Electromyography and Nerve Conduction Tests (95860-95904)

CPT® Assistant.

September 2006; Volume 16: Issue 9

Coding Communication:Electromyography and Nerve Conduction Tests (95860-95904)

Needle electromyographic (EMG) procedures commonly include insertion of a needle electrode into skeletal muscle to measure electrical activity and assess physiologic function. Percutaneous, extracellular needle electrodes are placed into a selected muscle group. Testing is performed with the muscle at rest, with a mild voluntary contraction, and with maximal muscle contraction (where recruitment pattern and interference are noted). Unlike nerve conduction studies, EMG does not involve external electrical stimulation. Muscle action potentials--normal and abnormal--are physiologically generated. In various diseases of the motor system, the following typical electrical abnormalities may be present:

- Increased motor activity
- Abnormal motor unit potentials
- Fibrillations
- Fasciculations
- Positive sharp waves
- Decreased recruitment pattern.

EMG has been performed in a wide variety of clinical situations to evaluate the patient with clinical features of primary muscle disease: symmetric and proximal weakness, muscle atrophy, and intact sensory system. Examples include muscular dystrophy, glycogen storage disease, myotonia, inflammatory myopathies (systemic lupus, sarcoidosis, infectious myopathies), and alcoholic myopathies. EMG is less useful in restless leg syndrome, transient, self-resolving muscle cramps, and routine cases of fibromyalgia.

It should be noted that any qualified physician or, as appropriate, qualified health care professional may use any code in the CPT codebook. The performance of the services is regulated by state practice acts for the various professions and is not determined by the American Medical Association (AMA) or the CPT codebook.

Needle Electromyography

The CPT code set contains needle electromyographic procedures (95860-95872) as well as needle electromyographic procedures used for guidance in conjunction with electrical stimulation with chemodenervation (95873) and in conjunction with chemodenervation (95874).

Needle EMG of the extremities are reported with CPT codes 95860-95864 and are differentiated by either one, two, three, or four extremities. This code set may include the related paraspinal areas, as indicated in the code descriptor(s).

Two new codes were established in 2006 for reporting needle electromyography of the larynx and of the diaphragm, CPT code *95865, Needle electromyography; larynx*, and CPT code *95866, Needle electromyography, hemidiaphragm*. Electromyography of the larynx is important for identifying and grading the severity of disorders of nerve and muscle that affect laryngeal muscles, including injury to individual nerves, neurogenic conditions such as motor neuron diseases and muscle disorders such as inflammatory myopathies and muscular dystrophies. It is also used during intraoperative monitoring for certain procedures done in and around the larynx.

Clinical Example (95865)

A 36-year-old man complains of a raspy voice following prolonged intubation.

Description of Procedure (95865)

The needle electrode is inserted through the skin and the cricothyroid membrane until muscle activity is located. Placement can be confirmed by phonation of highpitched vowels. Activation of neck strap muscles without phonation should produce no EMG activity. The muscles being studied are quite small and swallowing or coughing may displace the needle. Localization is often prolonged, particularly in circumstances of vocal fold paresis or paralysis because phonation to assist localization may not be possible. When the correct muscles are identified, electrodiagnostic properties of the muscle are reviewed including insertion activity, spontaneous activity, and voluntary activity. Motor unit action potentials may be analyzed according to morphology, amplitude, frequency, and recruitment. After the appropriate muscles have been localized and evaluated, the needle is withdrawn, and direct pressure is applied to prevent bleeding.

Needle electromyography, hemidiaphragm, is reported with code 95866. This test is a diagnostic tool used to evaluate respiratory muscle disorders and, less frequently, for intraoperative monitoring.

Clinical Example (95866)

A 59-year-old woman with a 50-pack year history of smoking develops weakness of intrinsic hand muscles bilaterally, fasciculations of upper and lower limb muscles, and shortness

of breath.

Description of Procedure (95866)

Ground and reference electrodes are attached. Localization is performed by depressing the patient's abdomen to locate the inferior border of the ninth rib. The EMG needle is inserted at the paramidclavicular line under and beneath the ninth rib. The needle is advanced through the skin and abdominal fascia, through the abdominal wall muscles into the costal insertion of the diaphragm where muscle electrical activity is encountered. The patient may need to temporarily be taken off of the ventilator if he or she is intubated. Electrical activity of the muscle is evaluated both with breathing and during silent periods. In some instances, particularly when the patient is comatose, an assistant may need to stimulate the phrenic nerve percutaneously to activate motor unit potentials. After the data is collected and analyzed, the needle is withdrawn. In some circumstances, a postprocedure chest X ray may be desired to exclude pneumothorax or pneumoperitoneum.

Two add-on codes, 95873 and 95874, are used to report needle EMG guidance with chemodenervation and electrical stimulation guidance with chemodenervation. Prior to the chemodenervation procedure, it is sometimes necessary to perform a more precise localization for needle placement before the chemical is injected. Therefore, the physician may perform electrical stimulation or needle EMG to achieve this localization. Code 95873 describes electrical stimulation and 95874 describes needle EMG. As noted in the parenthetical note following this code set, codes 95873 and 95874 are used in conjunction with codes 64612-64614 and must be performed by the same physician.

