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Consequences of Urinary Tract Infections in Older Adults

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Abstract

“Urinary tract infections are the most common infectious illness in adults age 65 and older” (Mody, 2017). Although acute illnesses may initially appear harmless in the older adult, age and underlying risk factors alter the body’s natural defense system, further increasing susceptibility to various maladies. This was the case for LB, a fifty-nine year old female patient who came to the clinic following a three day hospital stay for a urinary tract infection (UTI). Although her previous UTI symptoms had resolved with an antibiotic, she was now experiencing fatigue and dizziness during position changes. During the exam, LB was found to have hypotension and bradycardia; further investigation revealed poor fluid intake as well as adverse effects from various medications. The combination of multiple anti-hypertensives and diuretics put her at risk for falling—a non-specific warning sign of an underlying acute illness or exacerbation of a chronic illness—as is the case with many older adults (Fuller, 2000). After reviewing twenty sources pertaining to illness in geriatric adults, it was determined that dehydration and orthostatic hypotension were frequent complications that arose from acute illnesses. When left unchecked, these individuals had a high frequency of falls coinciding with subsequent injuries, fear of falling, loss of independence, increased hospital and nursing home admissions, high medical bills, and decreased quality of life. With early recognition and intervention following an acute illness, such complications were decreased.

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Background

“Urinary tract infections (UTIs) are the most common infectious illness in adults age 65 and older” (Mody, 2017). UTIs are infections frequently caused by the presence of E-coli that have taken up residence in the sterile lower urinary tract (Kennedy-Malone, Fletcher, & Martin-Plank, 2014). As an acute illness, UTIs can cause varying levels of unexpected side effects depending on the number of subsequent risk factors the patient has, and where in the urinary tract it effects. While some patients will be overtly symptomatic with complaints of urinary urgency, frequency, dysuria, hematuria, foul smelling urine, or pelvic pain, approximately 6-16% of community dwellers and 25-54% of nursing home residents will remain asymptomatic (Mody, 2017). In asymptomatic bacteriuria, a UTI may be discovered only through a positive urine test without corresponding symptoms, making it difficult to know an underlying problem is present. Similarly, older adults may experience additional vague or nonspecific symptoms making diagnosis difficult. These symptoms include cognitive changes, confusion, anorexia, fatigue, or incontinence (Kennedy-Malone et al., 2014). UTI incidence increases with age as patients develop comorbidities and risk factors. Due to this, 8.1 million visits to healthcare providers are made yearly for UTI symptoms (National Institute for Health, 2012). Although initial antibiotic treatment for a UTI can be relatively simple, when paired with other risk factors, the aftermath of an acute illness can act as a gateway leading to numerous other health complications.

This was the case for LB, a fifty-nine year old patient residing at an assisted living facility, seen in the outpatient clinic for follow up after a three day hospital stay for a UTI. LB was initially evaluated for pelvic pain, dysuria, and fevers. When tested, she was found to have a UTI. She was then hospitalized and started on Nitrofurantoin ER 100mg twice a day for seven days. After four days of taking the antibiotic she was evaluated in clinic where she noted her initial symptoms had mostly resolved. However, she reported ongoing fatigue and a new onset of dizziness that occurred intermittently upon standing from a sitting or lying position. Vitals were significant for a blood pressure of 88/40, pulse of 50

and fasting blood sugar of 107. Vitals were later repeated while standing. She was afebrile and otherwise felt well.

Of note, LB has a complex past medical history including dementia, diabetes, COPD, anemia, hypertension, depression and neuropathy. In reviewing her medical history, medications, and physical exam it became clear that although her UTI symptoms had resolved, her body was responding negatively to the stress of an acute illness. The compounded effects related to the infection and comorbidities modified her baseline vitals and functions, causing her body's homeostasis to be negatively altered. Her baseline anti-hypertensives and diuretic doses were too strong after leaving the hospital and no longer appropriate in the setting of her low circulatory volume. As noted in the following case study— left unchecked— this caused her to develop initial symptoms corresponding to dehydration and orthostatic hypotension. If these symptoms and medication related adverse effects had been overlooked, these ailments could have progressed to a fall or injury. This commonly occurs with patients who become sick while having complex medical histories. Although acute illnesses initially appear harmless in the older adult, infections such as a UTI provide a gateway for detrimental complications such as dehydration and orthostatic hypotension, which in turn, cause falls.

