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| **Maryland Next Gen NCLEX Test Bank Project**  **September 1. 2022** | | | |
| **Case Study Topic**: | CAUTI (Catheter Associated Urinary Tract Infection) | **Author:** | Mary Beverly Gallagher, MS, RN, CNE  Assistant Professor  Harford Community College |

**Case Summary**

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| Following a right hip replacement, the client is discharged to a rehabilitation facility with an indwelling urinary catheter. On the second day the client develops signs of a Catheter Associated Urinary Tract infection (CAUTI). Catheter is removed and antibiotics started. Nurse instructs the client about preventing a future UTI and evaluates the client’s understanding of the instruction. |

**Objectives**

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| 1. Identify risk factors for and signs and symptoms of CAUTI  2. Develop a plan for managing the CAUTI including administering medications and removing the urinary catheter  3. Instruct the client about treatment plan, including prevention of future UTI  4. Evaluate outcomes of instruction. |

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| **Case Study Link** | **Case Study QR Code** |
| <https://umaryland.az1.qualtrics.com/jfe/form/SV_6SuLbW1OlWYay4S> |  |
| **Trend QR Code** | **Trend Bow-tie Link** |
|  | <https://umaryland.az1.qualtrics.com/jfe/form/SV_eqRr8mMAZB9QVMi> |

**Case References**

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| 1. Berman, Snyder, & Frandsen (2021). Kozier & Erb’s Fundamentals of Nursing. 11th ed 2. Wilkinson, Treas, Barnett, & Smith (2020). Davis advantage for Fundamentals of Nursing. 4th ed |

**Case Study Question 1 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68 | |

* Drag the 4 findings that need immediate follow-up to the box on the right.

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| **Client Findings** | **Top 4 Findings** |
| Blood pressure |  |
| Breath sounds |  |
| Bowel sounds |  |
| Confusion\* |  |
| Heart rate |  |
| Pain\* |  |
| Respiratory rate |  |
| Temperature\* |  |
| Urine\* |  |

**Scoring Rule: 0/1**

**Rationale**: Vital signs, with exception of temperature heart rate, are similar to baseline. Heart rate, while elevated, is still within normal parameters and may be the result of the fever. Confusion, fever, cloudy urine, and lower back pain are new symptoms.

**Case Study Question 2 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68 | |
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* Which problem(s) could the client be experiencing? **Select all that apply.**

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| --- |
| * Constipation |
| * Delirium\* |
| * Dementia |
| * Incisional infection |
| * Renal calculi |
| * Urinary tract infection\* |

**Scoring Rule: +/-**

**Rationale:** The client is experiencing acute confusion which had an abrupt onset (delirium) as opposed to chronic confusion (dementia). Confusion, along with fever, chills, and lower back pain are all signs of a UTI. There is no data to support the client being constipated or having an incisional infection. Renal calculi typically present with severe, sharp back and side pain.

**Case Study Question 3 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x 4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68 | |

* Drag the most appropriate word from the choices to fill in the blank of the following sentence.

The top priority for this client is

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| **Word Choices** |
| Constipation |
| Delirium |
| Incisional infection |
| Renal Calculi |
| Urinary tract infection \* |

**Scoring Rule: 0/1**

Rationale: The signs and symptoms the client is experiencing, including delirium, suggest UTI. There is no indication that the client is constipated, has renal calculi, or has an incisional infection.

**Case Study Question 4 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68 | |

* Select the orders from each of the categories the nurse anticipates including in the plan of care. Each category may have more than one order.

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| Categories | Orders |
| Nursing | * Monitor intake and output \* |
| * Discontinue catheter\* |
| * Apply vest restraint |
| * Obtain urine culture\* |
| Medications | * Administer clindamycin\* |
| * Administer docusate sodium |
| * Administer donepezil |
| * Administer sertraline |

**Scoring Rule: +/-**

**Rationale:** A UTI is suspected. Since the client has an indwelling catheter, a culture should be sent, the catheter discontinued, and clindamycin started to treat the infection. It is important to monitor intake and output once the catheter is discontinued since the client previously experienced urinary retention. The client should not be restrained without trying other interventions first. A stool softener, antidepressant, and dementia medication are not indicated.

**Case Study Question 5 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68  Day 1 0810: Healthcare provider notified.  Day 1 0830: Urine specimen taken from port of indwelling catheter using aseptic technique and sent to lab for culture. Indwelling catheter removed. First dose of clindamycin administered.  Day 2 0800: Client awake and oriented X3. Denies back pain but continues to report mild incisional pain 2/10. Voided 520 mL cloudy, yellow urine. Temp 99.4 F/37.4 C, P 80, RR 14, BP 118/70 | |
| **Orders** |
| 1. Urine culture and sensitivity (C&S) stat 2. Discontinue indwelling catheter 3. Monitor intake and output 4. Clindamycin 250 mg PO every 12 hours for 3 days – first dose now | |

The client’s cognition has improved the next day after starting antibiotics.

