear of surgery. Thus, responsibility for initiating conversations about urinary problems must rest with medical professionals to ensure that as many older adults as possible receive appropriate care.

Bowel conditions increase in prevalence in the elderly because of intrinsic changes in the physiology of the gut with normal aging. FI is a particularly challenging disorder, leading to social isolation and reduction in quality of life. Like urinary dysfunction, bowel disorders cause symptoms and contribute to poor quality of life in the elderly. There is a need for greater attention to bowel dysfunction in the elderly, and the benefits of exercise and physiotherapy to restore or maintain function in elderly patients are particularly underused. Given the increasing elderly population, management of these disorders will be important for their future.

CLINICS CARE POINTS

- Older patients have significantly lower lactose absorption compared with younger patients.
- Diverticular disease is prevalent in the elderly population, and highest in Western populations.
- Ongoing CRC screening in older patients should take into account risks and benefits of further screening based on the individual patient's goals of care, comorbidities, life expectancy, and functional status
- FI is a common problem among the older age group, asking questions is critical to finding cases.

DISCLOSURE

The authors have nothing to disclose.

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