AHCA/NCAL Clinical Scenarios

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

Mrs. Thomas is a resident, aged 85, who resides at Sunny Acres Health Care Center. She has been in the facility for two years. Her primary diagnosis is osteoarthritis, osteoporosis, and mild cognitive deficit. Her daughter, Hanna, is involved with her mother's plan of care. Hanna approaches Bethany, one of the newer LPNs on the evening shift, stating that she needs to call the provider for a urinalysis and urine culture (UA/UC). She states that her mother is acting like she always does when she has developed a urinary tract infection (UTI).

Bethany goes to the room with Hanna to assess Mrs. Thomas. Upon entering the room, she notes that Mrs. Thomas is sitting in her wheelchair, working on a puzzle that is set up in the corner of the room. In talking with Mrs. Thomas, she states that she feels fine, she has no flank pain, no sense of urgency or frequency, no dysuria and she is without an indwelling urinary catheter, however, she feels off and is not sure why. She admits to getting short-tempered, and when she went to get out of bed this morning, she lost her balance. She did not fall, but stated she sat back down on the bed to stop from falling. She states that there are times she can hardly keep her eyes open to carry on a conversation. Vital signs are obtained, and they are 126/72; 78; 16; 97.8. Oxygen saturation rate is 94%. Hanna explains that this is how the infection always starts and that they should just get a head start on treatment. Bethany assures the daughter she will contact the provider to share her assessment. She was able to reach an on-call provider who ordered a UA/UC for the morning. After the UA is obtained, they are to start Mrs. Thomas on Ciprofloxacin empirically until results of the UA/UC are back.

The Infection Preventionist (IP) arrives at work the next morning and sees the order from the provider. She also reads the assessment and notes from the LPN. She notes that the UA has not yet been obtained, therefore, the antibiotic has not yet been started. The IP then goes to see Mrs. Thomas. She is up and eating breakfast in the dining room. After breakfast, she approaches her to ask her about symptoms. Once again, Mrs. Thomas denies any pain or discomfort. She states, "Like I told the nurse last night, I am just very tired."

Scenario Review:

Family members always have the best interest of their loved one in mind, and this can be challenging for a new nurse. Treatment of ASB is common in older adults in all settings, which leads families to believe that treatment is necessary. Also, many providers and families commonly, mistakenly, believe that changes in behavior or fatigue are signs of UTI coupled with the fact that the person "got better" after being treated with antibiotics. However, studies have shown that changes in behavior do not help differentiate those with an infection from those with ASB. The reason they get better after antibiotics is not because the antibiotic killed the bacteria, but the behaviors were transitory due to some other cause and resolved on their own. Much like how people with a viral cold get better after an antibiotic, which is a natural recovery, not due to the antibiotic since they are not active against viruses.

A much more appropriate step for Bethany to take would have been to complete the assessment, explaining that Mrs. Thomas did not show any signs or symptoms of a UTI, however, she would be happy to contact the doctor regarding the mood changes, loss of balance and fatigue. It is also common for a provider who is not familiar with the resident and family to go along with the request.

AHCA/NCAL Clinical Scenarios

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

According to the new McGeer's criteria, for a resident without a catheter, minimally the symptoms to even request a UA/UC would be:

- Acute dysuria OR
- Temperature of 100° F AND at least 1 of the following:
  - Urgency
  - Suprapubic pain
  - Urinary incontinence
  - Frequency
  - Gross hematuria
  - Costovertebral angle tenderness

According to the IDSA guidelines updated in 2019, there is a strong recommendation against screening for or treating ASB in older adults. They found there is low or moderate-quality evidence that there is no benefit and high-quality evidence of harm. In the elderly, antibiotic treatment of ASB does not reduce the risk of death; (low-quality evidence), or of sepsis; (very low-quality evidence). There are high-quality data to suggest that adverse effects are particularly common following the use of antimicrobials in this population, including Clostritiodes difficile and isolation of organisms with increased antimicrobial resistance. This includes the older resident with functional and/or cognitive impairment with bacteriuria and without genitourinary symptoms or other systemic signs of infection, such as a fever. Falls and changes in mental status are often used to support the need to get a UA/UC, however, these can be triggered by an array of other issues, such as dehydration, change in medication, change in appetite, or an infection elsewhere in the body.

AHCA/NCAL Clinical Scenarios

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

Scenario Review (cont.):

Newer nurses are not expected to know all that is needed to know from the start. However, the IP should make sure all nurses, new and seasoned, are well versed in either the Loeb or McGeer's criteria, as well as the Antibiotic Stewardship in Nursing Homes developed by the CDC. The overuse of antibiotics has created a world filled with challenging MDROs. We can slow this growth by assuring that we have given our nurses the best tools and understanding of what constitutes a true infection that does need to be treated. Having a strong understanding of all available information on infection prevention as well as how to recognize a true infection will benefit them and the residents in prevention of overuse of antibiotics.