Case Report

LB Age 59 Caucasian Female DOB 2/1/1959

Chief Complaint: Follow up after hospital discharge. Patient was in hospital for 3 days for a UTI and fatigue. Feeling dizzy.

History of Present Illness: Mrs. LB is a pleasant fifty-nine year old resident of an assisted living facility who visits us today for follow up after a three day hospital stay for a urinary tract infection. No history of prior UTIs per her report. Initially she reports going into the hospital for pain with urination, which then resulted in a hospital admission. While in the hospital, she was started on a seven day course of Nitrofurantoin ER 100mg BID, and she has three days remaining of this prescription. She reports that she has taken all doses as scheduled.

Today she denies urinary symptoms including frequency, urgency, or odor. She notes her discomfort with urination has decreased to a 1/10 and has improved overall. She denies any other pain. She urinates approximately five times per day, describing urine as dark yellow without hematuria. No fevers or chills. Today she reports new onset of fatigue and dizziness but is unable to recall when this initially started. She reports feeling fatigued all day despite sleeping well at night however, notes feeling refreshed for a short period of time following her daily naps. In regards to the dizziness, she reports that it occurs with standing from a sitting or lying position. Dizziness is described as “feeling lightheaded” without the sensation of the room spinning. She frequently sits at edge of bed for a minute or two to decrease dizziness before standing. She is then able to stand and ambulate with adequate balance. She does not use ambulatory aides however, reports holding onto furniture for extra stability. She denies falls or near falls. She denies confusion, and feels memory is at baseline. She drinks one glass of water, three cups of coffee, and two glasses of juice per day. She states her appetite is “too good.” Family and assisted living staff visit multiple times a day to assist with ADLs and medication set up.

Review of Systems:

General: Reports feeling better overall. Denies fevers/chills/night sweats but states she may not remember if she had one. No weight loss or gain.

Skin: Denies skin changes, rashes, pruritus, or lesions.

HEENT: Eyes: No vision changes. **Ears:** No pain, plugged, or popping sensation. **Nose:** No congestion or post nasal drip.

Cardio: Denies chest pain, palpitations, or feelings of “flip flopping” in the chest. She is unsure of how long she has been on her blood pressure medications but denies recent changes.

Resp: Denies dyspnea with activity or rest. No cough.

GI: Regular bowel movements. No nausea, vomiting, diarrhea or constipation. No weight loss or gain.

GU: Denies urinary symptoms of frequency, urgency, or odor. Urine is dark yellow without hematuria. Urination discomfort is tolerable and rated 1/10. She urinates approximately 5 times a day and feels her bladder empties completely. No incontinence.

MSK: Denies difficulty ambulating. No falls or near falls. Holds onto stationary furniture when ambulating.

Neuro: Denies confusion, cognitive or memory changes. Endorses dizziness upon standing from a sitting or lying down position. No vertigo. No peripheral neuropathy.

Pertinent Past medical/Surgical history: Dementia, Diabetes, COPD, Anemia, Hypertension, Depression, Neuropathy

Allergies/Adverse Reactions: No known drug allergies

Social History/Substance use: Lives at assisted living. Family/staff assist with medication set up. Has one daughter named Kari who lives nearby. No tobacco use or illicit drugs. One glass of wine per month.

Current Medications: Donepezil 5mg PO daily, Fluticasone Propionate and Salmeterol 250/50 1 puff BID, Losartan 50mg PO daily, Metoprolol 50mg PO BID, Gabapentin 300mg PO TID, Paroxetine 20mg PO daily, Quetiapine 200mg PO BID, Insulin Glargine 30 units SQ q HS, Nitrofurantoin ER 100mg PO BID X 7 days (3 days left). Multivitamin PO daily, Iron sulfate 325mg PO BID, Furosemide 20mg daily

Family History: Denies a family history of cancer or bladder concerns.

Vitals: 88/40 BP, 50 P, 24 R, 98.6 T, 107 FBS. Repeat BP sitting 124/82, standing 120/82.

Physical Exam:

General: Pleasant female sitting calmly in no acute distress. Alert and oriented X 3. Provides accurate answers to questions, and follows directions appropriately. Holds onto exam table while transferring.

