VASCULAR TESTING WHITEPAPER

January 2017

Faster, Easier Segmental Testing

This whitepaper is based primarily on a new more efficient protocol for multilevel segmental exams that has been recommended by textbook author and nationally-recognized vascular consultant Rob Daigle[1].

This new protocol has several advantages:

- It is significantly easier and quicker to perform
- It is easier on the patient
- It provides the clinical information necessary about the region of the disease
- It meets the current requirements for the multilevel lower extremity arterial exam, CPT code 93923

For this protocol, all that is required for this test is an ABI at the ankle and PVR recordings at three levels. Pressures are not required other than at the ankles.

CPT code 93923:

Complete bilateral noninvasive physiologic studies of upper or lower extremity arteries, 3 or more levels (eg, for lower extremity: ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental blood pressure measurements with bidirectional doppler waveform recording and analysis, at 3 or more levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental volume plethysmography at 3 or more levels, or ankle/brachial indices at distal posterior tibial and anterior tibial/dorsalis pedis arteries plus segmental transcutaneous oxygen tension measurements at 3 or more level(s), or single level study with provocative functional maneuvers (eg, measurements with postural provocative tests, or measurements with reactive hyperemia) CPT codes © American Medical Association

[1] Daigle, Rob. Physiologic Arterial Testing for Peripheral Arterial Disease, Summer Publishing, 2013, Chapter 5: Abbreviated, Efficient Protocols

So far as the CPT code goes, blood pressure measurements are not required except at the ankle as long as you are also performing volume plethysmography (PVR) at three levels. This has these advantages:

- Measuring the blood pressure at the thigh segmental sites on the leg can be uncomfortable or even painful for the patient. The much lower pressures involved with a PVR exam (typically in the range of 65mm Hg) are typically comfortable for the patient.
- Obtaining a PVR waveform is much easier and quicker than obtaining the blood pressure at each site and then also finding and recording a bidirectional Doppler waveform recording at each site.
- Much less skill is required to obtain the PVR than Doppler waveforms. Per Daigle, "…the biggest disadvantage of Doppler waveforms is the high skill requirement. With poor technique, waveforms can be made to appear abnormal on an otherwise normal individual. Also, the transducer might be over the wrong artery."

The protocol is basically:

- Obtain ABIs and PVR waveforms at the ankles
- If ankle pressures cannot be obtained due to calcified vessels, obtain great toe pressures and calculate the TBI.
- Apply blood pressure cuffs to the calf (below knee) and thigh (above knee) as well and obtain PVR waveforms at those locations. (Note that if the ABI and ankle PVRs are normal it should not be necessary to obtain the PVRs at the more proximal levels as they should be normal as well – although this would mean that reimbursement would be less because you are only performing a single level exam.)

With newer equipment capable of sequentially selecting the cuff for the PVR and automatically obtaining a PVR waveform, this segmental test can be done in just an additional few minutes more than the single level exam.