**Fluid and Electrolytes Made INSANELY Easy!**

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Without electrolytes, our bodies would be like a ship without light, resulting in a crash!

The most important thing in nursing is not so much to obtain more and more facts, but to **TRANSFORM** how we **THINK** about them!

— Loretta Manning, MSN, RN, GNP

Who’s Here?

- **Red** = Freshman and trying to figure out just how to spell fluid and electrolytes.
- **Yellow** = Sophomore but still feel insecure with fluid and electrolytes.
- **Blue** = Junior and starting to feel like I am just trying to remember F&E.
- **Green** = Senior and feel like I have so much information in my brain that it is hard to remember all of this! I keep wondering when all of this is going to come together!

What concerns me is not the way things are, but rather the way people think things are.

— Epictetus, Philosopher
Trivialize
Tedious
Terrorize

Learning is Directly Proportional to the Amount of **FUN** You have.

REMEMBER!!! It's not what you KNOW, but what you **REMEMBER** that counts!

Grid puzzle
Little figures…
1. 2. 3.
4. 5. 6.
7. 8. 9.

1. 2. 3.
4. 5. 6.
7. 8. 9.

**CUSHY CARL**

©1994 I CAN
What is the priority plan for a client with Cushing's syndrome?

1. Prevent skin breakdown.
2. Prevent dehydration.
3. Teach client about symptoms of hypoglycemia.
4. Prevent fluid overload.

“Mary had a little lamb and everywhere Mary went the lamb was sure to go.”

Exercise
Attention
Memory (repeat to remember)
Memory (remember to repeat)
Sleep
Stressed brains don’t learn the same
Sensory
Vision trumps all other senses
Wiring


—Confusius, 451 B.C.
**Structure for Fluid & Electrolytes!**

- System Specific Physiology, Assessments, Labs / Diagnostic Procedures
- Analysis of Assessments, Nursing Diagnoses/Concepts
- First-prioritize Interventions / Pharmacology
- Expected outcomes
- To Reduce Potential “RISKS”
  - room assignments, recognize limitations of staff, restraints, risk for falls, infection, identification, skin breakdown, scope of practice for delegation, know Standards of Practice, safe equipment
- Y (Why?) Ask questions when you don’t know (Accuracy / Appropriateness of orders)

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**Fluid & Electrolytes** *(Sung to the tune of “Jingle Bells”)*

**Verse 1**
Sodium, sodium is found outside the cells
Low levels come from pooping, puking, peeing!!

**Verse 2**
Sodium, sodium is found outside the cells
High levels come from too much salt and not drinking!

**Verse 3**
Potassium, potassium is found inside the cells
Low levels come from Lasix and laxatives.

**Verse 4**
Potassium, potassium is found inside the cells
High levels come from some meds and renal failure!

**Verse 5**
Electrolytes, electrolytes like sodium and potassium
Don’t have to be that hard when you sing our song!

---

**ACTIVITY**

- Osmosis fluid moves lower to higher
- Diffusion higher to lower

---

Which of these would be an example of osmosis?

1. Water moves from an area of lower to higher particle concentration.
2. Water moves from an area of higher to lower particle concentration.
3. Fluid remains within the cell.
4. Fluid moves outside the cell due to changes in protein.
Which of these would be an example of diffusion?

1. Water moves from an area of lower to higher particle concentration.
2. Water moves from an area of higher to lower particle concentration.
3. Fluid remains within the cell.
4. Fluid moves outside the cell due to changes in protein.

