ABI Examinations with simpleABI PVR Systems

Please Read the User Manual first: This is a quick reference guide

Contraindications: Do not perform the exam on someone suspected of having acute deep venous thrombosis, and do not take an arm pressure in an arm with a shunt or dialysis graft.

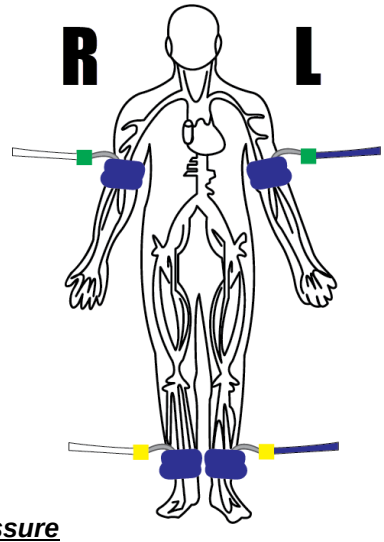
Background: The ABI examination is performed to determine peripheral arterial disease. By comparing the systolic pressures in the arms and legs it can be determined if there is an occlusion in the peripheral arteries. This is often a precursor to larger cardiovascular disease. The patient is supine and rested in a warm room.

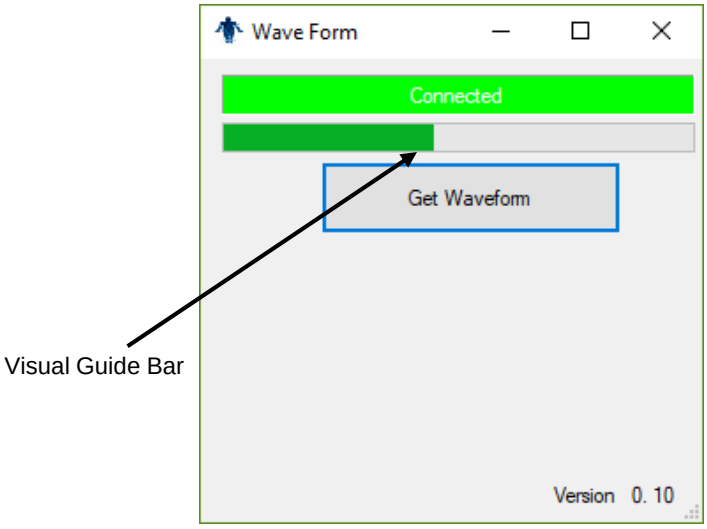
The ABI Procedure

Setting up

Opening the exam On the computer desktop, double click the simpleABI icon. When the program opens select *File→New→New ABI Report*. The report will open and you can enter patient information, risk factors, symptoms, ICD codes, etc.

Attaching cuffs Wrap appropriate cuffs at each site. The simpleABI PVR systems use a single blue tube that is moved from site to site during the exam. The blue tube goes to cuffs, Use 'T' connector to attach aneroid and blue tubing to PVR hardware.





Brachial Pressure

1. Begin with the right brachial. Place the Doppler probe at a 45 degree angle to the skin over the radial or brachial artery. Use plenty of gel and slowly move the probe laterally until the best signal is obtained.
2. Using the handheld aneroid, inflate the cuff until you no longer hear the signal - continue for an additional 10-20 mmHg.
3. The thumb button on the aneroid is a variable release mechanism – i.e. the more you depress the button the faster the deflation rate. Using the thumb release, deflate at the suggested rate of 2mmHg/second (10mmHg for every 5 seconds may be slightly easier to monitor)
4. When you hear the Doppler signal return, note the pressure from the aneroid. Enter that pressure into the right brachial field on the exam.

Ankle Pressures

1. Press tab or use the cursor to move to the Dorsalis Pedis field. Find the arterial signal using the Doppler probe on the dorsalis pedis artery on top of the foot. Obtain the arterial pressure in the same manner you did on the arm. (Using the aneroid, inflate until occlusion +10-20mmHg, release at 2mmHg/second, note pressure when Doppler signal returns)
2. Press tab or use the cursor to move to the Posterior Tibial (PT) field. Find the Doppler signal on the posterior tibial artery. Obtain the arterial pressure in the same manner as other sites.

Waveform

1. Press the 'PVR' button on screen and a pop-up visual guide will appear. This pop-up guides you to correctly inflate the cuff for waveform acquisition. Inflate the cuff to roughly 80mmHg and deflate to roughly 65mmHg. You may take a proper waveform as long as you can see the end of the visual guide bar, as shown above (i.e. pressure is between 55-75mmHg and the visual guide bar is neither completely empty nor completely full)

Left Side

1. Repeat the above pressures and waveform sequence for the left side of the patient.

When finished, save or print the exam.

Helpful Hints

Cuff techniques:

- Wrap the cuff snugly.
- Cuffs may be placed over thin clothing or stockings.
- Don't let the patient try to help by lifting their leg - as they relax their muscles the cuff will become loose.
- Placing a pillow under the patients heels may aid the examination.
- Have the patient remain as still and quiet as possible while taking the waveforms.
- If the patient has tremors that interfere with the waveform, having them perform a few dorsiflexions with their toes before taking the waveform may help.

Doppler techniques:

- Hold the probe like you would a pencil, close to the end.
- Move the probe back and forth laterally over the artery to obtain the best signal.
- Support the probe with your hand resting on the patient so that the probe does not move as the cuff is inflated and deflated.
    - One of the keys to a successful exam is being able to keep the probe in place as you inflate and deflate the cuffs.
    - If the probe moves, you may not be able to hear the Doppler sounds return and may have to repeat the inflation.

Exam hints:

- If the ankle pressure is high, above 200 mmHg, this indicates that the artery may be incompressible due to calcification.
    - Proceeding to an ABI with Toe, may help your diagnosis.

simpleABI PVR System Setup

Dorsalis Pedis

Posterior Tibial