**Nursing Process Focus:**
**Patients Receiving Dextran 40 (Gentran 40)**

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Potential Nursing Diagnosis</th>
</tr>
</thead>
</table>
| Prior to administration:  
• Obtain complete health history including allergies, drug history and possible drug interactions.  
• Assess for presence/history of hypovolemia, shock, venous thrombosis.  
• Assess vital signs:  
  • Hypovolemic shock secondary to surgery, burns, hemorrhage, other serious condition  
  • PT and PTT abnormalities  
  • Venous thrombosis  
  • Pulmonary embolism  
  • Cardiovascular abnormalities  
  • Severe decreased renal functioning  
  • Pregnancy/lactation  
  • Diabetes mellitus |  
• Decreased Cardiac Output, related to underlying condition  
• Risk for Excess Fluid Volume, related to rapid infusion of large amounts of IV fluids  
• Impaired Gas Exchange, related to fluid accumulation in lungs  
• Ineffective Tissue Perfusion, related to decreased cardiac output and impaired gas exchange  
• Impaired Urinary Elimination, related to decreased cardiac output |

**Planning: Patient Goals and Expected Outcomes**

Patient will:  
• Demonstrate return of vital signs and urinary output to normal, without a hypersensitivity reaction.  
• Maintain adequate cardiac output.  
• Experience ABGs within normal limits.  
• Avoid evidence of fluid overload.  
• Maintain effective tissue perfusion.  
• Demonstrate understanding of Dextran therapy.

**Implementation**

<table>
<thead>
<tr>
<th>Interventions and (Rationales)</th>
<th>Patient Teaching/Discharge Planning</th>
</tr>
</thead>
</table>
| Monitor intake and output. (If oliguria or anuria occur or are not relieved by Dextran, stop it and give loop diuretic as ordered.) | Advise patient and caregiver:  
• that patient will have an indwelling catheter to accurately measure urinary output.  
• patient and caregiver that intake and output will be assessed every 1-2 hours. |

*Monitor for symptoms of CHF, pulmonary edema, circulatory overload. (This indicates need to decrease rate of infusion.) | Teach patient and caregiver:  
• symptoms of fluid overload may appear, and patient will be monitored at least hourly.  
• to report immediately any shortness of breath, cough, anxiety, restlessness. |

*Monitor blood coagulation lab values, including PT, PTT, and platelet counts. (Dextran 40 decreases platelet adhesion, and may lead to decreased coagulation.) | Advise patient and caregiver:  
• that frequent blood studies will be performed.  
• regarding the signs of bleeding to be noted and reported: frank bleeding from body openings, bloody urine, etc. |

*Monitor blood counts, especially hemoglobin | *Advise patient and caregiver that frequent blood
and hematocrit.  
*If hematocrit falls below 30% by volume, notify health care provider.

studies will be performed.

*Monitor for adverse reactions. Most common reactions are thrombophlebitis, decreased hemoglobin and hematocrit levels, increased bleeding times, urticaria, anaphylaxis, nausea/vomiting, increased viscosity of urine.

*Advise patient and caregiver regarding what adverse reactions may occur and methods of monitoring for them.

**Evaluation of Outcome Criteria**

Evaluate the effectiveness of drug therapy by confirming patient goals and expected outcomes have been met (see “Planning”).
### Nursing Process Focus:
**Patients Receiving Sodium Chloride**

<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th><strong>Potential Nursing Diagnoses</strong></th>
</tr>
</thead>
</table>
| Prior to administration:  
- Obtain complete health history including allergies, drug history and possible drug interactions.  
- Obtain vital signs.  
- Assess for presence/history of dehydration or overhydration, cardiovascular disease, hyponatremia. |  
- Decreased Cardiac Output, related to hypernatremia  
- Deficient Fluid Volume, related to excess body fluid elimination  
- Excess Fluid Volume, related to excess body fluid retention  
- Risk for Imbalanced Fluid Volume, related to urinary elimination, impaired, R/T sodium imbalance and retention |

| **Planning: Patient Goals and Expected Outcomes** |
| Patient will:  
- Demonstrate normal sodium and chloride levels.  
- Demonstrate normal extracellular fluid volume.  
- Remain free of symptoms of hypo- or hypernatremia.  
- Demonstrate evidence of adequate urinary elimination.  
- Demonstrate evidence of effective cardiac output. |