Ears: Pearly gray tympanic membranes with cone of light present bilaterally. Trace amount of light brown cerumen in left ear. No visible fluid, erythema or lesions.

Cardiac: Heart rate and rhythm regular. Pulse auscultated at aortic position while simultaneously palpating for radial pulse. Pulse transmission equal at 60bpm. Orthostatic blood pressure results are noted above. No murmurs or bruits. Dizziness was not reproduced during visit.

Lungs: Clear lung sounds noted without wheezes or crackles. Regular rate and depth respirations.

Abdomen: Soft, non-distended, non-tender to palpation. Active bowel sounds. No hepatosplenomegaly.

Differential diagnoses: Anemia, Orthostatic hypotension, Dehydration, Hypothyroidism, Unresolved infection.

Tests completed: CBC with diff-Normal, Creatinine/BUN-normal, TSH-normal, Electrolytes-normal, orthostatic blood pressure. I would not recheck her urine for infection since she is still on her antibiotic.

(Assessment/Plan) Impression/Report/Plan #1 UTI resolved, 3 days antibiotic remaining

LB has three days left of Nitrofurantoin. We discussed the importance of completing the entire antibiotic seven day course despite improved UTI symptoms. She verbalized understanding. Her facility staff set up medications for her. We reviewed signs and symptoms of an infection and I asked that if any of these develop, she call me to be evaluated.

#2 Orthostatic Hypotension, #3 Dehydration

In reviewing LB's current concerns and lab results, I suspect she is dealing with a combination of symptoms related to early orthostatic hypotension and dehydration. We discussed how her dehydration is likely occurring from a combination of inadequate daily fluid intake, daily Lasix use, and recent UTI symptoms of a fever that likely caused her body to lose more fluids than normal. We discussed effects of this on her circulatory system and well as the importance of her making slow position changes. Due to hypovolemia, her current medication dosages are too high. We discussed holding the Lasix for at least one week to help retain some fluids. We also discussed cutting Metoprolol dose in half to allow for her blood pressure and pulse to recover—25mg BID instead of 50mg BID. I explained that we never want to stop this medication suddenly. I have asked the facility staff to check her blood pressure twice a day for the next week and keep record of it. I would like to see LB back in one week to review her daily record of blood pressures and make any necessary changes to medications. I wrote all of this down for the staff at the facility to be aware of. If blood pressure and pulse have not improved, I will look at obtaining an EKG to ensure her heart is working properly. Lastly, we discussed the importance of getting in eight glasses of non-caffeinated fluids each day (64 ounces of soup, water, juice). She can continue to have caffeinated coffee but she should not include that total in her eight total glasses per day. She verbalized understanding and provided accurate teach back regarding how much fluid she should have per day.

Literature Review

“A urinary tract infection (UTI) is an infection in any part of your urinary system—your kidneys, ureters, bladder and urethra”(Mayo Clinic, 2016). In lower UTIs, bacteria attaches to the wall of the urethra or bladder, developing the symptoms for which patients seek evaluation. Once a UTI is diagnosed, the specification of acute or chronic, and complicated or uncomplicated are added. Acute indicates that the infection developed in a previously asymptomatic individual, while chronic indicates they have had numerous or lengthy infections (Dunphy, Winland-Brown, Porter, & Thomas, 2015; NIH, 2012). In contrast, the complexity of the infection is specified by being uncomplicated— indicating the infection is uninfluenced by other health factors or complicated— indicating the infection is influenced by comorbidities that also must be evaluated and treated for patient safety (Dunphy et al., 2015).

Urinary tract infections (UTIs) affect approximately 20% of women and 1% of men each year”(Dunphy et al., 2015, p.608). Although men can get UTIs, women are at higher risk for infection due to anatomy— having a shortened urethra with close proximity to the vagina and anus— inadvertently allowing E-coli to spread with activities such as intercourse or post-void hygiene (Kennedy-Malone et al., 2014; NIH, 2012). Additional risk factors for infection include advanced age, spinal cord injuries with subsequent urinary obstruction or retention, presence of indwelling catheter, and diabetic or transplant related immunocompromise (Kennedy-Malone et al., 2014; NIH, 2012). Unfortunately age is an overarching non-modifiable risk factor because with age, comorbidities develop, and the body is less capable of responding to an acute illness. The importance of evaluating each patient’s case in its entirety— in addition to age—is an ongoing theme throughout my review of twenty sources pertaining to illness in geriatric adults. In order to obtain this information, I entered relevant research terms into three data bases, gathering articles focused on post illness complications such as dehydration, orthostatic hypotension and falls.