**SAFETY:**  
System Specific Physiology  
**FLUID VOLUME EXCESS: HYPEROLEMIA**  

↑ ECF volume due to:  
- Heart or renal failure, cirrhosis  
- ↑Na, excess IV fluids  
- ↑ aldosterone secretion  
- ↓albumin,  
- Syndrome of Inappropriate Antidiuretic Hormone (SIADH)

**SAFETY:**  
System Specific Assessment:  
Labs & Diagnostic Procedures –  
FVE (hypervolemia) (Decreased values)

↓ Hct  
↓ Serum Osmolality  
↓ Serum Sodium (NA)  
↓ BUN

**SAFETY:**  
System Specific Assessment  
**Fluid Volume EXCESS**  
Signs and Symptoms of Hypervolemia: ↑ in volume  

↑ pulse  
↑ temperature  
↑ blood pressure  
↑ in edema  
↑ in ascites  
↑ in crackles in lungs  
↑ swelling neck (jugular vein distention)  
↑ in confusion, headache and seizures

**SAFETY:**  
Analysis of Assessments / Nursing Diagnosis / Concepts  

**Fluid Volume Excess**

**SAFETY:**  
"RESTRICT"  
FIRST - Priority Nursing Interventions –

- Reduce IV flow rate  
- Evaluate breath sounds and ABGs  
- Semi-Fowler’s position  
- Treat with oxygen and diuretics as ordered  
- Reduce fluid and sodium intake  
- I & O and weight  
- Circulation, color, and presence of edema  
- Turn and position at least every 2 hrs
SAFETY
Expected Outcomes System Specific
COMPARISON of initial assessment to expected outcome evaluation

**System Specific Assessment** FVE
- ↑ pulse
- ↑ B/P
- ↑ weight
- ↑ edema
- ↑ crackles in lungs
- ↑ dyspnea
- ↑ confusion

**Expected Outcome – Fluid Balance**
- Pulse within client norm - B/P within client norm
- Weight within client norm
- ↓ edema
- ↓ ascites
- ↓ crackles in lungs
- ↓ dyspnea
- ↓ confusion

SAFETY
Expected Outcomes System Specific
COMPARISON of initial assessment to expected outcome evaluation

**System Specific Assessment** FVE Labs
- ↓ Hct
- ↓ Serum Osmolarity
- ↓ Serum Sodium (NA)
- ↓ BUN

**Expected Outcome**
- Fluid Balance of Labs
- ↑ to normal range
- Hct
- Serum Osmolarity
- Serum Sodium (NA)
- BUN

SAFETY: (Connecting NCLEX to Concept)
To Reduce Potential Risks

- Room assignments, recognize limitations of staff, restraint safety
- Infection, Identification, Identify TRENDS or Changes in Clinical Condition
- Skin breakdown, Safe equipment, Scope of Practice for delegation
- Know Standards of Practice, know how to document / report errors

SAFETY: Why? Is there anything you want to ask?
(Accuracy / appropriateness of orders)

Which clinical finding indicates the client is experiencing potential fluid volume excess?

- a. B/P change from 108/78 to 140/90
- b. Decreased crackles in lower lung fields
- c. Pulse increased from 72/min to 80/min
- d. Weight from 150 lbs to 142 lbs

Which nursing action would be appropriate for a client with orthopnea, dyspnea, and bibasilar crackles?

1. Elevate legs to promote venous return.
2. Elevate the head of the bed, decrease the IV fluids, and notify the provider of care.
3. Orient the client to time, place, and situation.
Which order should be questioned for a client presenting with orthopnea, dyspnea, BP – 150/92 with adventitious breath sounds in bilateral lower lung fields?

a. Administer furosemide (Lasix) as ordered.
b. Daily weight every AM.
c. Increase IV fluids for 2 hours.
d. Position client in semi-Fowler’s position.

What would be the highest priority of care for a client with syndrome of inappropriate antidiuretic hormone (SIADH)?

1. Instruct the UAP to encourage the client to drink fluids.
2. Advise client to report large amounts of urine output.
3. Evaluate for signs and symptoms of dehydration.
4. Instruct the LPN to report a weight gain of 2.5 pounds.

**Verse 3**

But, **Diabetes Insipidus**
The opposite you’ll see
Pee, Pee...Give IVs...
Pee Pee...Give IVs...
Pee, Pee...Give IVs...
Vas-o-pressin they need!

