**Nerve damage following Phlebotomy**

Injuries to nerves during routine venipuncture can be painful for both the patient and the phlebotomist. Patient pain may last for a long time and the phlebotomist may have to answer in a court of law as to what happened to the patient. Phlebotomist need to know how nerve damage is caused, how to prevent it and the symptoms of nerve damage. Serious permanent damage maybe cause by venipuncture, including on-going pain, lack of grip strength, the loss of use of the arm resulting in a limited range of motion. Treatment for such injuries can include long term pain management and physical therapy in the hopes that use of the arm will return.

Nerve damage can appear in one of two types of injuries. The first of these is a Nerve Compression Injury. This is caused either by a hematoma in subcutaneous tissue, due to the infiltration of intravenous fluid, or when a tourniquet is left on too long or is applied too tightly. The symptoms of this type of injury are swelling and numbness usually 24-96 hours after the blood collection.

The second type of nerve damage is from a nicked nerve. This injury is causes immediate symptoms include numbness, a feeling of pins and needles along the area of the needlestick or a feeling like an electric shock running up and down the arm. Nerve nicking is an important concern because a major nerve lies near every major vein in the arm. Nerve nicking is often associated when a phlebotomist probes for a vein.

Prevention of these injuries includes:

* Choose an acceptable site, Median Cubital is the first choice
* Whenever possible use prominent veins including median cubital, basilica, and cephalic
* If the arm veins are not available, then consider using the dorsal hand veins
* Avoid veins in the wrist
* Verify the size and the direction of the vein before starting the phlebotomy procedure
* If a vein rolls under the skin, be sure to properly anchor the vein before inserting the needle
* DO NOT PROBE
* Do not perform an excessive number of attempts(no more than 3 before getting help)
* Retract the skin and stabilize the vein when performing phlebotomy
* Insert the needle into the vein at an approximately 15 degree angle(no more than 30 degrees)
* Pay attention to the patient and Know when to stop

To avoid nerve damage do not use the inner anticubital if at all possible. Remember that not only is there a nerve near this vein but also an artery. Do not probe, withdraw the needle and try again.

**Signs and Symptoms of Nerve injury**:

* Sharp acute pain at the venipuncture site
* Pain sensations that may fluctuate according to needle position
* The patient describes a sensation of “pins and needles” in the arm where phlebotomy was performed
* The patient states he or she has a sensation of an “electric shock” in the affected arm
* Pain moving up or down the arm
* Pain or tingling in the hand or fingers
* The patient screams during needle entry

If the patient complains of pain, then stop immediately and withdraw the needle.

If you suspect that a patient has suffered a nerve injury, it is important to follow these steps:

1. Application of a warm compress to the affected area may help.
2. Notify the CLA or the supervisor.
3. Document the occurrence on the face sheet of the patient’s registration.
4. If the patient continues to complain of pain, calls the lab later to complain of pain or returns to the lab to complain of pain/discomfort, notify a supervisor. The supervisor will offer to have the patient seen in Urgent Care for evaluation (this will be done at no charge to the patient).
5. Apply adequate pressure for a long enough time period so that a hematoma does not form.

**References:**

1. Patton M, Addressing Nerve Damage to avoid painful injuries or permanent damage, Advance for Medical Laboratory
2. WHO guideline on drawing blood: best practices in phlebotomy
3. Paxton A, Blueprint for blue-penciling phlebotomy errors, CAP Today, September 2010.