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| **Maryland Next Gen NCLEX Test Bank Project**  **September 1, 2022** | | | |
| **Case Study Topic**:  (& stand-alone trend) | Neuroleptic malignant syndrome | **Author:** | E. Myers MSN-Ed RN CHPN  Frederick Community College |

**Case Summary**

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| 22 year old non- binary client with schizophrenia on inpatient mental health unit taking olanzapine develops a high fever and rigidity. Students must recognize signs and symptoms of neuroleptic malignant syndrome and implement a treatment plan to control the life threatening symptoms. |

**Objectives**

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| 1. Recognize trends and changes in client conditions and intervene as needed  2. Apply knowledge of nursing procedures and psychomotor skills when caring for a client with a medical emergency  3. Maintain optimal temperature of client  4. Evaluate and document client responses to emergency interventions |

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| **Case Study Link** | **Case Study QR Code** |
| <https://umaryland.az1.qualtrics.com/jfe/form/SV_1YA9vfuYdouYWVM> |  |
| **Trend QR Code** | **Trend Link** |
|  | <https://umaryland.az1.qualtrics.com/jfe/form/SV_eVSUvXwD46Ac222> |

**Case References**

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| 1. *Videbeck. (2019). Psychiatric-mental Health Nursing. Wolters Kluwer* |

**Case Study Question 1 of 6**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| **Admission Notes** | |
| 1200: Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | |
| **Nurses’ Notes** | |
| Day 2  0800: Client very drowsy today. Minimal responses to staff and other clients.  1000: Client becoming increasingly confused. Requested healthcare provider assess client.  1150: Client grossly diaphoretic, delirious and noted to have significant muscle rigidity. | | | | |
| **Vital Signs** | |
| Time: Day 2 | 0800 | | 1150 |
| T | 97.6F (36.4C) | | 104F(40C) |
| P | 78 | | 144 |
| RR | 18 | | 26 |
| B/P | 130/80 | | 172/98 |
| Pulse oximeter | 98% on RA | | 96% on RA |
| Pain | none | | none |
| Muscle Rigidity | none | | severe |

* Drag the 4 findings that are most significant to the box on the right.

|  |  |
| --- | --- |
| **Client Findings** | **Top Findings** |
| Blood pressure |  |
| Delirium\* |  |
| Diaphoresis |  |
| Heart rate\* |  |
| Muscle rigidity\* |  |
| Pulse oximeter |  |
| Respiratory rate |  |
| Temperature\* |  |

**Scoring Rule: 0/1**

**Rationale:** The client is presenting with several serious symptoms. The symptoms which are most significant are the sudden fever, muscle rigidity, delirium, and irregular tachycardic heart rate. The diaphoresis is significant but can be explained by a high fever. The respiratory rate is mildly elevated but not life threatening. The pulse oximeter is normal.

**Case Study Question 2 of 6**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| **Admission Notes** | |
| 1200 – Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | |
| **Nurses’ Notes** | |
| Day 2  0800 Client very drowsy today. Minimal responses to staff and other clients.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity. | | | | |
| **Vital Signs** | |
| Time: Day 2 | 0800 | | 1150 |
| Temp | 97.6F (36.4C) | | 104F(40C) |
| P | 78 | | 144 |
| RR | 18 | | 26 |
| B/P | 130/80 | | 172/98 |
| Pulse oximeter | 98% on RA | | 96% on RA |
| Pain | none | | none |
| Muscle Rigidity | none | | severe |

* For each finding, click to specify if the finding is a risk factor or not a risk factor for developing neuroleptic malignant syndrome.

|  |  |  |
| --- | --- | --- |
| Finding | Risk factor | Not risk factor |
| Recent upper respiratory infection |  | * \* |
| Poor nutrition | * \* |  |
| Age |  | * \* |
| High dose antipsychotic medications | * \* |  |
| Dehydration | * \* |  |
| Obesity |  | * \* |

**Scoring Rule: 0/1**

**Rationale:** Risk factors for neuroleptic malignant syndrome include high dose antipsychotic medications, dehydration, and poor nutrition. Age, obesity, and mild illness are not risk factors would not contribute to neuroleptic malignant syndrome.

