Vascular Disease Testing and Treatment

If you have poor circulation, there are many tests that can determine where the problem is and the extent of the problem. Tests will be based on your body system and whether it involves veins, arteries or the lymph system.

Testing

Arterial Blood Flow
Studies of the Arms and Legs

Recordings are taken to measure if blood flow is normal or abnormal. These studies are done using a Doppler along with blood pressure cuffs to measure blood pressures in several parts of the legs. The Doppler is very sensitive to movement of blood. It is commonly used when it is difficult to feel a pulse because of blockages in the arteries.

Note: Veins and arteries are on both sides of the body but are only shown in the picture on one side to more easily see the vessels.

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Learn more about your health care.

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- Blood pressures cuffs are placed around the thigh, below the knee, and around the ankle, and blood pressures are measured. This is to check different segments of blood pressure. You may hear the term segmental pressures.

- Blood pressures may also be compared between the ankle or leg and the arms. This is to check for possible differences in blood pressure. You may hear the term ankle brachial index or ABI.

- Your doctor may use the term “ischemia” which means lack of oxygen to explain the amount of blockage in the arms or legs.

**Carotid Artery Duplex Scan**

A duplex scan is a test that is a combination between an ultrasound and a Doppler, where a picture of the blood flow through your carotid artery is taken. Doppler uses a small probe that the technician moves up and down on your neck where the carotid arteries are located. The probe lets off the ultrasound waves and measures the speed of the blood flow. It is a painless procedure.

**Angiogram (Angiography)**

An angiogram is used to locate the areas in the blood vessels that are blocked, so the doctor can determine if surgery needs to be done. The procedure involves putting a small tube, called a catheter, into a blood vessel in the leg or upper arm. When the catheter is in place, a small amount of dye is injected into the blood vessel. This allows the flow of blood through the vessel to become visible while an x-ray camera takes pictures. The angiogram may be done at the same time as a Magnetic Resonance Imaging scan (MRI).

**Other Tests**

Based on your risk factors, other tests may be needed to check your health before deciding on a treatment plan.
Treatment
You may surgery and non-surgery treatments as part of your care.

Surgery
Surgery may be needed to clear blood vessels of plaque or to prevent the risk of a heart attack or stroke. This is a list of the more common treatments for vascular disease.

Angioplasty with Stent
This is used to treat peripheral artery disease (PAD), peripheral vascular disease (PVD) and renal artery disease

This is a procedure where a catheter with a small balloon attached to the end of it is put into a blood vessel. With the use of x-ray, the balloon is threaded to the area of the blocked vessel. The balloon is inflated to dilate or open the artery. An expandable mesh-like structure called a stent is placed to keep the blood vessel open by pushing against the inside of the artery wall.

Thrombectomy and Thrombolytic Therapy
A thrombectomy is done only when vascular disease is due to a recent blood clot or deep vein thrombosis (DVT).

A thrombectomy involves inserting a balloon catheter above the affected area in the vessel and the clot is pulled away from that area and removed from the artery.

Medicine is also is given intravenously (IV) through a when the artery has a recent blood clot. Thrombolytic medicines are usually used in combination with other treatments such as angioplasty or surgery.

Bypass Grafts
When there is more serious blockage of an artery, a bypass graft may be needed. A bypass creates a detour around a blocked artery. A vein from the same leg or an artificial material is used as the graft to bypass around the blocked artery. This surgery can treat the signs of avascular disease but does not cure the underlying condition of having plaque or hardening of the arteries.

Carotid Endarterectomy
An endarterectomy is a procedure where the plaque, which has built up in the carotid arteries in the neck, is removed during surgery. For more information, read the handout on Carotid Artery Disease Treatment.
**Aneurism Repair**

An aneurysm is an enlargement or weakening of part of the artery wall. Surgery is used to replace that part of the artery that has the aneurysm with a graft of artificial material.

**Amputation**

Amputation is used only after all other treatments have failed. It may be needed if dead tissue (gangrene) is extensive, if there is infection from tissue has spread into the bone (osteomyelitis), or all major arteries in the leg(s) are completely blocked making it impossible to do a bypass surgery.

**Managing Your Condition**

Your doctor or health care team may recommend one or more of these treatment options:

- **Medicine:** To reduce the chance of blood clots in the leg or improve blood flow. Medicine may also be needed to lower cholesterol level or high blood pressure.
- **Pain Control:** If you have pain from vascular disease, read the handout on [Vascular Disease and Claudication](#).
- **Control blood sugar** if you have diabetes.
- **Increased exercise:** Exercise is the best non-surgery treatment for blocked blood vessels. It helps to increase blood flow and oxygen to the body. It also reduces other signs of vascular disease.
- **Changes in nutrition:** Your doctor may recommend a dietitian to help you with improvements in your diet.
- **Quitting tobacco:** If you need help to stop using tobacco, ask for help or call 1 (800) 784-8669. For more information, read the handout on [Central Ohio Tobacco Cessation Services](#).
- **Skin Care:** If vascular disease affects your feet, it is important to check your legs, heels, and feet every day for signs of poor blood flow. For more information, read the handout on [Vascular Disease and Skin Care](#).

Talk to your doctor or others on your health care team if you have questions. You may request more written information from the Library for Health Information at (614) 293-3707 or email: health-info@osu.edu.