Clinical Example (95873)

A 50-year-old man presents with a 2-year history of progressive task-specific dystonia associated with writer's cramp, inability to sign checks or to hand-write notes.

Description of Procedure (95873)

The physician attaches the stimulating needle electrode and hypodermic needle containing botulinum toxin to the stimulating apparatus. The targeted forearm muscles are identified by anatomical surface markers and the needle is advanced through the skin. The stimulating apparatus is activated at low frequency and relatively higher intensity, and the needle is relocated until muscle contraction is seen or palpated by the physician. The stimulus is then decreased and the needle position is adjusted to achieve the maximal muscle contraction at that intensity. This procedure is repeated until a maximal muscle contraction is achieved at a minimal stimulus intensity. This procedure ensures that the needle tip is in the correct small muscle and is also closest to the motor endplate so the minimum amount of toxin achieves the maximum clinical response. Toxin is injected cautiously to avoid any movement of the needle tip. The needle is withdrawn and reinserted into different muscles and the localization procedure is repeated until all of the targeted muscle groups are injected.

Clinical Example (95874)

A 60-year-old man presents with rotational cervical dystonia (chin to right shoulder).

Description of Procedure (95874)

Prior to injecting a muscle with botulinum toxin, the specific muscle must be precisely localized, which can be initially done based on anatomical knowledge, but in many cases further physiologic information is required to determine the specific muscle to be injected. After attaching a recording and injection hypodermic, the needle is advanced into the body of the sternocleidomastoid and a small amount of the botulinum toxin is injected. The needle is advanced further to spread the toxin through this long muscle, and the presence of persistent EMG motor unit activity guarantees that the needle is still in the muscle and has not perforated into nearby vessels or has moved into a nonspastic muscle. The needle is inserted lower in the muscle and the process repeated. Following this, the needle is inserted into the right splenius capitis. The first muscle entered is the trapezius, which is electrically silent, and the needle is advanced until active motor unit potentials from the splenius capitis are identified and injections are made. The needle is advanced further through the substance of the electrically quiet semispinalis capitis. As it is advanced further, distant motor units become apparent. The needle, now at 35 mm of depth, encounters an area of no insertional activity, but the distant motor unit activity is louder. With a small additional push, the needle enters the oblique capitis inferioris muscle as confirmed by the rise time and amplitude of the motor unit potentials, and an additional injection is made. Similar injections are carried out in the right posterior scalene muscle and left semispinalis capitis. Careful notation is made of the muscles involved, their degree of motor unit activity, and the specific location of the injections.

Nerve Conduction Studies

Nerve conduction studies (95900-95904) commonly include electrical stimulation of a peripheral nerve and recording of the evoked action potentials. Nerve conduction studies may be performed on either sensory nerves or mixed (sensorimotor) nerves. Following percutaneous electrical stimulation of an axon, a physiologic action potential (AP) is generated. This signal propagates down the axon where it is detected at a distant site by surface electrodes. If a motor nerve is tested, the action potential of the corresponding muscle is recorded. If a sensory nerve is examined, the action potential of the identical nerve is recorded. In either case, the evoked action potential is displayed on an oscilloscope where amplitude (in millivolts) and duration (in milliseconds) are read directly. From this, several important parameters are calculated including the latency period (the time intervals between stimulus presentation and initiation of action potential) and maximum nerve conduction velocity (speed of impulse propagation). This technique provides objective information regarding nerve function not readily obtained from conventional electromyography. Nerve conduction velocity (NCV) testing is considered the procedure of choice in evaluating the patient with peripheral nerve dysfunction.

NCV testing is useful in the following situations:

- To confirm the presence of a sensory deficit in an objective manner especially when the physical examination is inconclusive or malignancy is suspected

- To evaluate the patient with diffuse polyneuropathy to determine the severity and extent of disease and distinguishing demyelinating from axonal processes
- To assess the patient with muscle weakness in order to distinguish a naturopathic process from primary muscle disease
- To assess nerve entrapment syndromes (mononeuropathies) such as carpal tunnel syndrome; determine the lesion site, differentiating entrapment from diffuse neuropathy; assess severity, and evaluate response to surgical interventions

It should be noted that CPT codes 95900, 95903, and/or 95904 are reported only once when multiple sites on the same nerve are stimulated or recorded. Specific NCV tests used as a diagnostic tool should be chosen for relevance to the problem(s) presented by the patient. Pre-set protocols automatically testing a large number of nerves are not appropriate. NCV testing also should allow for stimulating, recording, or both, at either proximal or distal sites as needed to assess the problem presented by the patient. EMG testing should be available for use as needed because many patients receiving NCV testing also will need EMG testing in order to assist with the determination of the diagnosis.

Electromyography and nerve conduction tests are important diagnostic tools to aid in the treatment of patients with various muscular diseases. The addition of four new codes in 2006 reflects the ongoing evolution of new studies available to providers to aid in the practice of medicine.

Sources

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