**Case Study Question 3 of 6**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| **Admission Notes** | |
| 1200 – Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | |
| **Nurses’ Notes** | |
| Day 2  0800 Client very drowsy today. Minimal responses to staff and other clients.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity. | | | | |
| **Vital Signs** | |
| Time: Day 2 | 0800 | | 1150 |
| Temp | 97.6F (36.4C) | | 104F(40C) |
| P | 78 | | 144 |
| RR | 18 | | 26 |
| B/P | 130/80 | | 172/98 |
| Pulse oximeter | 98% on RA | | 96% on RA |
| Pain | none | | none |
| Muscle Rigidity | none | | severe |

The nurse suspects that the client has neuroleptic malignant syndrome.

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

The nurse must intervene swiftly to prevent

|  |
| --- |
| Word Choices |
| Agranulocytosis |
| Death \* |
| Irreversible tardive dyskinesia |
| Permanent extra pyramidal symptoms |

**Scoring Rule: 0/1**

**Rationale:** Though rare, neuroleptic malignant syndrome can be fatal. The client vitals and labs indicate that the client is declining rapidly. Tardive dyskinesia is not life-threatening and is characterized by involuntary facial movements. Extra pyramidal symptoms can be fatal and characterized by involuntary movements not hyperthermia. Agranulocytosis is a low white blood cell count. It does not cause muscle rigidity.

**Case Study Question 4 of 6**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| **Admission Notes** | |
| 1200 – Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | |
| **Nurses’ Notes** | |
| Day 2  0800 Client very drowsy today. Minimal responses to staff and other clients.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity.  1200 Provider at bedside | | | | |
| **Vital Signs** | |
| Time: Day 2 | 0800 | | 1150 |
| Temp | 97.6F (36.4C) | | 104F(40C) |
| P | 78 | | 144 |
| RR | 18 | | 26 |
| B/P | 130/80 | | 172/98 |
| Pulse oximeter | 98% on RA | | 96% on RA |
| Pain | none | | none |
| Muscle Rigidity | none | | severe |

The provider makes a working diagnosis of neuroleptic malignant syndrome.

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

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| --- | --- |
| Order Categories | Orders |
| Transfer orders | * Transfer to Intensive Care Unit \* |
| * Transfer to Medical Surgical Unit |
| Fever Management | * Apply cooling blanket \* |
| * Obtain vitals Q 1 hour \* |
| Medication Orders | * Increase olanzapine |
| * Normal Saline IV \* |

**Scoring Rule: +/-**

**Rationale:** The client is experiencing a medical emergency. Transfer to ICU, cooling blanket, and frequent vital signs are appropriate. The olanzapine and dehydration likely caused the neuroleptic malignant syndrome. The olanzapine should be stopped, and IV normal saline started.

**Case Study Question 5 of 6**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| **Admission Notes** | | |
| 1200 – Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | | |
| **Nurses’ Notes** | | |
| Day 2  0800 Client very drowsy today. Minimal responses to staff and other clients.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity.  1200 Provider at bedside | | | | | |
| **Vital Signs** | | |
| Time | 1200 Day 1 | | | 1150 Day 2 |
| Temp | 97.6F (36.4C) | | | 104F(40C) |
| P or HR | 78 | | | 144 |
| RR | 18 | | | 26 |
| B/P | 118/68 | | | 198/100 |
| Pulse oximeter | 98% on RA | | | 96% on RA |
| Pain | none | | | none |
| Muscle Rigidity | none | | | severe |
| **Orders** | |
| * Transfer client to the ICU * Vital signs and core temp Q1HR * Stop olanzapine * Cooling blanket now to bring core temp to <100.4 * Start 0.9% NS IV@ 150ml/hr * Obtain a creatine kinase * Administer 1 mg lorazepam IVP for muscle rigidity * Insert foley catheter | | | | | |

The charge nurse coordinates the transfer to the ICU.

* Click to highlight the 3 remaining orders the nurse should implement first

Key

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| **Orders** |
| * Transfer client to the ICU * Vital signs and core temp Q1HR * Stop olanzapine * Cooling blanket now to bring core temp to <100.4 * Start 0.9% NS IV@ 150ml/hr * Obtain a creatine kinase * Administer 1 mg lorazepam IVP for muscle rigidity * Insert indwelling urinary catheter | |

**Scoring Rule: +/-**

**Rationale:** The olanzapine must be stopped immediately as this is what caused the neuroleptic malignant syndrome. The hyperthermia must immediately be addressed by the addition of cooling measures. Starting the IV is critical to prevent dehydration from the fever and diaphoresis and to establish access for giving medications. A creatine kinase value will help guide treatment, but obtaining one is not as critical as implementing supportive care. Treating the muscle rigidity is lower priority that treating the high fever and cannot be done until the IV is started. The urine must be monitored and documented but placing the foley is not the highest priority.