**Verse 4**

High output, sodium; pounds lost,
And low S. gravity (specific gravity)
Pee, Pee...Give IVs...
Pee Pee...Give IVs...
Pee, Pee...Give IVs...
Vas-o-pressin they need!
CALLING THE SHOTS IN ACID VS. BASE

SAFETY: System Specific Physiology
FLUID VOLUME DEFICIT: Dehydration-Big Time
Deficit = Shock

Loss of fluids from anywhere: vomiting, diarrhea, hemorrhage, thoracentesis, paracentesis, diabetes insipidus.
Third spacing – When fluid is in a place that does no good.

SAFETY: System Specific Assessment
Fluid Volume DEFICIT

Decrease in weight
Decreased skin turgor
Dry mucous membranes
Decreased urine output
Decrease in Blood Pressure
Decrease in warmth to extremities
Decrease fluid to pump so pulse is ↑
Decrease strength in pulse (weak)

SAFETY: Labs & Diagnostic Procedures – Dehydration (increased values)

↑ Hct (more than 3x Hgb)
↑ BUN > 20
↑ Specific Gravity > 1.030 (except diabetes insipidus)
↑ Osmolality > 295mOsm/kg water
↑ Serum Na > 145 mEq/L

SAFETY: “FLUIDS”
FIRST - Priority Nursing Interventions –

F luid ↑(po), Isotonic fluids, Blood
L evel of consciousness, look at weight
Urine < 30 ml / hr report or trending ↓
I V fluids as ordered, I & O
D ocument vital signs and watch trends
(hypotension and weak pulses)
S hock position (back with legs ↑); skin
What would be the priority nursing intervention for a client with a B/P change from 140/88 to 86/62?

a. Put client in supine position with legs elevated.
b. Notify provider of care.
c. Put client in Fowler’s position.
d. Evaluate characteristics of mucous membranes.

**Expected Outcomes**

**COMPARISON** of initial assessment to expected outcome evaluation

<table>
<thead>
<tr>
<th>System Specific Assessment of FVD</th>
<th>Expected Outcome Evaluation of client’s response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in weight</td>
<td>Weight - client’s norm</td>
</tr>
<tr>
<td>Decrease in BP</td>
<td>BP - client's norm</td>
</tr>
<tr>
<td>Decrease fluid = pulse ↑</td>
<td>Pulse within client's norm</td>
</tr>
<tr>
<td>Dry mucous membranes</td>
<td>Moist mucous membranes</td>
</tr>
<tr>
<td>Decreased urine output</td>
<td>Urine output ≥ 30 cc/hr</td>
</tr>
<tr>
<td>Decrease in warmth to extremities</td>
<td>Extremities warm to touch</td>
</tr>
</tbody>
</table>

**Expected Outcomes – LABS**

**COMPARISON** of initial assessment to expected outcome evaluation

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<td>• ↑ Hct (more that 3x Hgb)</td>
<td>↓ to normal range</td>
</tr>
<tr>
<td>• ↑ BUN &gt; 20</td>
<td>• Hct (3x Hgb)</td>
</tr>
<tr>
<td>• ↑ Specific Gravity &gt; 1.030</td>
<td>• BUN 10 -20</td>
</tr>
<tr>
<td>• ↑ Osmolality &gt; 295mOsm/kg water</td>
<td>• Specific Gravity 1.005 – 1.030</td>
</tr>
<tr>
<td>• ↑ Serum Na &gt; 145 mEq/L</td>
<td>• Osmolarity 285 - 295mOsm/kg water</td>
</tr>
<tr>
<td></td>
<td>• Serum Na 135 – 145mEq/L</td>
</tr>
</tbody>
</table>

Which assessment best indicates proper rehydration?

1. 400 cc of po intake.
2. Heart rate of 105 beats per min.
3. Respiratory rate of 32 per min.
4. Urine output of 100 cc per hour.

