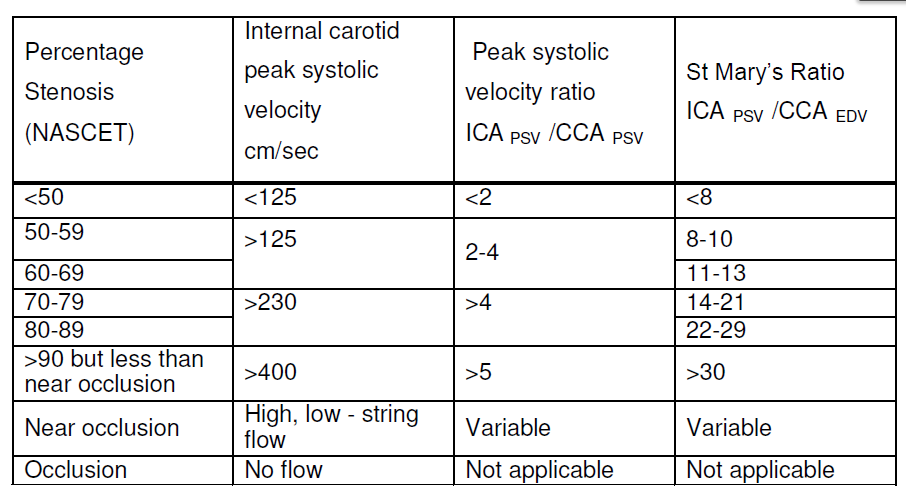
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| Clinical Standard Operating Procedure (SOP) **Carotid DUPLEX** | |
| **SETTING** | Vascular Science Unit |
| **FOR STAFF** | Clinical vascular scientists |
| **PATIENTS** | Patients referred for a carotid duplex |
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| **Standard Operating Procedure**   1. Read the patient referral and check any relevant sources that could aid the investigation (e.g. VSU database, CDS, ICE open net, PACS or NBT radiology) 2. Ensure the room is ready for the assessment, the appropriate equipment is in the room and the patient’s details have appeared on the worklist 3. Collect the patient from the waiting area, introduce yourself and confirm patient identifiers against the referral and machine worklist 4. Explain the test and the purpose of the patient visit 5. Gain patient consent 6. Ask the patient to describe their symptoms (characteristics, onset and duration), check whether there was any additional effects on speech, vision, or weakness. Take a clinical history and relevant risk factors (smoking, diabetes, hypertension, angina, previous MI and rheumatic fever). 7. Position the patient in a semi sitting/lying position on the bed with any necklaces, scarves or clothing that may obstruct the scan removed. Ensure neck is extended. Scan can be carried out with patient remaining in a wheelchair if required. 8. Use white towel to protect any clothing 9. Select the carotid pre-set for the linear probe 10. Using B-mode, begin in transverse (TS) to visualise the common carotid artery 11. Sweep from the clavicle to the jaw to familiarise yourself with the anatomy, position of the carotid bifurcation and any abnormal findings that may be within the scanning field 12. In B mode scan the common carotid artery (CCA), internal carotid artery (ICA), external carotid artery (ECA) and the subclavian artery (SUBA) in longitudinal section (LS) and transverse section (TS) looking for any plaque, narrowings or abnormalities 13. With colour Doppler scan the CCA, ICA, ECA and SUBA in LS and TS identifying any colour filling defects or areas of aliasing 14. With colour and pulsed wave Doppler (angle set at 60 degrees where possible) take PSV and EDV in the proximal SUBA (PSV only), CCA (2 cm from the carotid bifurcation, ECA origin and ICA origin. Save and label the images 15. Make an assessment of any disease based on B mode, colour and waveform analysis. Disease may be graded as normal (no disease), mild (<25%), <50%, 50-69%, 70-89% or >90% according the NASCET criteria (see appendix 1). If significant disease (>50%) comment on its appearance (echogenic/echolucent, smooth/irregular), the distance from the origin, the distance that it extends, the position of the bifurcation, calculate the ratios and assign grading criteria. Check the grading while the patient is still in the room 16. In B mode and colour Doppler follow the ICA up as high as possible in LS looking for any atheroma/disease or any areas of aliasing. Use spectral Doppler to look at the distal ICA waveform 17. In B mode, image the vertebral arteries and use colour Doppler to check the direction of the flow 18. Using spectral Doppler assess the waveform in the vertebral artery. Look for any evidence of peak systolic pull down, high resistance waveforms or subclavian steal phenomenon. 19. Take PSV and EDV values. Label and save the image 20. Follow the vertebral to its origin looking for any evidence of stenosis 21. Repeat these steps for the contralateral side 22. Explain the results of the scan to the patient 23. If any incidental findings are seen then investigate, record and report these appropriately 24. Write report on CRIS and the database 25. Inform clinician of any urgent findings (see the carotid clinical protocol for details) | |

**Additional Information**

Carotid Duplex Clinical protocol

Vascular Science generic protocol

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| **Table A** | |
| **REFERENCES** | . |
| **RELATED DOCUMENTS AND PAGES** | Vascular Science generic protocol |
| **AUTHORISING BODY** | Vascular Science Unit |
| **SAFETY** | Please refer to the Vascular Science Health and Safety policy |
| **QUERIES AND CONTACT** | Vascular Science Unit  A225  Bristol Royal Infirmary  Upper Maudlin Street  Bristol, BS2 8HW  Tel: 0117 342 7530  Email: VSU@UHBristol.nhs.uk or uhb-tr.vascular-science@nhs.net |

**Appendix 1: NASCET grading criteria**