CAROTID ULTRASOUND

Patient Prep:
>None.

Survey:
>Perform a real-time survey of the Common Carotid Artery, Internal Carotid Artery, External Carotid Artery and Vertebral Artery.

>Limitations with images needs to be documented.

Image Documentation:
>Each image must be labeled with the patient's full name, medical record number, accession number, initials of the imaging technologist, organ/area identification, scanning plane and patient orientation if different from supine.

If an image of a structure is not well seen, take an image of the structure and annotate the purpose of the image (i.e. vertebral artery not well seen).

General Procedure Description:
1. Evaluate the Common Carotid Artery, Internal Carotid Artery, External Carotid Artery and Vertebral Artery in gray scale images.
2. Evaluate the Common Carotid Artery, Internal Carotid Artery, External Carotid Artery and Vertebral Artery with color Doppler images.
3. Evaluate the Common Carotid Artery, Internal Carotid Artery, External Carotid Artery and Vertebral Artery with color Doppler images and spectral Doppler waveforms.
4. Consistent angle correction $=/<60°$ in longitudinal axis.

Guidelines for Carotid Ultrasound:

CAROTID
1. Gray scale image longitudinal:
   a. Common Carotid Artery (proximal, mid and distal).
   b. Internal Carotid Artery (proximal, mid and distal).
   c. External Carotid Artery (proximal).
   d. Vertebral Artery.

2. Color Doppler image longitudinal:
   a. Common Carotid Artery (proximal, mid and distal).
   b. Internal Carotid Artery (proximal, mid and distal).
   c. External Carotid Artery (proximal)
   d. Vertebral Artery.

3. Spectral Doppler velocity measurements with color Doppler in longitudinal.
   a. Common Carotid Artery (proximal, mid and distal).
   b. Internal Carotid Artery (proximal, mid and distal).
      1. Report bifurcation stenosis as ICA origin.
   c. External Carotid Artery (proximal)
   d. Vertebral Artery with flow direction.

4. Gray scale image transverse:
   a. Common Carotid Artery (proximal, mid and distal).
   b. Bulb area.
   c. Bifurcation labeled ICA and ECA.
   d. Internal Carotid Artery (mid and distal).
   e. If an area has a velocity of =/>180 cm/s, provide a measurement of the stenosis. This measurement can be % of diameter reduction and/or % of area reduction.
   f. Make note of type of plaque due to information will be noted on worksheet.

5. In areas of suspected stenosis, Doppler velocity must be adequate to provide maximum peak systolic velocity. This may require increasing the size of the velocity sample gate and slowly moving through the area of stenosis. The area before and after the stenosis should be evaluated. Power Doppler images may be required.

6. Internal Carotid Arterial/Common Carotid arterial Peak Systolic Velocity Ratio:
   a. To calculate this ratio, use the highest PSV of the ICA (which a bifurcation stenosis is used as ICA origin) and distal CCA (or appropriate CCA).

7. Carotid Stents
   a. Grayscale images in longitudinal and transverse.
   b. Color Doppler images in longitudinal and transverse.
   c. Spectral Doppler velocity measurements with color Doppler in longitudinal.
   d. Spectral Doppler velocity measurements with color Doppler in longitudinal, proximal and distal to the stent.
   e. Measurement of the stenosis in transverse.

PATHOLOGY
1. Image pathology as needed.