**SAFETY:**

*(Connecting NCLEX to Concept)*

To Reduce Potential Risks

R oom assignments, recognize limitations of staff, restraint safety
I nfection, Identification, Identify TRENDS or Changes in Clinical Condition
S kin breakdown, Safe equipment, Scope of Practice for delegation
K now Standards of Practice, know how to document / report errors

Which system specific assessment findings would the client present with who has been vomiting for 24 hours indicating a need for further intervention?

a. B/P increase from 110/70 to 130/80.
b. Urine output decrease from 95cc/hr to 75cc/hr.
c. BUN -15.
d. Pulse increased from 68/min to 118/min.
SAFETY: Why? Is there anything you want to ask?

(Accuracy / appropriateness of orders)

Which of these orders would be most important for the nurse to question for a client who is in hypovolemic shock?

1. Administer dopamine and digitalis.
2. Infuse 0.9 Normal Saline 500 cc bolus.
3. Administer a blood transfusion as ordered.
4. Foley catheter to a straight drain.

DIABETES INSIPIDUS

Dry
I + O, daily weight
Low specific gravity
Urinates lots
Treat = pituitary hormone
Rehydrate

SAFETY:
System Specific Physiology
Sodium Deficit (Hyponatremia)
Na < 135 mEq / L

Electrolyte imbalance that may result in disturbances involving these systems:
- Neurological
- Cardiac
- Endocrine
- From: GI sct., Diarrhea, inadequate salt intake, diuretics, vomiting, Fluid shift from ICF to ECF
SAFETY: System Specific Assessment
Sodium Deficit (Hyponatremia)
Na < 135 mEq / L

- B/P
- Muscle Strength
- Deep Muscle Reflexes (DTR)

- Pulse (bounding)
- Apprehension
- Confusion & lethargy
- Seizures

SAFETY: System Specific Assessment:
Lab & Diagnostic Procedures – Sodium Deficit (Hyponatremia)
Na < 135 mEq / L
Labs (Decreased values)

- Serum Sodium (NA)
- Serum Osmolality
- Specific Gravity <1.010

SAFETY: Analysis of Assessments /
Nursing Diagnosis / Concepts
Sodium Deficit (Hyponatremia)
Na < 135 mEq / L

Electrolyte Imbalance – Sodium Deficit

SAFETY: “SODIUM”
FIRST - Priority Nursing Interventions – HYponatremia
(NA) < 135 mEq / L

Sodium intake ↑, Seizure precaution
O verload—restrict water intake
D aily weight
I ntake & Output
U se isotonic fluids to restore ECF
M onitor posturial hypotension, ↑ HR, decrease CVP, dry mucous membranes / LOC

NURSING MANAGEMENT OF HYponatremia

Diet
IV fluids
Electrolytes
Medications

Hyponatremia needs to be fixed with a DIME: Diet, IV fluids, Medications, Electrolyte replacement

SAFETY
Expected Outcomes –
COMPARISON of initial assessment to expected outcome evaluation

System Specific Assessment of Sodium Deficit (Hyponatremia)
• ↓ B/P
• ↓ Muscle Strength
• ↓ Deep Muscle Reflexes (DTR)
• ↑ Pulse

Expected Outcome Evaluation of client’s response
Within client’s norm
• B/P
• Muscle Strength normal
• Deep Muscle Reflexes (DTR) return
• Pulse
SAFETY:  
*(Connecting NCLEX to Concept)*  
To Reduce Potential Risks

**Room assignments, recognize limitations of staff, restraint safety**

**Infection, Identification, Identify TRENDS or Changes in Clinical Condition**

**Skin breakdown, Safe equipment, Scope of Practice for delegation**

**Know Standards of Practice, know how to document / report errors**

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The priority nursing intervention with a client with a serum sodium level 128mEq/L?

a. Have suction at the bedside  
b. Encourage water intake to 2000cc/day  
c. Question order for IV for Normal Saline  
d. Restrict cheese and condiments

---

SAFETY:  
Why? Is there anything you want to ask?  

