FamilyCare Procedure

Topic: **Potassium Sensitivity Test (PST) Procedure**

Purpose: To assure that all equipment and supplies are available during a potassium sensitivity test procedure.

Responsibility: Medical Assistant, Registered Nurse and Nurse Practitioner

Materials:
- Sterile water (200 mL)
- 20 mEq KCl/10 mL (Potassium Chloride)
- Heparin 10,000 U/mL (4 mL)
- 2% lidocaine plain (11 mL)
- 8.4% sodium bicarbonate (5 mL)
- Foam tape 1"
- Sterile pediatric catheter (#8 Fr feeding tube)
- 3 60 mL syringes to attach to catheter
- 30 mL syringe for Therapeutic Solution
- Sterile lubricant
- Sterile gloves
- Betadine swabs
- Specimen tube for urine culture
- Count-down timer
- 3mL syringe with 30% lidocaine cream
- Sterile containers (4) for solutions, post-void residual and urine for culture

Room & Time: Procedure room preferred can be done in exam room. 30 minute appointment.

Indications: 70 to 90% of patients with known interstitial cystitis will respond to potassium challenge. The false positive rate is very low.

Limitations:

Prior to Procedure:
Prepare and place in separate, labeled containers:
- **Solution 1**: 40 mL of sterile water in 60 mL syringe
- **Solution 2**: 40 mL of a solution of 20 mEq KCl/50 mL water (add qs water to 20 mEq KCl to make 50 mL of solution) mix in 60 mL syringe
- **Sterile Water**: 40 mL of sterile water in 60 mL syringe
- **Therapeutic Solution**: 2% Lidocaine 11 mL + 8.4% sodium bicarbonate 5 mL + Heparin 40,000 U (10,000 U/mL 4 mL) mix in 30 mL syringe

Do not tell patient what is in the solution being instilled other than Solution 1 or Solution 2 this is a blinded study.

Procedure:
1. Prepare solutions prior to bringing patient into the room.
2. Have patient void just prior to procedure. Collect clean catch urine sample for culture to be sent if no post-void residual.
3. Place a small catheter in patient’s bladder and secure to medial thigh with foam tape.
4. Drain contents of bladder recording volume for post void residual. Send sample for culture if desired.
5. Slowly, over 2-3 minutes to minimize volume provocation of symptoms, instill 40 mL of Solution 1 (sterile water) into the bladder.
6. After Solution 1 has remained indwelling for 5 minutes, ask the patient to rate any pain and urgency on the scales shown below.
7. Remove Solution 1 from the bladder.
8. Slowly, over 2-3 minutes, instill Solution 2 into the bladder.
9. If the patient experiences significant provocation of pain or urgency during or shortly after the instillation, stop the instillation and drain the bladder. Then, when it is convenient, ask the patient to rate the pain or urgency on the scales.
10. If there is no immediate reaction to Solution 2, leave the solution indwelling for 5 minutes and then ask the patient to rate any pain and urgency on the scales.
11. Remove Solution 2 from the bladder and rinse with 40 mL sterile water.
12. Ask the patient to compare the two solutions using the questionnaire shown below.
13. Whether the test is positive or negative, instill the therapeutic solution to relieve any symptoms. The therapeutic solution should remain in place for as long as possible, but at least an hour.

14. If symptoms are pronounced, consider using the therapeutic solution alone and see if the symptoms improve over the next 24 hours.

**Interpretation:**
A PST is positive when the patient reports **both** of the following:
- Solution 2 causes pain and/or urgency that rates 2 or greater on the scale (note: 2 above zero, not 2 above water) and
- Solution 2 (KCl) is worse than Solution 1 (water).

**References:**
Lynn A. Clark, ARNP during IC talk on 3/23/09.
### Grading Scales for Symptoms Solution 1

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<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
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<tbody>
<tr>
<td>Pain</td>
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<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Urgency</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

### Grading Scales for Symptoms Solution 2

<table>
<thead>
<tr>
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<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>0</td>
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<td>3</td>
</tr>
</tbody>
</table>

### Questionnaire

1. Which solution is worse?
   - Solution 1
   - Solution 2
   - Neither

2. Is the difference between the solutions?
   - Mild
   - Moderate
   - Severe
The procedure was explained to the patient, including all risks, benefits, alternatives and potential complications. Informed consent was obtained.

