

Explanation of Suggested Revisions to the IAC Vascular Testing for Venous Testing

The IAC Vascular Testing Board of Directors has approved additional changes to the venous testing *Standards*. While many of the changes simply clarify techniques or document elements that are already common practice, the following explains the reasoning for these revisions.

The patient position standard now denotes “standing is required if not constrained by the patient’s physical condition.” Hemodynamic principles state that lower extremity blood vessels are under the highest pressures in a standing position. It is the pressure gradient across the valves that will produce the retrograde flow measured on the spectral Doppler waveform. Experts in venous testing advocate a standing patient position during an ultrasound examination for venous insufficiency. The scientific literature providing ultrasound criteria for venous insufficiency was obtained with subjects in a standing position, as an upright position more closely approximates the physiologic conditions in which reflux occurs. Some reflux testing has been performed using alternate patient positions such as reverse Trendelenburg. There are no studies to date which examine these alternate positions nor provide scientifically validated criteria in positions other than standing.

Additional changes in the venous *Standards* reflect common practices that are already used in most vascular laboratories or simply provide clarification or standardization for particular techniques. These include:

- During the evaluation for incompetent perforating veins, diameter measurements must be obtained at the level where the perforating vein crosses the deep fascia. It is this measurement which has been examined in multiple prior papers as being the most clinically relevant.
- Provocative maneuvers to assess reflux must be done with manual distal compression or an automated cuff device. Valsalva maneuvers may be used when assessing the common femoral vein or saphenofemoral junction. The pressure gradients supplied by the Valsalva maneuver dissipate as one moves distally in the leg. Thus, the Valsalva maneuver is most effective in the proximal regions of the leg.
- Normal venous Doppler flow (towards the heart) should be displayed below the baseline on the spectral display prior to augmentation to validate flow reversal. The flow reversal thus should be displayed above the baseline on the spectral display. This just puts into the standard the appropriate display which is already almost universally employed.
- Superficial reflux should be traced to its source whenever possible. Again, this is a practice already commonplace in most laboratories. The same standard continues to state sources of pelvic reflux must be documented “as required by the protocol.” Not all laboratories assess patients for pelvic reflux, but if this is conducted and as required by internal laboratory protocols, the source of the reflux should be determined.
- Symptomatic superficial veins are required to be examined and if thrombus is observed, additional details should be documented. This documentation should include the specific names of veins involved, notation of involved tributaries, length of thrombus and distance from junctions with the deep system. This documentation is important in determining the appropriate treatment for superficial thrombus and again is often already part of many laboratory protocols.
- In the presence of common femoral vein thrombus or abnormal common femoral vein spectral Doppler waveforms, the examination of the iliac venous system should be included. This should be done to determine the presence of more proximal disease which will impact patient management. This is not a required protocol component but is suggested that laboratories should include this area for evaluation.
- Compression images of the proximal and distal femoral vein segments have been added to the levels required for confirmation of venous patency during a reflux examination.
- If the anterior accessory saphenous vein is visualized, the *Standards* now include this as part of the spectral Doppler waveform and diameter documentation. This is another component that is commonly part of most vascular laboratory protocols for assessment of reflux.
- In patients with active or healed venous ulcers, the area near the ulcer must be examined for perforating vein reflux. This is also already commonly performed in the specific subset of patients.

While there are many proposed changes to the IAC Vascular Testing *Standards*, the Board of Directors hopes that the additional information described above helps to clarify any questions regarding the changes.