The term —evaluating a patient’s case in its entirety— means possessing an understanding of geriatric pathophysiology, pharmacology and any risk factors that can be modified by an acute illness. The body is a large system of checks and balances so when presented with an acute illness, multiple body systems are affected. For example, when heart mechanisms malfunction, the kidneys attempt to compensate by increasing their fluid filtration and maintenance efforts, until they too begin to malfunction. Abnormal labs, vital signs, or newly occurring falls may be discreet indicators that compensation processes are declining. According to Fuller (2000), “A fall may be a non-specific warning sign of an underlying acute illness such as pneumonia, urinary tract infection, or myocardial infarction. It could also indicate the patient is experiencing an exacerbation of a chronic disease” (p.2159). Knowing factors such as dehydration and orthostatic hypotension go hand in hand, it is necessary to be vigilant in assessing for risk factors related to acute illness; understanding what role they play in order to prevent falls and injury.

“Dehydration occurs when you use or lose more fluid than you take in, and your body doesn’t have enough water and other fluids to carry out its normal functions” (Mayo Clinic, 2016). Fluid volume deficiencies can occur for numerous reasons, however most of them can be categorized under two headings: inadequate fluid volume intake and fluid volume loss. Older adults, especially those over 85, are more susceptible to both inadequate fluid intake and high fluid loss due to changes in body composition, renal changes, and decreased thirst sensation (Faes, Spigt & Olde Rikkert, 2007). On any given day with blunted thirst sensations, the individual may not feel thirsty or desire to drink adequate amounts of fluids. Then unknown to them, their already poor fluid intake requirements increase when dealing with an illness. Up to 25% of persons age 85 and older drink less than one liter of fluid per day because their body is not telling them they are thirsty (Faes et al., 2007). Without adequate fluids maintaining homeostasis, body systems begin to dysfunction. Fluid is to the body as oil is to a machine; Oil keeps the machine working smoothly and seamlessly just as fluid does for the body.

In addition to low fluid intake, there is a knowledge deficit among geriatric patients regarding what type of fluids are best for hydration. Frequently consumed caffeinated beverages such as soda or coffee are going to act as diuretics; encouraging the body to rid itself of fluids, and urinate more frequently. Without education regarding the importance of non-caffeinated fluids, attempts at hydration will be counterproductive. According to Faes et al., (2007), providers caring for geriatric clients play a strong role in educating patients that they need to drink fluids for their health and protection rather than for thirst. Studies showed that this piece of education alone helped elderly people increase their fluid intake above 1700ml per day (Faes et al., 2007).

Not only is dehydration caused by inadequate fluid intake but also by fluid volume loss. Fluid volume loss occurs when a patient is losing more fluids than they are taking in. Fluids are naturally lost from the body through the gastrointestinal and urinary system, as well as through skin and respiratory mechanisms called insensible losses (Sterns, 2016). Normally, the body will compensate for these losses by taking in necessary replacement fluids however, when an individual has a fever or diarrhea, fluids escape faster than they can be replaced. To compensate for these losses, younger individuals rely on retrieving fluid from muscle and organ reserves. In contrast, geriatric body composition is made up of more fat than muscle—fat stores less fluid than muscle—therefore leaving them with less fluid reserve at any given time (Sterns, 2016). Additionally older individuals have increased propensity to “third space” their fluids from circulatory system into other tissues, making it unavailable to be utilized for hydration (Sterns, 2016). In this case, even checking a weight—as is commonly done to determine hydration— will yield inaccurate results. With decreased fluid intake and emergency fluid reserves to rely on, older adults become dehydrated quicker and can experience more dramatic effects.

In addition to differences in body composition, geriatrics experience kidney changes that affect the amount of fluid lost. The kidneys job is to filter waste and concentrate urine while delivering necessary electrolytes and fluid back to the circulatory system for hydration (Taffet, 2017). When under stress, older kidneys begin to have difficulty with these life sustaining tasks (Sterns, 2016). According to

Mattison (2016), “older adults have greater vulnerability to acute stress than younger individuals due to age-related diminution of physiologic reserves”(p.1). Acute infections create stress— escalating the body’s fluid requirements and energy expenditure— making it work harder to avoid debilitating outcomes. One of the debilitating complications that can occur following acute illness induced dehydration is orthostatic hypotension.

