## Nursing Process Focus: Patients Receiving Enalapril

### Assessment
Prior to administration:
- Obtain complete health history including allergies, drug history to determine possible drug interactions and allergies; identify any history of angioedema.
- Collect specimens for: CBC, BUN, creatinine, electrolytes, liver enzymes, etc.
- Obtain EKG and vital signs, including blood pressure.
- Assess neurological status and level of consciousness.

### Potential Nursing Diagnoses
- Risk for Injury, related to falls
- Deficient Knowledge, related to drug action and side effects
- Ineffective Tissue Perfusion, related to decreased cardiac contractility
- Imbalanced Nutrition: More than Body Requirements, related to hyperkalemia

### Planning: Patient Goals and Expected Outcomes
The patient will:
- Exhibit a reduction in systolic/diastolic blood pressure.
- Demonstrate serum electrolyte levels within normal limits during drug therapy.
- Demonstrate understanding of the drug's action by accurately describing drug side effects and precautions.
- Remain free from injury related to falls.

### Implementation

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<tr>
<th>Interventions and (Rationales)</th>
<th>Patient Education/Discharge Planning</th>
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<tr>
<td>*Monitor vital signs, especially signs of hypotension. (Enalapril can produce &quot;first dose phenomenon&quot; of profound hypotension.)</td>
<td>Instruct the patient <em>that changes in consciousness may occur due to rapid reduction in blood pressure.</em> <em>to immediately report dyspnea, difficulty swallowing, itching, or impending syncope.</em> <em>of African descent of the changes in efficacy and increased risk of angioedema associated with ACE inhibitors such as enalapril.</em> <em>about the first dose phenomenon; reassure that this effect diminishes with continued therapy.</em> * that enalapril takes effect in approximately an hour and peaks in three to four hours; rest in the supine position beginning, one hour after administration, and for three to four hours after the first dose.* <em>always arise slowly, avoiding sudden posture changes.</em></td>
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<td>Observe for hypersensitivity reaction, particularly angioedema.</td>
<td>Instruct the patient or caregiver: *to immediately report any difficulty breathing, hoarseness, throat tightness, &quot;thick tongue,&quot; hives or rash. These symptoms can occur upon the first dose or much later as a delayed reaction. *Angioedema can be life-threatening. Call emergency services for severe dyspnea or hoarseness accompanied by swelling of the face or mouth.</td>
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<td>Observe for signs of infection which may indicate insidious onset of blood dyscrasia: fever, sore throat, malaise, joint pain, ecchymoses, profound fatigue, shortness of breath, pallor, etc. (Bruising is a sign of bleeding which can also indicate the presence of a serious blood disorder.)</td>
<td>Instruct patient to immediately report any &quot;flu-like&quot; symptoms: flu-like symptoms may herald the &quot;silent&quot; onset of serious blood disorder, such as neutropenia or agranulocytosis.</td>
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<td>Monitor neurological status for dizziness, drowsiness or lightheadedness. (These are signs of decreased blood flow to the brain due to the drug’s vasodilating hypotensive action.)</td>
<td>Instruct patient to: * report dizziness or syncope which persists beyond the first dose, as well as paraesthesias and other neurological changes. *contact the health care provider immediately if syncope occurs.(before the next scheduled dose of the drug) if syncope occurs.</td>
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<td>Monitor for persistent dry cough, triggered by bradykinin's pro-inflammatory action changes in cough pattern, and serious paroxysms of cough. (Cough results from reaction by the mucous membranes in the throat and trachea. May indicate respiratory swelling and angioedema).</td>
<td>Instruct the patient: *persistent dry cough may be expected. *to distinguish the difference between expected cough and cough of a more serious nature (such as accompanied by fever or shortness of breath.) *report any change in the character or frequency of cough, such becoming productive or occurring upon exertion. *cough accompanied by chest, arm, or back pain or pressure could signal a heart attack. Any cough accompanied by shortness of breath, fever or chest discomfort should be reported immediately. *cough may be more troublesome when in supine position; sleeping with the head elevated may be more comfortable. *cough can sometimes be relieved by using non-medicated lozenges or hard candies. (Diabetics may use sugar-free hard candies.)</td>
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<td>Monitor effectiveness of drug therapy. *Document changes in blood pressure and</td>
<td>Instruct the patient: *to take BP and pulse in both arms, daily,</td>
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**pulse in response to drug administration.**
while lying, sitting and standing or as often as specified by the health care provider.
*regarding the normotensive range of blood pressure; instruct the patient to consult the health care provider regarding "reportable" blood pressure readings (e.g. "lower than 80/50).  
*to keep a symptom (e.g. dizziness, etc.) and blood pressure diary during initial and/or dosage adjustment phases of therapy.

| *Monitor fluid and electrolyte balance (see following box).  
*Monitor for dehydration or fluid overload.  
(Dehydration causes low circulating blood volume and will exacerbate hypotension. Severe dehydration may trigger syncope and collapse. Pitting edema is a sign of fluid retention, and can be a sign of CHF, and may indicate reduced drug efficacy.) | Instruct the patient to:  
*observe for signs of dehydration such as oliguria, dry lips and mucous membranes, poor skin turgor, etc.  
*report any bodily swelling which may indicate angioedema or fluid retention; note any pitting edema.  
*accurately measure intake, output, body weight; measure and weigh daily.  
*monitor increased need for fluid caused by vomiting, diarrhea or excessive sweating.  
avoid excessive heat which can increase insensible fluid loss.  
*consume adequate amounts of plain water to remain adequately but not over-hydrated. |
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| *Monitor for hyperkalemia. (Hyperkalemia occurs due to reduced aldosterone levels.) | Instruct the patient to:  
*immediately report signs of hyperkalemia: nausea, irregular heartbeat, profound fatigue/muscle weakness, and slow or faint pulse.  
avoid consuming electrolyte-fortified "nutritional" snacks, or sports drinks which may contain potassium.  
avoid using salt substitute (KCL) to flavor foods.  
consult the health care provider before taking any nutritional supplements containing potassium. |
| *Monitor for signs of hepatic or renal toxicity.  
(Enalapril is metabolized by the liver and excreted by the kidneys. Impaired function results in increased serum drug levels.) Observe for jaundice. | Instruct the patient to:  
*immediately report the following: nausea, vomiting, diarrhea, rash, jaundice, abdominal pain, tenderness or distention, or change in character and color of stool or urine, flank pain, hematuria.  
*stop the drug immediately and contact the health care provider if jaundice occurs.  
*adhere to a regular schedule of laboratory
Testing for liver and kidney function as ordered by the health care provider.

| *Ensure patient safety.  
*Monitor ambulation until response of the drug is known. | Instruct the patient to:  
*obtain help prior to getting out of bed or attempting to walk alone.  
*avoid activities that require mental concentration and physical agility until effect of drug is known. |

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