J. CAROTID / VERTEBRAL DUXPLEX STUDY

1. POLICY

1.1. Test Description
The test shall evaluate the extracranial carotid and vertebral arteries for stenosis, occlusion, plaques and flow direction.

1.2. Equipment
Sonosite TITAN Color Doppler Ultrasound machine 10-5 MHz 38 mm linear array

1.3. Patient Preparation
No patient preparation shall be required. 45 minutes to 1 hour and 30 minutes shall be allotted for the examination.

1.4. Patient Position
The cervical vessels shall be examined with the patient in a supine position with the examiner seated beside the patient. Having the patient drop the ipsilateral shoulder, then tilting and rotating the patient’s head away from the side to be examined facilitate neck exposure. The duplex vertebral examination shall be performed in conjunction with the carotid examination. The patient shall be positioned in the same manner as for the carotid examination.

1.5. Examination Procedure
The carotid system is imaged from four longitudinal transducer positions: anteroposterior, lateral, posterolateral, and transverse.
1.5.1. The transducer shall be placed (transverse position) low on the neck using the gray scale. Slowly slide the transducer upward from the Common Carotid Artery (CCA) until the bifurcation of the Internal Carotid Artery (ICA) and external carotid artery (ECA) then record. The same procedure shall be done using color flow and shall be recorded.

1.5.2. The transducer shall be placed low on the neck, posterior to the sternocleidomastoid muscle. Visualization shall start with the Common Carotid Artery (CCA) in long axis (use gray scale) the vessel shall be followed to visualize the ICA then the ECA. Intima Media thickness shall be measured. Thickness shall be measured (IMT) 2 cm from the bifurcation anteriorly and laterally.

1.5.3. Visualization shall be done again in the CCA, ICA and ECA using color flow.

1.5.4. The transducer shall be placed low on the neck, posterior to the sternocleidomastoid muscle to visualize the CCA in long axis. Pulse wave shall be used to sweep the Doppler sample through the vessel and a representative signal shall be recorded at an angle of 60 degrees to the vessel wall in the proximal CCA (PCCA). Slide the transducer cephalad and evaluate the mid CCA (MCCA) this shall be followed by the distal CCA (DCCA) with Doppler and signal shall be recorded.

1.5.4. The transducer shall be slide or angled anteriorly at the DCCA to visualize and evaluate the ECA with Doppler and signal shall be recorded.
1.5.5. The transducer shall be angled or slide posteriorly to visualize the ICA. The Doppler sample shall sweep throughout the length (at least 3 cm) of the vessel. The highest velocity shall be recorded with the representative sample in the proximal ICA (PICA), mid ICA (MICA) and distal ICA (DICA) segments. Doppler signals shall be recorded mid stream and at an angle of 60 degrees to the vessel wall. The presence of plaques or flow separation shall be documented.

1.5.6. The transducer shall be placed anteriorly on the neck and shall be angled slightly lateral. The Vertebral artery (VA) shall be visualized in long axis with color flow. A Doppler signal shall be measured at an angle of 60 degrees to the vessel wall and flow direction shall be noted.

Tip:

All Doppler signals shall be recorded at an angle of 45-60 degrees to the vessel wall using a sample volume, except in special cases.

2. PROCEDURE - Carotid / Vertebral Duplex Scan Inpatient

2.1. Nurse from the requesting critical care unit sends request form / charge slip to the Neurovascular laboratory.

2.2. Med. Tech. calls the nurse from the requesting critical care unit and asks if the patient is already prepared for CDS procedure.
2.3. Med. tech. brings the portable ultrasound machine to the critical care unit.

2.4. Med. tech. reads the patient's chart to be able to know some information about the patient's medical status and the requesting doctor. The chief complaint and history of present illness will be noted.

2.5. Orient patient / relative about the diagnostic procedure to be done

2.6. Patient lies down in a supine position in her own hospital bed.


2.8. Starts performance and recording of scan using the B-mode, followed by color flow pattern and Doppler studies.

2.9. Med. tech wipes patients neck with clean tissue paper.

2.10. Med. tech. brings the machine back to the Neurovascular laboratory.

2.11. Med. tech. executes the procedure and reader's fee in the med. trak.

2.12. Med. tech reviews the recording and makes initial interpretation.

2.13. Sonographer reviews the recording and makes the final interpretation.

2.14. Types official results and releases after three working days.

2.15. Records and files official results (file copy).
3. FLOWCHART - Carotid / Vertebral Duplex Scan

- Med. tech gets request form
  - Med. tech brings the ultrasound portable machine to the requesting critical care unit
  - Med. tech reads the chart
  - Med. tech orients and instructs patient/relative for the procedure
  - Med. tech inputs patient data
  - Med. tech performs CDS examination
  - Med. tech brings the ultrasound portable machine beds to the Neurovascular laboratory
  - Med. tech executes procedure and PF in the machine
  - Med. tech reviews the summary for initial interpretation
  - Sonographer reviews the summary for final interpretation of CDS
  - Med. tech types and releases results
  - Recording and filing of official results