Ankle-Brachial Index Test (ABI)

The Ankle-Brachial index is a test used to find peripheral vascular disease (PVD). PVD is also known as peripheral arterial disease (PAD). PVD is a blocking or hardening of the arteries anywhere within the circulatory system beyond the heart. The cause is cholesterol deposits within the blood vessels (*atherosclerosis*). These deposits cause arteries to grow more narrow. The delivery of oxygen to tissues is impaired as a result. This can cause muscle pain and fatigue. This is called claudication.

PVD means there may **also** be build up of cholesterol in the:

- Heart, increasing the risk for heart attacks.
- Brain, increasing the risk for strokes.

This test measures the blood flow in the arms and legs. The test also determines if blood vessels are clogged by cholesterol deposits.

PROCEDURE

The test is done while you are lying down and resting. The arm (*brachial*) and ankle systolic pressure are measured. The measurements are taken two times on both sides. Systolic pressure is the pressure within the arteries when the heart pumps. The highest systolic pressure of the ankle is then divided by the highest arm systolic pressure. The result is the ankle-brachial pressure ratio or ABI. There should be a difference of less than 10 mm Hg. Sometimes this test is repeated after five minutes of exercising on a treadmill.

You may have leg pain during the treadmill portion of the test if you suffer from PAD. If the index number drops after exercise, this may show that PAD is present.

YOUR RESULTS

- ABI's above 0.95 are normal. Abnormal values are those less than 0.95.
- The majority of patients with claudication have ABI's ranging from 0.3 to 0.9.
- Leg pain at rest or severe arterial occlusive disease usually occurs with an ABI lower than 0.50.
- Indexes lower than 0.20 are associated with ischemic or gangrenous extremities. These conditions severely hinder oxygen delivery to arms and legs.
- In patients with diabetes and heavily calcified vessels, the arteries are often too hard to be squeezed. This results in a falsely elevated ankle pressure. Toe pressure in these patients may be a better indicator of blood flow.
- If the ABI is positive, further evaluation in the form of angiography may be needed. Angiography may determine the location and severity of disease.
- The ABI test is a simple and inexpensive means of finding arterial vascular disease.

Document Released: 12/22/2005 Document Re-Released: 09/26/2009
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