Orthostatic or postural hypotension is a significant decrease in blood pressure that occurs upon standing, often due to impaired autonomic reflexes or low intravascular fluid volume (Kauffman and Kaplan, 2015). Parameters for diagnosing orthostatic hypotension include a 20mmHg or greater fall in systolic blood pressure or a 10mmHg or greater fall in diastolic pressure when a patient goes from a sitting to standing position (Lipsitz, 2017). When a healthy individual stands up, approximately five hundred milliliters to one thousand milliliters of circulating blood volume quickly pools into the lower extremities (Lipsitz, 2017). This drop in fluid alerts baroreceptors in the heart and circulatory system to constrict and resist fluid volume change (Mayo Clinic, 2014). Simultaneously, the heart pumps harder to return fluid to vital organs. This compensatory mechanism causes the fluid to return to heart and brain within thirty seconds of position change (Lipsitz, 2017). When effective, the blood pressure should only drop 5-10mmhg rather than 20-30mmgh.

Similarly when an older individual dealing with a fluid deficit stands up, peripheral constriction will occur however the fluid doesn’t have the volume to return as quickly to the brain and heart. The subsequent effects of stress, age or medications such as beta blockers will influence the pulse and blood pressure to return the fluid to the organs slower than normal. Due to this time lapse, the patient may begin to experience symptoms of dizziness or lightheadedness upon standing. Although occurrence of dizziness can depend on severity of hypotension or patients adaptability, some geriatrics remain asymptomatic despite underlying hypotension. The inadequacies of compensatory mechanisms with increased age, acute illness, and dehydration have a direct correlation with orthostatic hypotension.

Kauffman and Kaplan (2015) reviewed two studies, noting that 18-20% of people over age 65 experienced orthostatic hypotension, with only 2% being symptomatic with dizziness upon standing. Similarly the American Medical Association warned members “that the signs and symptoms of dehydration may be vague, deceptive or even absent in older adults” allowing advanced hypotension to go undiagnosed (Faes et al., 2007, p.591). When asymptomatic, orthostatic hypotension can be difficult to diagnose due to the lack of correlation between expected symptoms and specific blood pressure parameters. For example, without knowing that a patient historically has a high blood pressure around 180/100mmHg, a reading of 120/80mmHg will not flag the provider as abnormal, when in reality this patient is quite hypotensive (Sterns, 2015). Providers must be aware of blood pressure baselines unique to the individual as well as the level they experience hypotensive symptoms at in order to effectively diagnose and treat patients before they enter advanced stages of disease (Sterns, 2015).

As noted earlier, post illness symptoms of dehydration and orthostatic hypotension are often vague, non-specific, and insidious in onset, making it difficult to be diagnosed during a clinic visit. Providers can look for clues of hypovolemia—indicators that are often mistaken by patients as signs of aging— such as dry mucous membranes, sunken eyes, changes in cognition, fatigue and increased urine concentration (Sterns, 2015). If these initial symptoms go undetected, advanced symptoms of fatigue, dizziness, nausea, or disorientation may develop due to underlying hypotension (Kennedy-Malone et al., 2014). Upon noticing advanced symptoms, providers should investigate deeper for underlying issues while removing any modifiable risk factors. In contrast, some patients will be asymptomatic, only realizing there is underlying hypotension when they have an unexpected fall from standing height. Due to variability in post illness manifestations, providers must rely on laboratory results and objective vitals evaluation to diagnose dehydration and orthostatic hypotension.

. Initially blood pressure should be taken in three different subsequent positions; lying down, sitting and standing. An accurate standing blood pressure should be checked after the patient has been standing for one to three minutes in order to allow time for the body to compensate (Kiel, 2016). These

values should be compared to baseline values noting that if a significant drop in blood pressure is noted after one to three minutes, orthostatic hypotension can be diagnosed. When checking labs, a creatinine, electrolytes, BUN, and a Complete Blood Count (CBC) with differential should be ordered to assess hydration, kidney function, and presence of infection. Sodium, potassium and creatinine can indicate normal fluid levels or hypovolemia as well as reveal dangerous fluctuations in electrolytes (Sterns, 2015). Urine can be tested for osmolality, electrolytes and presence of infection. It is common that subsequent urinary tract infection can be found amidst dehydration and lab changes. Lastly a thorough history should be conducted to comprehend patient's current medications, food and beverage intake, previous illnesses, and activities that may lead to falls.

