

CONNECTICUT VALLEY HOSPITAL

Physical Therapy Services

PT Equipment Procedure # 25

Re: Electrical Stimulation

Date: March 20, 2000

Revised: October 19, 2008

Description:

Electrical stimulation is the use of electricity to obtain desired physiologic responses for the assessment or care of diseases or injuries. It involves the use of current electricity to stimulate wound healing, stimulate motor nerves and muscle tissue to evoke muscle contraction, stimulate sensory nerves for pain relief, provide vasomotor stimulation to improve blood flow, and administer medicinal ions into the skin to soften scar tissue or improve circulation. An electrical current which varies sufficiently in intensity can depolarize a motor nerve and cause contraction of the muscles which it innervates. In the absence of the motor nerve (denervation), the muscle fibers can be stimulated directly by an appropriate current.

Indications:

1. For temporarily relaxing muscle spasms.
2. For increasing localized circulation.
3. For re-educating muscles that have atrophied from disuse.
4. For preventing disuse atrophy in post-injury conditions.
5. For preventing post-surgical phlebo-thrombosis through stimulation of calf muscles.
6. For reduction of acute and chronic pain.
7. For stimulating wound healing.

Contraindications:

1. This device should not be used on clients with cardiac pacemakers.
2. This device should not be used over the carotid sinus area.
3. This device should not be used to relieve pain syndromes until etiology has been established.
4. This device should not be used over a pregnant uterus.
5. This device should not be used over or near cancerous malignancy.

Precautions:

1. Read, understand and practice the safety and operating instructions of the machine being used.
2. Be sure to use electrode pads that are clean and firmly attached to patient.
3. When changing parameters of stimulation such as Pulse Rate, Polarity, Surge On, Surge Off, Continuous Surge or Reciprocate, be sure to turn intensity down first. After Function Selector Switch is changed, the Intensity Control must be reset.

4. Remember that most patients are totally unfamiliar with electrical stimulation and some of them will have anxieties during the initial sensations. If patient is overly fearful, either discontinue first treatment or set intensity at a level where patient just feels the current. Usually low amplitude stimulation results in gradually increased tolerance.

Operating Instructions:

The following forms of muscle contractions are obtainable:

1. Tetanic contraction
2. Surge tetanic contraction
3. Twitch contractions
4. Reciprocate contractions of two or more muscles

Also, the following types of pad placements can be used:

1. Monopolar placement
2. Bipolar placement
3. Specific point placement
4. Multiple electrode placement

A Monopolar type treatment involves the use of a large dispersive pad and one or more small active pads. The large dispersive pad serves as the opposite pad where no stimulation is needed and where a splash-over effect and group muscle contractions are required from the active pads only.

The Bipolar treatment involves pads of equal size placed at each end of a muscle and is used where specific rather than group muscle contractions are required; such as in motor point stimulation or re-education of an individual muscle.

Specific point placement involves using any one of several hand probe electrodes for stimulation of a specific motor point, trigger point, or other body point location.

Multiple Electrode Placements involves the use of two or four smaller 3" diameter pads. The surface area ratio of active electrodes to dispersive electrode should be no more than one to four.

Procedure:

1. Dial the Function Selector Switch to the desired setting: either Probe, Continuous, Surge, Reciprocate 2.5 secs., Reciprocate 5 secs., or Reciprocate 10 secs.
2. Set the polarity switch to Positive (+) or Negative (-).
3. Dial the Pulses/Sec to the determined rate.
4. Attach the dispersive pad to the patient.
5. Attach the active pad or pads to the client unless you are going to use the probe with the roller electrodes. If you are using the roller electrodes use a conductive gel on the area of the patient where high voltage is going to be used.

6. Turn Treatment Time Knob to the determined total time of the treatment. Intensity will remain at zero if treatment timer is not turned on.
7. Set pad controls to 100%
8. Turn intensity control counterclockwise to below Min to the Reset position where a click will take place. After this, slowly turn clockwise until patient feels sensation, and continue to desired level of tolerance
9. If patient has more sensory perception of electrical stimulation in one active electrode pad or pads over the others, or if a stronger muscle contraction occurs under one electrode pad or pads and not the other, then the Pad Controls can be used to readjust relative strengths. The active pads are color coded for easy identification. The Pad Controls will adjust the relative intensity of each pad individually.
10. When the treatment is complete, remove the pads and return the probe (if used) to its holder. Turn back the intensity control to reset.
11. Clean Electric Stimulation Machine as per Physical Therapy Cleaning Procedures.
12. Each Electric Stimulation Machine receives Biomedical Testing annually in January of each year.