(Accuracy / appropriateness of orders)

---

A client with a sodium level of 133 mEq / L has an order to push po fluids. What would be the priority of care?

1. Review the plan with the UAP.  
2. Develop a plan for UAP to give 60 cc / hr.  
3. Notify the provider of care and verify order.  
4. Review the importance of recording weight every 48 hours.

---

ANEMIC ADAM
SAFETY: System Specific Physiology
Sodium Excess (Hypernatremia)
Na > 135 mEq / L

Electrolyte imbalance that may result in disturbances involving these systems:
- Neurological
- Cardiac
- Endocrine

SAFETY: System Specific Physiology
Sodium Excess (Hypernatremia)
Na > 135 mEq / L

HYPERNATREMIA—“LODES” OF EXTRA SODIUM

L ow H₂O intake
O smotic Diuretics
D iabetes Insipidus
E xcessive H₂O loss
S odium intake too much from meds and meals

SAFETY: System Specific Assessment
Sodium Excess (Hypernatremia)  
Na > 135 mEq / L

↑ Pulse
↑ Muscle irritability & twitching
↑ Deep Muscle Reflexes (DTR)
↑ Thirst (may be depressed in elderly)
↑ Restlessness progressing to confusion

SAFETY: System Specific Assessment
Labs & Diagnostic Procedures – Sodium Excess (Hypernatremia)
Na > 135 mEq / L
Labs (Increased values)

↑ Serum Sodium (NA)
↑ Serum Osmolality

SAFETY: Analysis of Assessments / Nursing Diagnosis / Concepts
Sodium Excess (Hypernatremia)
Na > 135 mEq / L

Electrolyte Imbalance – Sodium Excess
SAFETY: “SODIUM”
FIRST - Priority Nursing Interventions – HYPERNATREMIA
(\(\text{Na}^+\) > 135 mEq / L)

- Sodium intake ↓
- Oral hygiene
- Diuretic (i.e., Loop Diuretics)
- Increase water intake, I&O
- Use hypotonic or isotonic fluids
- Monitor for inadequate renal output

---

SAFETY
Expected Outcomes – COMPARISON of initial assessment to expected outcome evaluation

**System Specific Assessment**
Sodium Excess (Hypernatremia)

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<th>Sodium Excess Labs</th>
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<td>↑ Serum Na &gt; 145mEq/L</td>
<td>↓ to normal range</td>
</tr>
<tr>
<td>↑ Osmolality &gt; 300mOsm/L</td>
<td>Serum Na (135-145mEq/L)</td>
</tr>
<tr>
<td></td>
<td>Osmolality (270-300mOsm/L)</td>
</tr>
</tbody>
</table>

**Expected Outcome Evaluation of Client’s Response**
Within client’s norm

- Deep Muscle Reflexes (DTR)
- Pulse
- Thirst
- Muscle irritability & twitching

---

SAFETY: (Connecting NCLEX to Concept)
To Reduce Potential Risks

R Room assignments, recognize limitations of staff, restraint safety
I Infection, Identification, Identify TRENDS or Changes in Clinical Condition
S Skin breakdown, Safe equipment
K Know Standards of Practice, know how to document / report errors

---

Which of these assessment findings would be most important to report to the provider for a client with a serum sodium 147 mEq/L?

a. Dry mucous membranes.
b. Complaints of being thirsty.
c. Urine output drop from 80 cc/hr to 45 cc/hr.
d. Skin warm to touch.

---

Which nursing intervention would be most appropriate to delegate to the UAP (unlicensed personnel or CNA) for a client with a serum sodium of 148mEq/L?

a. Restrict PO water intake
b. Evaluate effectiveness of diuretic
c. Provide oral hygiene every 2-4 hours
d. Provide a snack of crackers and cheese

---
SAFETY:
Why? Is there anything you want to ask?
(Accuracy / appropriateness of orders)

Which of these orders should the nurse question?