Questions Posed:

1) Rank the order of what the next steps should be for the IP:

a. Call the primary provider and explain the situation, asking if they could cancel the order for the UA/UC and perhaps begin with hydration and blood work. (2)

b. Complete a full assessment of Mrs. Thomas. (1)

c. Speak with Bethany, the LPN, regarding what can be done if this situation arises again. (4)

d. Meet Hanna, the resident's daughter and Mrs. Thomas regarding the orders. (3)

e. Speak to the medical director about sending reminders to attending physicians about ASB and diagnostic stewardship. (5)

This order is most appropriate because it always starts with an assessment. Whether we agree or disagree with another person's actions, we are focused on the needs of the resident. Therefore, we will always start with a sign/symptom assessment for a UTI. Once the assessment is completed the primary provider, who knows the resident, and the resident's family, can be the one to determine if the order is needed, or if they want to start with blood work first. The resident stated she felt short-tempered and like she was losing her balance. We need to look at any new medications that may have been added, we need to check her hydration and nutritional status. These symptoms fall into many distinct categories, but with a complete assessment, the provider can decide. You then want to talk to the daughter and Mrs. Thomas and explain what you have done and why. There is particularly useful information on the CDC website to share with families and residents about the need to only use antibiotics when needed. You do want to sit down with Bethany and use this as a teaching moment. Providing her with samples of all the different diagnosis this could indicate, such as dehydration, nutrition, and a change in meds will make her a stronger nurse going forward. Providing her with information on McGeer's criteria and what the true definition of an acute UTI would look like will be key. Finally, talk with the Medical Director and remind them that even the on-call providers should be following the guidelines for sustaining the facilities Antibiotic Stewardship program. An annual letter (or more frequently as needed) or call to them may be needed to keep them on track.

(Questions Continued on Next Page)

AHCA/NCAL Clinical Scenarios

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

Questions Posed (cont.):

2) True or false: White Blood Cells in the urine analysis is a definite sign of a urinary tract infection which should trigger treatment.

3) True or false: Urine culture obtained from a well done straight cath urine collection that grows bacteria indicates an infection that should be treated with antibiotics.

The answer to both is false. Unlike the case for UTI in community-dwelling older adults, a urine specimen with bacteriuria and pyuria in LTC residents is insufficient to confirm a diagnosis of clinically suspected UTI. Research has found that a positive leukocyte esterase and/or nitrate result is not synonymous with infection, but if both results are negative, the clinician can be certain that there is no UTI. Therefore, seeing white cells in the urinalysis is not indicative of an infection. We must treat the person, not the paper.

4) Check all the following statements that are true regarding ASB:

a. Treatment of ASB will prevent future UTIs.

b. Most residents with asymptomatic bacteriuria and/or asymptomatic pyuria should not be treated with antibiotics.

c. ASB is a positive urine culture from a person with no physical signs or symptoms of a UTI, such as dysuria, frequency, urgency, fever, or flank pain.

d. The Loeb or McGeer criteria can help differentiate ASB from a UTI.

e. The major difference between the Loeb and McGeer Criteria for UTI is the number and type of physical symptoms included.

f. A change in resident's behaviors, dark or cloudy urine or urine with a foul odor can help differentiate ASB from a UTI.

B and C are correct because it is imperative to distinguish symptomatic UTI from ASB in the elderly population. Treatment of the latter increases the rate of adverse drug effects from the use of antimicrobial medicines; increases the rate of recurrent infections with MDR bacteria; and does not change survival, chronic genitourinary symptoms, or the rate of symptomatic UTI. As a result, the Infectious Diseases Society of America (IDSA) does not recommend treatment of asymptomatic bacteriuria.

A is incorrect because it has no additional benefit and has risk of harm; some adverse outcomes have been reported because of treatment. In another study, an increased frequency of bacteriuric episodes was significantly associated with an increased frequency of receiving an antimicrobial and of subsequent isolation of multidrug-resistant gram-negative bacilli in urine, but not changes in mental status or admission to hospital for UTI.

C and D are incorrect because McGeer requires laboratory results and Loeb does not. While there are some differences in the number and type of symptoms between the two criteria, it's the requirement of urine culture

(Questions Continued on Next Page)

AHCA/NCAL Clinical Scenarios

Scenario: Asymptomatic Bacteriuria (ASB) versus Urinary Tract Infection

Questions Posed (cont.):

in one vs the other that is the difference. Loeb were developed to guide clinicians to start antibiotics based on presenting symptoms without having to wait for lab results. McGeer were designed to be applied retrospectively to determine if a person had a UTI or not for tracking and surveillance purposes, not for treatment purposes.

E is incorrect because Classic symptoms of UTI include focal genitourinary symptoms such as urinary frequency, urgency, dysuria, and costovertebral angle tenderness. Residents without focal genitourinary symptoms are considered asymptomatic. However, bacteriuric residents without these symptoms but with systemic signs such as change in mental status, delirium, or falls, may present a diagnostic challenge. In practice, these patients are often treated with antibiotics for UTI. This is particularly true in patients with dementia or other conditions that limit the ability to communicate.

Think to yourself:

5) What would be an appropriate teaching tool to use for newer nurses such as Bethany?

6) What would be the most effective way to teach family members and residents about the need to practice Antibiotic Stewardship?

References

AHRQ. (June 2021). Asymptomatic Bacteriuria: AHRQ Safety Program for Improving Antibiotic Use – Long Term Care. AHRQ Pub. No. 18(21)-0029. https://www.ahrq.gov/antibiotic-use/long-term-care/index.html

IDSA. (2019). Clinical Practice Guideline for the Management of Asymptomatic Bacteriuria: 2019 Update by the Infectious Diseases Society of America. Clinical Infectious Diseases, Volume 68, Issue 10, 15 May 2019, Pages e83–e110, https://doi.org/10.1093/cid/ciy1121

Shea/CDC (2015), Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria., Volume 33 , Issue 10, October 2012 , pp. 965 – 977 DOI: https://doi.org/10.1086/667743

Genao L, Buhr GT. Urinary Tract Infections in Older Adults Residing in Long-Term Care Facilities. Ann Longterm Care. 2012 Apr;20(4):33-38. PMID: 23418402; PMCID: PMC3573848.