* What should the nurse teach the client about the treatment plan? Select all that apply.
* The entire course of clindamycin should be taken, even if symptoms resolve\*
* Further evaluation to rule out dementia will be needed
* Removing the catheter will help restore body’s normal flushing out of bacteria\*
* Urinary output will be closely monitored for the first 8 hours after catheter removal\*
* If the urge to urinate is felt, try to hold off voiding to fill the bladder with more urine
* Minimizing activity helps allow the body to fight the infection
* The likelihood of developing a UTI in the future is decreased
* The culture and sensitivity will identify the correct antibiotic to be prescribed for the infection\*
* Increase fluid intake to up to 3 liters per day if possible\*

**Scoring Rule: +/-**

Rationale: The client likely has CAUTI. Sending a C&S will determine 1) if there is an infection and 2) if the appropriate antibiotic is prescribed. Removing the catheter eliminates the mode of transmission and helps to restore the body’s natural flushing out of bacteria. Increased fluid intake will also help to flush out the bacteria. The full course of antibiotics should be taken even if symptoms resolve. The nurse should monitor the client’s voiding pattern to identify potential urinary retention. Evaluation for dementia is not necessary as the client likely had delirium because of the UTI. The client should void when the urge is felt as bacteria can multiply when holding urine.

**Case Study Question 6 of 6**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| Day 1 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68  Day 1 0810: Healthcare provider notified.  Day 1 0830: Urine specimen taken from port of indwelling catheter using aseptic technique and sent to lab for culture. Indwelling catheter removed. First dose of clindamycin administered.  Day 2 0800: Client awake and oriented X3. Denies back pain but continues to report mild incisional pain 2/10. Voided 520 mL cloudy, yellow urine. Temp 99.4 F/37.4 C, P 80, RR 14, BP 118/70. | |
| **Orders** |
| 1. Urine culture and sensitivity stat 2. Discontinue indwelling catheter 3. Monitor intake and output 4. Clindamycin 250 mg PO every 12 hours for 3 days – first dose now | |

* For each client statement, click to specify whether the statement indicates an understanding, or no understanding of teaching provided.

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| Statement | Understanding | No understanding |
| “I can stop taking the clindamycin once all my symptoms are gone.” |  | * x |
| “I will try to increase the amount of water I drink.” | * x |  |
| “I will buy cotton underwear from now on.” | * x |  |
| “I will try to hold my urine when I feel the urge to void.” |  | * x |
| “I will take showers instead of baths.” | * x |  |
| “I can continue to use baby powder in my perineal area.” |  | * x |
| “Some burning when I void is normal.” |  | * x |

**Scoring Rule: 0/1**

**Rationale:** The client should drink eight 8-ounce glasses of water a day to flush bacteria out of the urinary system. Cotton enhances ventilation of the perineal area and helps prevent accumulation of perineal moisture with facilitates bacterial growth. The bacteria present in bath water can readily enter the urethra. The full course of clindamycin should be finished even if symptoms resolve. The client should practice frequent voiding to flush bacteria out of the urethra and prevent organisms from ascending into the bladder. The use of harsh soaps, bubble bath, powder, or sprays in the perineal areas should be avoided. These substances can be irritating to the urethra and encourage inflammation and bacterial infection. Burning with urination is not normal. It may indicate recurrence of UTI.

**Trend**

The nurse is caring for a 74-year-old woman admitted to a rehabilitation unit following a right hip replacement two days ago.

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| **Nurses’ Notes** |
| 0800: Client admitted last evening from hospital with indwelling urinary catheter in place secondary to urinary retention. Upon entering room client found attempting to get out of bed unassisted stating “I need to feed the cat.” Client also grabbing at lower back yelling “it hurts.” Lungs clear to auscultation. Bowel sounds hypoactive x4 quadrants. Indwelling catheter draining cloudy yellow urine. Temp 100.1 F/37.8 C, P 96, RR 16, BP 122/68  0810: Healthcare provider notified.  0830: Urine specimen taken from port of indwelling catheter using aseptic technique and sent to lab for culture. Indwelling catheter removed.  0845: First dose of clindamycin administered.  Day 2 0800: Client awake and oriented X 3. Denies back pain but continues to report mild incisional pain 2/10. Voided 520 mL cloudy, yellow urine. Temp 102.1 F/38.9 C, P 80, RR 14, BP 118/70. | |

The nurse reassesses the client the next morning.

* For each possible finding, click to specify if the finding indicates that the client’s status has improved, declined, or is unchanged.

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| --- | --- | --- | --- |
| Finding | Improved | Declined | Unchanged |
| Cloudy, yellow urine |  |  | * x |
| No lower back pain | * x |  |  |
| Oriented x3 | * x |  |  |
| Temp 102.1 F/38.9 C |  | * x |  |

**Scoring Rule: 0/1**

**Rationale:** Client’s orientation and resolution of lower back pain are improvements in the client’s symptoms and indicate the UTI is being treated effectively. Cloudy urine Is an unchanged sign which indicates that the infection may still be present. Increasing temperature indicates that the infection has not been treated effectively and the client’s condition may be worsening.