PROTOCOL FOR: **Urokinase: Patient Receiving**

POLICY:

1. No other medications are to be infused via this intravenous or intra-arterial line.
2. Intravenous or intra-arterial line must be controlled by an infusion pump.

DESIRED PATIENT OUTCOMES:

1. Patient will maintain stable hemodynamic status during drug infusion.
2. Patient will not suffer negative side effects of thrombolytic therapy.
3. Circulation will be restored in affected area.

CLINICAL ASSESSMENT AND CARE:

1. Physician orders should include the following:
   a. Urokinase Concentration
   b. Total number of units of urokinase to be delivered over a specified time frame.
   c. Specific parameters for increasing or decreasing administration rate.
   d. Specific parameters for notifying physician, and adjusting or stopping the infusion.
   e. Specific parameter regarding lab values prior to infusion and during the infusion.
2. Assess the following parameters every one hour during the infusion:
   a. Patency of IV/IA lines.
   b. Monitor all pulses, particular attention to pulse in affected limb (when appropriate). Calculate ankle/brachial index and report if < .6.
   c. ECG pattern, dysrhythmias.
   d. Observe all excretions for occult blood.
   e. Monitor for signs and symptoms of hypovolemia.
   f. Observe all puncture sites for bleeding or hematoma formation.
   g. Observe for neurologic changes for potential intracranial bleeding.

PROTOCOL FOR: Urokinase: Patient Receiving

h. Monitor incidence of bruising/Ecchymosis.

i. Observe for low back pain, muscle weakness, or diminished pulses associated with retroperitoneal bleeding.

j. Monitor anxiety levels.

k. Patient/significant other understanding of Rx, need for further education.

l. Bronchospasm/rash.

Concentration:

1. Use standard mix from pharmacy (2,000,000u in 500cc NSS)

2. Bolus doses are given in Radiology per Radiologist order, based on individual patient assessment (blood work, clinical assessment and clot lysis under angiography).

3. Maintenance doses are by physician order, also based on individual clinical assessment, q 4 hours lab values and degree of pain.

4. Systemic heparin may also be initiated in conjunction with urokinase.

Starting infusion:

1. Establish baseline assessment:

   a. ECG and vital signs (B/P, apical rate, RR, temp., and skin color).

   b. Ankle/brachial index (normal .8 or >)

   c. Skin lesions/bruises.

   d. Breath sounds.

   e. Level of consciousness.

   f. Pain level.

   g. Lab values (CBC, PT, PTT, BUN, Cr, FDP, Fibrinogen, Type and Screen) prior to starting thrombolytic therapy.

   h. Quality of pulses.

2. Begin infusion at ordered flow rate.

3. Reassess as above every 15 minutes x 4.

PROTOCOL FOR: **Urokinase: Patient Receiving**

4. **Stay with patient for initial 15 minutes to evaluate response.**

5. **Reassess patient every hour.**

6. **PTT, FDP, Plts, Fibrinogen, Cr, H/H and microscope checks for RBCs in urine should be determined per MD order after initiation of therapy. This is to assure that adequate activation of the fibrinolytic system has occurred.**

7. **As discussed earlier, systemic heparin may be instituted in conjunction with urokinase therapy or used after urokinase infusion is completed. This decision may vary with each individual.**

8. **The following conditions are to be reported to the responsible physician immediately:**

   a. **New sites of bleeding (superficial or internal).**

   b. **All lab results.**

   c. **Dysrhythmias.**

   d. **Dyspnea, tachypnea, cyanosis or rales.**

   e. **Agitation, restlessness and decreasing levels of consciousness.**

   f. **Decreased blood pressure (>20% change).**

   g. **Decreased or increased quality of pulses, tachycardia, jugular venous congestion.**

9. **Type and Screen, CBC, PT, PTT, BUN, Cr, FDP, and Fibrinogen should be drawn prior to infusion of urokinase. PTT, FDP, Fibrinogen, H/H, Plts, Cr should be drawn as per MD order while administration of urokinase continues and daily for two (2) days past completion of infusion.**

10. **All patients are to be on bed rest during the infusion to minimize potential for bleeding. To postpone or reduce back pain, the patient can be gently rolled 45 degrees onto either side for 1-2 hour periods. When the patient is in this position, the back should be braced with a 45 degree angled sponge and a pillow should be placed between partially flexed knees. Additionally, the patient can be flexed 30 degrees at knees and hips.**

11. **Venipuncture/arterial punctures will be done only if deemed absolutely necessary. Keep pressure on puncture site for at least a half hour after any arterial stick. At least ten (10) minutes on any venous puncture site.**

PROTOCOL FOR: **Urokinase: Patient Receiving**

12. **Physical handling of the patient must be minimized to avoid bruising. Patient and family will be educated in reference to this potential.**

13. **At discontinuation of therapy, apply manual pressure to catheter site for up to 45 minutes or until bleeding stopped.**

14. **Monitor for bleeding at removed catheter site frequently throughout the first twelve hours. Check pulses in distal extremities when appropriate.**

PATIENT TEACHING:

1. **Review purpose/method of therapy with patient/significant other emphasizing the positive effect of the therapy to control pain and lyse the clot.**

2. **Briefly explain the potential side effects of the drug including bleeding, (superficial, GI, intracranial, retroperitoneal), fever, transient hypotension, chills, bronchospasm and rash.**

REFERENCES: **Nursing Standards Committee**

EFFECTIVE DATE: **5/93**

REVISION DATES: **1/98, 8/00**