Diamox (Acetazolamide) Brain Perfusion SPECT Study (2 day and 1 day protocols)

INDICATIONS:
- To differentiate ischemic areas from infarct and to aid in distinguishing vascular from neuronal causes of dementia.

CONTRAINDICATIONS:
- Do not perform if patient has:
  - Had a stroke in past three days
  - Allergy to sulfonamides
  - Electrolyte disturbances
  - Kidney or liver disease
  - Adrenocortical insufficiency
  - Long-term use in chronic noncongestive angle-closure glaucoma

RADIATION RISK:
- Ensure safe handling to protect patient and healthcare workers from unintentional radiation exposure.

ADVERSE REACTIONS:
- After receiving acetazolamide, 50% of patients will experience numbness around mouth and fingers, lightheadedness or blurred vision, and feeling flushed around face and neck.
- After receiving radiopharmaceutical <1% experience any side effects such as headache, dizziness, seizure, agitation, rash, nausea, syncope, angina, and apnea.

SUPPLY AND STORAGE:
- Acetazolamide:
  - Stored at room temperature. Supplied in vials of 500 mg to be reconstituted with 5 mL of Sterile Water. After reconstitution, store in refrigerator for up to 12 hours.
- Neurolite™ (Tc-99m ECD):
  - Supplied in single use dose by radiopharmacy. Expires 6 hours after preparation.
- Stabilized Ceretec™ (Tc-99 HMPAO):
  - Supplied in single use dose by radiopharmacy. Expires 4 hours after preparation.

PATIENT PREPARATION:
- No special patient preparation. May eat and take medication.

DOSE AND ADMINISTRATION:
- **2 DAY PROTOCOL:**
  - Perform stress first, baseline might not be performed if stress is normal.
  - Day 1: Stress: 555-1110 MBq (15-30 mCi) of Ceretec™ or Neurolite™
    - Establish IV access prior to start of exam.
    - Ask patient to void before starting exam.
    - Place patient supine, head first on scan table, make as comfortable as possible.
    - Make scan room quiet and dim the lights, instruct patient to not speak or move.
    - Attain baseline heart rate and blood pressure.
    - Give 1000 mg of Acetazolamide IV, slowly over 10 minutes.

• Continue to monitor heart rate and blood pressure.
• Give radiopharmaceutical 15-20 minutes after acetazolamide.
• Acquire SPECT images after 30 minute uptake period.
• Day 2: Baseline: 555-1110 MBq (15-30 mCi) of Ceretec™ or Neurolite™
  • Establish IV access prior to start of exam
  • Place patient supine, head first on scan table, make as comfortable as possible.
  • Leave patient in quiet, dimly lit scan room for 30 minutes prior to injection.
  • Inject radiopharmaceutical.
  • Leave patient in same dimly lit, quiet room for additional 30 minutes.
  • Acquire SPECT images.

1 DAY PROTOCOL:
• Baseline:
  • Establish IV access and have patient void before starting test.
  • Place patient supine, head first on scan table, make as comfortable as possible.
  • Make scan room quiet and dim the lights, instruct patient to not speak or move.
  • Inject radiopharmaceutical.
  • Leave patient in same dimly lit, quiet room for additional 30 minutes.
  • Acquire SPECT images.
• Stress: *Second dose must be at least twice the amount as the baseline dose.*
  • In same quiet, dimly lit scan room,
  • Attain baseline heart rate and blood pressure.
  • Give 1000 mg of Acetazolamide IV, slowly over 10 minutes.
  • Continue to monitor heart rate and blood pressure.
  • Give radiopharmaceutical 15-20 minutes after acetazolamide.
  • Acquire SPECT images after 30 minute uptake period.

6. Imaging Parameters:
   a.) Uptake Time:
      • 30 minutes after radiopharmaceutical injection
   b.) Acquisition Parameters:
      • SPECT of brain, approximately 15-20 minutes
   c.) Patient Positioning:
      • Supine, head first, and centered in the gantry using the head support. Straps and wedges may be used to help stabilize the head to reduce movement.

IMAGE PROCESSING AND DISPLAY:
• Display in all three planes: transverse, coronal, and sagittal.
• Please check with reading physician for any special processing and display requests.

POST EXAM INSTRUCTIONS:
• To minimize radiation exposure, advise the patient to increase their level of hydration before and after receiving the radiopharmaceutical and to void frequently for the following 24 hours.