1. Administer IV fluids 0.9 % Sodium Chloride as ordered.
2. Place suction at the bedside.
3. Monitor I&O.
4. Limit water intake.

SAFETY:
System Specific Physiology
Potassium Deficit (Hypokalemia)
\((K^+)<3.5\text{ mEq / L}\)

Electrolyte imbalance that may result in disturbances involving these systems:
- GI Losses: vomiting, nasal gastric suctioning, diarrhea, laxative use
- Renal loses: diuretics (Lasix), use of corticoids steroids
- Skin loses: diaphoresis and wounds
- Insufficient potassium: dietary or prolonged non-electrolyte IV solutions ie. D5W
- Intracellular shift: Tissue repair (burns, starvation, trauma)
- * Older adults ↑ risk because of laxatives & diuretics

SAFETY:
System Specific Assessment
Potassium Deficit (Hypokalemia)
\((K^+)<3.5\text{ mEq / L}\)

- ↓ Hypoactive reflexes
- Muscle cramping
- Weak & irregular Pulse
- EKG changes: Inverted T waves
- ↓ Bowel sounds (hypoaactive), constipation
SAFETY: “CRAMP”
System Specific Assessment
Potassium Deficit (Hypokalemia)
\((K^+) < 3.5 \text{ mEq} / L\)

- Constipation, ↓ bowel sounds
- Reflexes ↓
- Arrhythmias, inverted T waves
- Muscle cramps
- Pulse—irregular and weak

SAFETY: System Specific Assessment: Labs & Diagnostic Procedures – Potassium Deficit (Hypokalemia)
\((K^+) < 3.5 \text{ mEq} / L\)

- ↓ Serum Potassium < 3.5mEq/L
- Arterial Blood Gases
  - Metabolic alkalosis: \(pH > 7.45\)
- EKG changes: Inverted T waves, V-Tach depressed ST segment

SAFETY: “POTASSIUM”
FIRST - Priority Nursing Interventions – HYPOKALEMIA
\((K^+) < 3.5 \text{ mEq} / L\)

- Potatoes, avocados, broccoli, etc, \((K^+)\)
- Oral potassium supplements (with diuretics)
- T waves depressed (flattened)—monitor
- Arrhythmias—monitor
- S hallow ineffective respirations—monitor
- Sounds of breathing diminished—monitor
- IV supplement in NEVER an IV push!!!
- Urine output—monitor \((\text{must be } 0.5 \text{ mL/kg per hr})\)
- Muscle cramping, motility (GI) ↓

SAFETY: Expected Outcomes – COMPARISON of initial assessment to expected outcome evaluation

<table>
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<th>Expected Outcome Evaluation of Client’s Response Within client’s norm</th>
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<td>• Normal Muscle Reflexes</td>
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<tr>
<td>• Muscle cramping</td>
<td>• No muscle cramping</td>
</tr>
<tr>
<td>• Weak &amp; irregular Pulse</td>
<td>• Pulse within client’s norm</td>
</tr>
<tr>
<td>• EKG changes: Inverted T waves</td>
<td>• No EKG changes</td>
</tr>
<tr>
<td>• ↓ Bowel sounds (hypoactive)</td>
<td>• Bowel sounds within client’s normal</td>
</tr>
</tbody>
</table>

SAFETY: (Connecting NCLEX to Concept) To Reduce Potential Risks

- Room assignments, recognize limitations of staff, restraint safety
- Infection, Identification, Identify TRENDS or Changes in Clinical Condition
- Skin breakdown, Safe equipment
- Knowledge of Practice for delegation
- Know Standards of Practice, know how to document/report errors
Which documentation indicates the nurse understands how to provide safe care for a client with a serum potassium of 3.3 mEq/L?

a. Potassium Chloride administered IV push.
b. Oral potassium supplement held due to level.
c. Discussed eating oranges, broccoli, bananas.
d. Administered Lasix as ordered.

