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Acid-Base and Electrolyte Case Study

NUR 641E

July 3, 2024

Blood Chemistries

- Na: 147
- Cl: 110
- K: 4.0

Arterial Blood Gases

- pH: 7.33
- PCO₂: 48
- HCO₃: 29
- PO₂: 96

Urinalysis

- Urine Specific Gravity: 1.040

Identify each of the abnormal laboratory findings in the above results. Specify how they differ from a normal range and identify what condition each abnormality indicates.

1. What specific electrolyte disturbance does the patient have?

1. The patient is experiencing hypernatremia (Na > 146)(Normal range 135-145) as well as hyperchloremia (Cl > 106) (Normal 96-106). Chloride helps to support fluid balance because it follows sodium in order to maintain charge neutrality.

2. What clinical manifestations would the nurse expect to see with this electrolyte abnormality presented above?

1. Clinical manifestations that would be seen with hypernatremia include delirium, muscle twitching, seizures, and even coma (Lewis, 2023).
2. Typically, hyperchloremia does not cause specific symptoms, the symptoms are so general that it can present itself as a regular fluid imbalance with symptoms such as diarrhea, vomiting, fatigue, dehydration, weakness, and difficulty breathing (Balingit, 2024). A blood test can detect hyperchloremia to confirm.
3. The patient urine specific gravity is a bit elevated >1.030. Normal range is 1.005-1.030). This indicates dehydration. The patient has decreased urine output, this is due to ADH increasing water re-absorption.

3. If the patient had an increase in her potassium level, for what clinical manifestations would the nurse monitor?

1. Clinical manifestations that occur with hyperkalemia include mild symptoms such as abdominal pains, diarrhea, and nausea and vomiting. Severe hyperkalemia symptoms include chest pain, palpitations, arrhythmia, muscle weakness or numbness in the limbs (Shrimanker & Bhattarai, 2023).
2. An EKG should also be taken to see any heart rhythm changes and see if the earliest sign of hyperkalemia is present, which is tall (peaked) T waves.