**Case Study Question 6 of 6**

The nurse cares for a hospitalized client on antipsychotic medications who develops neuroleptic malignant syndrome.

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| **Admission Notes** | | |
| 1200 – Client with history of schizophrenia missing for 3 days was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Appears unkempt and dehydrated. Weight is 96kg (212lbs) and vitals are within defined parameters at this time. Client is confused on admission and is alert to self only. Started on olanzapine PO with intent to transition to depot injection when stable. | | | | | | | |
| **Nurses’ Notes** | | |
| Day 2  0800 Client very drowsy today. Minimal responses to staff and other clients.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity.  1200 Provider at bedside.  1230 IV started. Cooling blanket applied. Labs sent. Transferred to ICU.  1300 Less diaphoretic. Minimally responding to staff. Lorazepam given. Foley catheter placed. | | | | | | | |
| **Vital Signs** | | |
| Time | 1200 Day 1 | | | 1150 Day 2 | 1300 | 1400 |
| Temp | 97.6F (36.4C) | | | 104F(40C) | 103F (39.4C) | 102.2FC |
| P | 78 | | | 144 | 122 | 100 |
| RR | 18 | | | 26 | 20 | 18 |
| B/P | 118/68 | | | 198/100 | 188/90 | 160/88 |
| Pulse oximeter | 98% on RA | | | 96% on RA | 95%on RA | 97%on RA |
| Pain | none | | | none | none | none |
| Muscle Rigidity | none | | | severe | severe | severe |
| Urine |  | | |  | 50 ml  amber | 50 mL  amber |
| **Orders** | |
| * Transfer client to the ICU * Vital signs and core temp Q1HR * Stop olanzapine * Cooling blanket now to bring core temp to <100.4 * Start 0.9% NS IV@ 150ml/hr * Obtain a creatine kinase * Administer 1 mg lorazepam IVP for muscle rigidity * Insert foley catheter | | | | | | | |

The nurse is evaluates the client’s status at 1400.

* Complete the following sentence by choosing from the list of options.

|  |  |
| --- | --- |
| The nurse determines the client’s status has | Select |
| deteriorated slightly |
| improved slightly \* |
| remained Unchanged |
| evidenced by the | Select |
| Neurologic status |
| Temperature\* |
| Urine characteristics |

**Scoring Rule: Rationale**

**Rationale:** Neuroleptic Malignant Syndrome resolves over several days, but the decrease in fever shows slight improvement. The neurological status is unchanged. The urine output is adequate though needs close monitoring.

**Trend**

The nurse cares for a 22-year-old, non-binary client admitted to the Behavioral Health Unit with a diagnosis of schizophrenia.

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| --- |
| **Nurses’ Notes** |
| **Day 1**  1200 – Client was brought to hospital when they were found to be walking downtown responding to internal stimuli. Client previously nonadherent to medication regimen. Client appears unkempt and dehydrated from wandering away from home for 3 days. Client weight is 96kg (212lbs.) and vitals are within defined parameters at this time. Client is confused on admission. Client is alert to self only. Client started on olanzapine PO with intent to transition to depot injection when stable.  **Day 2**  0800 Client very drowsy today. Minimal responses to staff and other clients. T 97.6F (36.4C), P78, RR 18, 130/80, pulse oximeter 98% on RA.  1000 Client becoming increasingly confused. Requested healthcare provider assess client.  1150 Client grossly diaphoretic, delirious and noted to have significant muscle rigidity. 104F(40C) T 144, RR 26, 172,9880, pulse oximeter 96% on RA. | |

* Drag the 4 findings that are most significant to the box on the right.

|  |  |
| --- | --- |
| **Client Findings** | **Top Findings** |
| Blood pressure |  |
| Delirium\* |  |
| Diaphoresis |  |
| Heart rate\* |  |
| Muscle rigidity\* |  |
| Pulse oximeter |  |
| Respiratory rate |  |
| Temperature\* |  |

**Scoring Rule: 0/1**

**Rationale:** The client is presenting with several serious symptoms. The symptoms which are most significant are the sudden fever, muscle rigidity, delirium, and irregular tachycardic heart rate. The diaphoresis is significant but can be explained by a high fever. The respiratory rate is mildly elevated but not life threatening. The pulse oximeter is normal.