<table>
<thead>
<tr>
<th><strong>Implementation</strong></th>
<th><strong>Patient Teaching/Discharge Planning</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Monitor serum sodium levels. (Indicates effectiveness of therapy.)</em></td>
<td><em>Instruct patient and caregiver to report occurrence of edema, dry skin, weakness, difficulty breathing to the health care provider.</em></td>
</tr>
</tbody>
</table>
| *Monitor intake and output, including urine specific gravity; report if >146mEq/L. (Indicates renal function.)* | Instruct patient and caregiver:  
- to monitor intake and output for equality.  
- to be aware of decreased urine output and increased fluid retention: noticeable edema, dyspnea, tightening of shoes, rings, belts, etc. |
| *Monitor heart and lung sounds (for symptoms of fluid retention secondary to elevated sodium levels: tachycardia, adventitious breath sounds.)* | *Advise patient to be aware of coughing, shortness of breath, feeling that heart is racing, and to report to health care provider.* |
| *Evaluate patient knowledge of self-administration.* | Instruct patient:  
- when to take PO tablets if previously advised to do so.  
- to recognize symptoms of hypo- or hypernatremia. |
| *Monitor for overdose. (Can occur as result of self-administration of PO medication, or of IV administration.)* | Advise patient:  
- regarding symptoms of overdose including nausea/vomiting, abdominal cramps, diarrhea, weakness.  
- to take medication as directed. |

| **Evaluation of Outcome Criteria** |
| Evaluate the effectiveness of drug therapy by confirming that patient goals and expected outcomes have been met (see “Planning”). |
# Nursing Process Focus: 
**Patients Receiving Sodium Bicarbonate**

<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th><strong>Potential Nursing Diagnoses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to administration:</td>
<td>• Impaired Gas Exchange, related to acidosis or alkalosis</td>
</tr>
<tr>
<td>• Obtain complete health history including allergies, drug history and possible drug interactions.</td>
<td>• Excess Fluid Volume, related to bicarbonate</td>
</tr>
<tr>
<td>• Assess for presence/history of metabolic acidosis or alkalosis, cardiovascular disease, decreased renal function, peptic ulcer disease.</td>
<td>• Deficient Knowledge, related to proper use of sodium bicarbonate</td>
</tr>
<tr>
<td>• Obtain vital signs.</td>
<td></td>
</tr>
<tr>
<td>• Monitor ABGs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Planning: Patient Goals and Expected Outcomes</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient will:</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate reversal of symptoms of acidosis or alkalosis.</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate pH between 3.5-5.3, and sodium level between 135-145.</td>
<td></td>
</tr>
<tr>
<td>• Demonstrate understanding of proper uses/application of sodium bicarbonate products.</td>
<td></td>
</tr>
</tbody>
</table>

## Implementation

<table>
<thead>
<tr>
<th><strong>Interventions and (Rationales)</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>*Monitor for alkalosis. (Indicates drug effectiveness.)</td>
<td>*Advise patient and caregiver regarding symptoms of alkalosis: irritability, confusion, cyanosis, slow respirations, irregular pulse, muscle twitching.</td>
</tr>
<tr>
<td>*Monitor for metabolic acidosis. (Sodium bicarbonate is used to neutralize acidosis.)</td>
<td>*Advise patient and caregiver regarding symptoms of acidosis: sleepiness, coma, disorientation, dizziness, headache, seizures, hypoventilation.</td>
</tr>
<tr>
<td>*Monitor respirations, pulse, lung sounds, fluid balance, pH, ABGs.</td>
<td>*Advise patient that frequent vital signs checks and lab studies will be performed.</td>
</tr>
<tr>
<td>*Monitor for decreased renal function. (Drug will not be excreted, leading to metabolic alkalosis.)</td>
<td>*Advise patient that intake and output balance, pH of urine, daily weight will be done.</td>
</tr>
<tr>
<td>*Monitor for hyponatremia: elevated blood pressure, cold, clammy skin, anorexia, vomiting, diarrhea, abdominal cramps lethargy, fatigue, confusion, headache, seizures, coma, tremors.</td>
<td>Advise patient:</td>
</tr>
<tr>
<td></td>
<td>• regarding symptoms of hyponatremia.</td>
</tr>
<tr>
<td></td>
<td>• to notify health care provider if he/she notes any of symptoms listed in previous column.</td>
</tr>
<tr>
<td>*Monitor for hypokalemia.</td>
<td>Advise patient:</td>
</tr>
<tr>
<td></td>
<td>• regarding symptoms of hypokalemia including muscle cramps, nausea, irregular heart rhythm.</td>
</tr>
<tr>
<td></td>
<td>• to report symptoms to health care provider.</td>
</tr>
</tbody>
</table>

## Evaluation of Outcome Criteria

Evaluate the effectiveness of drug therapy by confirming that patient goals and expected outcomes have been met (see “Planning”).
### Nursing Process Focus:
**Patients Receiving Potassium Chloride**

#### Assessment
Prior to administration:
- Obtain complete health history including allergies, drug history and possible drug interactions.
- Assess for presence/history of severe renal disease, hypokalemia, hyperkalemia, dehydration, acidosis or alkalosis, cardiac dysrhythmias.