SAFETY:
Why? Is there anything you want to ask?

(Accuracy / appropriateness of orders)

A client is scheduled for a cardiac catheterization at 0900. On admission 3 days ago lab work was: K 3.1 mEq/L and Na 147 mEq/L. She is currently complaining of muscle cramps and weakness. Which nursing intervention is a priority at this time?

a. Hold 0700 dose of spironolactone (Aldactone).
b. Call the provider to recommend a stat K level.
c. Recommend eating a banana for breakfast.
d. Observe EKG for spiked T waves.

HYPERKALEMIA
(K+) > 5.0 mEq / L

Stop infusion of IV potassium, Salt substitutes avoid
T all T waves (peaked)
Orders: Kayexalate or dextrose with regular insulin
P rovide potassium restricted foods, Potassium-losing diuretics (Lasix)

Which of these medications should be questioned for a client with a potassium level 5.2mEq/L?

a. Furosemide (Lasix).
b. Hydrochlorothiazide (HCTZ).
c. Kayexalate.
d. Lisinopril (Prinivil).

HYPOCALCEMIA

Risk factors:
- Parathyroid (hypo)
- End-stage renal disease
- Thyroidectomy
- Steroids

CA - 8.5-11 mg/dL
HYPOCALCEMIA: Assessments

- Trouseau's sign (hand/finger spasms)
- Watch for arrhythmias (↓ pulse, ↑ ST - ECG)
- Increase in bowel sounds, diarrhea
- Tetany
- Hvostek's sign (facial twitching)
- Hypotension, Hyperactive DTR

NURSING CARE

- Seizure precautions
- Administer calcium supplements
- Foods high in calcium (i.e. dairy, green)
- Emergency equipment on standby

The client is admitted with hypoparathyroidism. What is not important to have at the bedside for this client?

- a. Cardiac monitor
- b. IV Pump
- c. Heating Pad
- d. Tracheostomy set

Which foods would the nurse encourage the client with hypoparathyroidism to eat?

- a. High calcium
- b. High potassium
- c. Low sodium
- d. Low potassium

The nurse is preparing to discharge a client who has a calcium level of 9 mg/dL, but had been admitted with a low calcium level. Which statement indicates a need for additional teaching?

- a. “I will call my provider if I have any twitching.”
- b. “I will take my calcium every AM.”
- c. “I will avoid broccoli, spinach, and milk.”
- d. “I will take my vitamin D with my calcium.”

HYPERCALCEMIA

- CA >11 mg/dL
- Risk Factors: Immobility, Malignant tumors, Hyperparathyroidism, Thiazide diuretics, Excess calcium or vitamin D supplements
HYPERCALCEMIA: Assessments

- Constipation
- Flank pain (Calcium in urine ↑)
- Deep bone pain
- ↓ reflexes

HYPERCALCEMIA: Assessments

- Constipation
- Flank pain (Calcium in urine ↑)
- Deep bone pain
- ↓ reflexes

Nursing Care: The 4 F’s)

↑ Fluids
↑ Fiber
Fluids (IV) that are ordered
Furosemide

What is most important to include in a teaching plan for an elderly client with hyperparathyroidism?

a. To decrease physical activity.
b. To increase fluid intake.
c. To stop taking furosemide (Lasix).
d. To report any twitching of the fingers.

SAFETY

KEY TO SUCCESS

R REVIEW, REFLECT
E ENGAGE WHILE STUDYING
L LEARN TO PRIORITIZE AND THINK!
A APPLICATION
X X OUT NEGATIVE THINKING!
Fluid and Electrolytes Made
INSANELY Easy!
You CAN do it!!!
We wish you much SUCCESS!

“The secret of joy in work is contained in one word—EXCELLENCE. To know how to do something well is to enjoy it.”

—Pearl Buck