Frequent medication reviews for adverse drug effects and interactions are necessary due to the magnified affect that a single medication or combination of medications can have on the body following an acute illness. According to Kiel (2016), "The greater number of medications of any type, and recent changes in dose of medication are associated with increased falls risk" (Medication Use section, para. 1). Similarly, when Rubenstein and Josephson (2006), reviewed several studies, they found statistically significant results that noted increased falls risk with the use of three or more medications. Seeing that it is common for patients to take ten or more medications for chronic illness management, providers must be cognizant of timing of symptom onset and medication changes in case there is a correlation as well as provide education about falls risk.

A review of the literature noted a significant increase in falls with the use of psychotropic medications, narcotic analgesics, antiarrhythmics, diuretics, anticonvulsants, anticholinergics, antihypertensives, aminoglycosides, and antidepressants (Rubenstein & Josephson, 2006; Rubenstein, 2006). Fuller (2000), confirms this in his literature review adding that falls appeared to increase with the use of "sedatives, TCAs, anti-hypertensives, corticosteroids, NSAIDS, cardiac medications, and oral hypoglycemic medications"(p.2161). In contrast Kiel (2016), found that although hypertensives had a high correlation with falls, beta blockers in particular did not. Despite differences in findings, the overall

majority agreed that any medication or combination of medications can alter the body's responses to stress following an illness—which directly correlates with falls.

When Kiel (2016), reviewed literature regarding community residing older adults, “between 30 to 40 % of those over 65 years old, and 50 % of those over 80 years old experience at least one fall annually” (Epidemiology section, para.2). Despite high percentages of falls within the community, the occurrence of falls within the long term care facility surpassed them with 50% of residents falling yearly and 60 % of those having an additional fall (Kiel, 2016). In review of twelve studies encompassing 3,628 falls, Rubenstein and Josephson (2006) found that “environmental hazards or accidents such as tripping on a throw rug caused 25-45% of the falls” while “dizziness and vertigo caused 13%. Similarly postural hypotension caused 3% while “other causes” such as arthritis, acute illness, drugs, pain, and falling from bed caused 15%” (p.810). These are alarming statistics that may have been prevented if underlying risk factors were acknowledged on a routine basis.

According to Factora (2013), a patient's risk of falling is highest after an acute illness due to residual effects of bed rest, inactivity and inadequate nutritional intake. Additional risk factors for a fall include age, Caucasian ethnicity, cluttered living arrangements, use of ambulatory aide, history of previous falls, acute illness, chronic conditions, use of four or more medications, hearing or vision impairment, and sensory deficits (Fuller, 2000; Rubenstein & Josephson, 2006). To demonstrate the compound effect of risk factors, a survey of community living geriatrics showed that 27% of people who fell had zero to one risk factor compared to 78% of people who fell while having four or more risk factors (Rubenstein, 2006). An additional study by Nevitt and colleagues, reviewed by Rubenstein and Josephson (2006), noted that community living persons with “recurrent falls increased from 10% to 69% as the number of risk factors increased from one to four or more” (p.814). This emphasizes the importance of identifying and quantifying risk factors especially after a UTI in order to prevent injury, avoid hospitalization and decrease healthcare costs related to fewer emergency room visits.

“A fall is a sentinel event signaling a decline in an individual’s physical reserve homeostatic reserve”(Factora, 2013, Physical Activity section, para. 6). The older a patient gets, the more likely the fall will result in injury. According to the CDC (2017), over 800,000 patients a year are hospitalized due to a fall related head injury or hip fracture. Additionally, an estimated “1% of fallers who sustain a hip fracture have a 20% to 30% mortality within 1 year of the fracture” emphasizing decreased longevity. Although “1 out of 4 people fall each year, less than half tell their doctor” which is likely due to fear of repercussion or loss of independence (CDC, 2016). With this knowledge, providers must be vigilant in asking patients if they have fallen or tripped in the past 3-6 months while conveying that a truthful answer is in their best interest.