#### Potential Nursing Diagnoses
- Risk for Falls, related to adverse reactions to drug
- Deficient Knowledge (proper use of drug), related to no previous exposure
- Risk for Impaired Skin Integrity, related to extravasation at IV site
- Ineffective Therapeutic Regimen Management, related to lack of understanding regarding other medication/food use
- Impaired Urinary Elimination (decreased urinary output), related to drug side effect

#### Planning: Patient Goals and Expected Outcomes
Patient will:
- Remain free of physical injury.
- Demonstrate knowledge of drug therapy, side effects, and adverse reactions.
- Maintain intact skin integrity.
- Demonstrate understanding of possible drug interactions.
- Maintain urinary elimination within normal range.

#### Implementation
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<tbody>
<tr>
<td><em>Monitor serum potassium levels (indicates effectiveness of therapy.)</em></td>
<td><em>Instruct patient to be aware of symptoms of hyperkalemia: nausea, abdominal cramping, oliguria, weakness, changes in heart rate, numbness or tingling of arms or legs.</em></td>
</tr>
<tr>
<td><em>Monitor kidney function. (Damaged kidneys are unable to excrete normal amounts of potassium, leading to hyperkalemia.)</em></td>
<td><em>Advise patient and caregiver regarding the importance of kidney function tests and of complete disclosure of past medical history.</em></td>
</tr>
</tbody>
</table>
| *Monitor diet for excessive foods containing potassium. (There is a risk for hyperkalemia resulting in cardiac dysrhythmias. Patient receiving potassium supplements should avoid use of salt substitute since most use potassium in place of sodium.)* | Instruct patient:
  - to avoid use of salt substitute without approval of health care provider.
  - to avoid increasing potassium rich foods while taking a potassium supplement, including bananas, oranges, orange juice, broccoli, carrots, brussel sprouts, etc.
| *Monitor for overdose. (Patient is at risk for cardiac dysrhythmias.)* | *Advise patient and caregiver that frequent blood studies will be done so early hyperkalemia will be identified.* |

#### Evaluation of Outcome Criteria
Evaluate the effectiveness of drug therapy by confirming that patient goals and expected outcomes have been met (see “Planning”).
## Nursing Process Focus:
### Patients Receiving Ammonium Chloride

### Assessment
Prior to administration:
- Obtain complete health history including allergies, drug history and possible drug interactions.
- Assess for presence/history of metabolic alkalosis or acidosis, abnormal chloride levels, decreased renal or hepatic function.
- Obtain vital signs.
- Obtain serum ammonia level.

### Potential Nursing Diagnoses
- Acute Confusion, related to metabolic acidosis secondary to excess amounts of ammonium chloride
- Deficient Fluid Volume, related to metabolic alkalosis
- Excess Fluid Volume, related to overhydration
- Impaired Skin Integrity, related to extravasation at IV site

### Planning: Patient Goals and Expected Outcomes
Patient will
- Experience normal pH, with normal electrolyte levels.
- Remain free of injury to IV site by drug extravasation.
- Maintain alert mental status.
- Remain free of physical discomfort.
- Maintain adequate fluid volume.

### Implementation

<table>
<thead>
<tr>
<th>Interventions and (Rationales)</th>
<th>Patient Teaching/Discharge Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Monitor for liver disease/dysfunction. (May lead to hepatic encephalophathy.)</td>
<td>*Instruct patient and caregiver to immediately report occurrence of confusion, disorientation, change in level of consciousness to health care provider.</td>
</tr>
<tr>
<td>*Monitor for metabolic alkalosis. (Indicates effectiveness of drug therapy.)</td>
<td>Instruct patient and caregiver: • regarding symptoms of metabolic alkalosis. • to report symptoms of metabolic alkalosis.</td>
</tr>
<tr>
<td>*Monitor for metabolic acidosis. (May indicate overdose of medications.)</td>
<td>*Instruct patient and caregiver regarding symptoms to note and report: fast respirations, sweating, restlessness, confusion.</td>
</tr>
<tr>
<td>*Monitor for side effects/adverse reactions. (Most are due to ammonium toxicity.)</td>
<td>*Advise patient and caregiver to be alert for and report these symptoms: rash, headache, bradycardia, drowsiness, confusion, depression, excitement alternating with coma.</td>
</tr>
<tr>
<td>*Monitor for renal impairment. (Proper kidney function is essential for complete excretion of ammonium chloride.)</td>
<td>*Advise patient and caregiver that lab studies will be done prior to beginning therapy with ammonium chloride and periodically during therapy.</td>
</tr>
<tr>
<td>*Monitor intake and output. (Diuretic effect is compensatory and lasts only 1-2 days.)</td>
<td>*Advise patient that intake and output will be monitored, and patient may have indwelling catheter for exact output measures.</td>
</tr>
</tbody>
</table>

### Evaluation of Outcome Criteria
Evaluate the effectiveness of drug therapy by confirming that patient goals and expected outcomes have been met (see “Planning”).