**Indications:**
- Urinary symptoms suggestive of UTI but with negative cultures
- Pelvic pain

**Procedure:**
Patient voided prior to procedure. Using sterile technique #8 Fr catheter inserted in the usual manner, secured to the medial thigh and post-void residual measured. Over a period of 2-3 minutes 40mL of sterile water instilled into the bladder and allowed to remain for 5 minutes. Pain and urgency was then rated. Sterile water was then drained and 40mL of potassium chloride 20 mEq/50mL was instilled over 2-3 minutes.

- KCl drained due to provocation of pain
- KCl remained indwelling for 5 minutes
- KCl was removed from the bladder and rinsed with 40mL of sterile water. Finally a therapeutic solution consisting of lidocaine 2% plain 10 mL + sodium bicarbonate 8.4% 4mL + heparin 10,000 U/mL 4mL instilled and the catheter was removed. Patient was allowed to void the therapeutic solution.

- Post-void residual _______ mL
- Solution 1 (sterile water) _______ pain _______ urgency rated on a 0-5 scale with 5 being severe
- Solution 2 (KCl) _______ pain _______ urgency rated on a 0-5 scale with 5 being severe
- Solution that is worse: solution 1
- Solution that is worse: solution 2
- Solution that is worse: neither
- Difference between solutions: mild
- Difference between solutions: moderate
- Difference between solutions: severe
- Patient tolerated the procedure well and there were no complications

**Assessment:**
- Test positive for interstitial cystitis (595.1) [KCl 2+/5 and KCl worse then water]
- Test negative for interstitial cystitis

**Plan Post Procedure:**
- Patient was requested to make a follow-up appointment in _______ days
- Patient was instructed to call the office if there are any problems or questions
- Test results discussed with patient
- Elmiron 100mg 2 po bid #120 RF 2

**Vital Signs**

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<th>BP</th>
<th>P</th>
<th>RR</th>
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</table>

**51701:** Insertion of non-indwelling bladder catheter for residual urine volume, UA &/or culture
**51700:** Potassium sensitivity test
**J3480:** Potassium Chloride
**Heparin 40,000U**

**Dictated note**
- Madeline D. Wiley, MSN, ARNP

**Clinician Signature:**

Robert T. Smithing, MSN, ARNP

Compassionate, experienced, personalized care.
Consent for Treatment

I, the undersigned, give permission for myself, or my minor child, or for a person over which I have legal guardianship for ☐ Madeline D. Wiley, ARNP ☐ Robert T. Smithing, ARNP ☐ Kathleen F. Kleiver, ARNP ☐ Brenda S. Lee, ARNP ☐ ________________________________, a family nurse practitioner, and such assistants as may be designated, to perform:

(Name of treatment or procedure)

and any other related procedures or forms of treatment, including appropriate anesthesia and medications that they deem necessary for the welfare of ________________________________, the patient.

I consent to the examination and retention for scientific purposes and study of all tissues removed during the course of the above treatment with the privilege of ultimate disposal resting with said health care staff.

I understand that the expected results of said treatment cannot be guaranteed and that the clinician named above has discussed to my satisfaction the following:

A. Nature and character of the proposed treatment or procedure.
B. Anticipated results of the proposed treatment or procedure.
C. Recognized alternative forms of treatment for my condition.
D. Recognized possible risks and complications of the treatment or procedure including the risk of nontreatment.

My family nurse practitioner has offered to answer any questions concerning the proposed treatment or procedure. I understand that I am free to withhold or withdraw consent to the proposed treatment or procedure at any time.

I consent to be photographed, filmed, or videotaped during this procedure, unless indicated otherwise below. This includes permission to photograph, film, videotape, or reproduce ECGs, X-rays, or other related diagnostic studies. These images may be used for such educational purposes, in such publications and web pages, and in such manner as deemed necessary or desirable, unless a specific purpose or restriction is stated below:

No identity may be revealed without my express consent, unless indicated otherwise below.

☐ No photography, filming or videotaping may be done during this procedure. It is not necessary to consent to photography for this procedure to be done.

☐ Follow-up photography, filming or videotaping may be done for 12 months after this procedure without the need for an additional consent.

☐ It is further authorized to reveal my (or my child's or guardian's) identity which may accompany said photograph, film, or video.

Date __________________ Signature of patient, parent or guardian

Witness __________________ Relationship to patient