Not only do falls affect the physical aspect of an individual, but also their confidence level in completing daily tasks. A survey review indicates that 30% to 73% of older persons that have fallen verbalize a fear of falling again (Rubenstein & Josephson, 2006). Depending on the situation where the fall occurred, patients may make alterations in their routine, limit certain activities, or avoid places they enjoy to avoid dizziness or falling. In review of one study of 673 older adults living in the community, “60% reported moderate activity restriction and 15% severe activity restriction due to fear of falling” (Kiel, 2016, Fear of Falling section, Para.1). Minor changes and safety precautions are appropriate in order to keep the patient safe, but when bigger changes begin to cause isolation or decrease independence; this is a slippery cycle that providers need to intervene on. This psychological effect of a fall can trap the patient in a downward cycle that ultimately becomes more restrictive than a physical injury

In addition to the physical and psychological effects that a patient experiences with a fall, there are negative implications simply due to the inability to care for oneself. “Fall-related injuries are associated with significant subsequent morbidity; decline in functional status, increased likelihood of nursing home placement, and greater use of medical services” (Kiel, 2016, Morbidity and Mortality section, Para. 1). For example, according to Ambrosea, Paula, and Hausdorffb (2013), in 2009, older adults in the US had 2.2 million nonfatal fall injuries that required treatment in the emergency room with

more than 581,000 persons requiring subsequent hospitalization. The CDC (2017) subsequently revealed that in 2015 fall related injuries accrued thirty-one billion dollars in medical treatment with two thirds of that being hospital related costs. This is a financial drain to both the patient and tax payers that ultimately could have been avoided if risk factors were addressed

Lastly, it is important to know what tests or steps can be taken to help prevent falls. Initially there are standardized tests that are easy to use. These include The Berg Balance test, Short physical performance battery (SPPB), Get up and go test (TUG), Tinetti, and Functional reach test (Kiel, 2016). The TUG is one of the most common and easy to administer however, in review of studies, Kiel (2016), found it to be less predictive of future falls than other tests. Similarly, the Tinetti test gives a falls risk level based on balance and gait (Ambrosea et al., 2013). Each test will provide data that can give the provider an idea of current level of functioning. Upon reviewing the data and risk factors, providers can order a home safety evaluation, physical or occupational therapy, ambulation equipment, or vision and hearing tests. These results can be used to highlight important teaching points such as fluid intake, slow position changes with dizziness as well as stress the importance of early recognition of symptoms to prevent post illness sequelae including health decline and loss of quality of life.

In conclusion, although acute illnesses initially appear harmless in geriatric patients, it is important to remember that infections such as a UTI provide a gateway for detrimental health complications. Due to the geriatric vulnerabilities of dehydration and hypotension that are present following an illness, it is our responsibility as providers to have general and individual risk factors in the forefront of our minds while assessing and treating them. Not only is this important for their immediate health but also for long term health and safety. As we begin to recognize negative implications of acute illnesses, we can commit to investigating the underlying causes earlier on in order to avoid something preventable and ominous in the future.

Learning Points

- Whether initially meeting a patient or performing a subsequent evaluation, it is important to account for the “whole picture” of the patient. This includes reviewing baseline vitals, medications, risk factors, and chronic illnesses, so that when an acute illness develops, you can recognize the red flags and prevent detrimental effects to the patient.
- No two patients are alike. Each patient must have individualized management and treatment based on their specific needs rather than a “standard protocol”. Plans should be adaptable in order to ensure patient safety.
- Regular medication review and alterations are important. When patients experience an acute illness or changes in their baseline health, it is mandatory that providers review the appropriateness of the current drug regimen. A patient struggling with dehydration should not remain on their current dose of diuretic because this is counterproductive and dangerous for the patient. Providers must be vigilant in their medication review.
- Providers should educate patients regarding adequate fluid intake, appropriate fluid types, and importance of slow position changes. Patients should also be aware of general and individual risk factors as well as “red flags” to monitor for. Prevention is imperative.
- A thorough assessment of physical and psychological changes should be done using standardized tools such as the TUG and Mini Mental Exam. Results can give providers rationale for putting interventions in place before a fall occurs. Directly ask patients if they have fallen, stumbled, or landed on the ground unexpectedly in order to get an idea of safety at home. A home safety evaluation can be completed by physical therapy if necessary for prevention.

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