Short question Electrotherapy-2

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Erythema
Erythema, or redness of the skin resulting from dilation of superficial blood vessels caused by the release of histamines, is one of the most common and obvious effects of exposure to UV radiation.
Damage to cells causes release of histamine like substance from the epidermis and the superficial dermis. A gradual diffusion of this chemical takes place until sufficient chemical has accumulated around the blood vessels in the skin to make them dilate. The greater the quantity of histamine like substance, the sooner
and fiercer is the reaction. The erythema reaction is used to classify doses of ultraviolet rays given to the patients. The erythema is produced by wavelengths shorter than 315 nm.

Ohm's law
Ohm's law states that the current flowing through a metallic conductor is directly proportional to the potential difference across its ends and inversely proportional to the resistance, provided that all physical conditions remain constant.

Chronaxie
The chronaxie is the duration of shortest impulse that will produce a response with a current of double the rheobase. The chronaxie of the innervated muscle is appreciably less than that of denervated muscle, the former being less and the latter more than 1 ms if the constant-voltage stimulator is used. With the constant-current stimulator the values are higher, but bear a similar relationship to each other. As practically seen the chronaxie of a muscle with 25% of its fibers innervated would be the same as that of a complete denervated muscle. Thus, chronaxie is not a satisfactory method of testing electrical reactions as partial denervation is not clearly shown.

Test dose
Also called as Minimal erythemal dose (MED), It is the smallest dose producing erythema within 8 hours after exposure that disappears within 24 hours after exposure

Theraktin tunnel
The Theraktin tunnel is a semi cylindrical framework in which four fluorescent tubes are mounted in its own reflector in such a way that an even irradiation of a patient is achieved. Normally, fluorescent tubes with a spectrum of 280–400 nm are used.

Neurotmesis
In neurotmesis, there is disruption of neural tube along with axonal damage. A nerve conduction velocity test cannot be performed because no evoked response can be obtained. In electromyography spontaneous potential will appear with the muscle at rest and no activity is produced with the attempted voluntary contraction.

Rheobase
The rheobase is the smallest current that produces a muscle contraction if the stimulus is of infinite duration.

Dangers of Microwave Diathermy

Burns, Danger when Metal in the tissue, Dangers to hearing aids or cardiac pacemakers, Danger to Eyes, Dangerous for patients with Circulatory defects, Dengerous when applied duing Menstruation, Dengrous during Pregnancy, Tumors, Deep X-ray or cobalt therapy,Patient at particular risk

Diode valve

Diode consist of an evacuated glass tube into which are sealed two separate electrodes. The cathode or filament, is constructed so that as the current flows through it a space charge of electrons develops around it as a result of the thermal effects of the current. The anode or the plate is the other electrode. When positive it, attracts electron across the valve. The electron can pass only from cathode to anode, as there is no space charge around the cold anode. Consequently, the valve is the device which allows the flow of electron only in one direction. In order to reduce the time lag prior to thermionic emission taking place, the cathode or filament may be heated by separate heating circuit. Or coated with thorium oxide which releases electrons at comparatively low temperature.

List physiological effects of Heat

HEMODYNAMIC EFFECTS: Vasodilation, NEUROMUSCULAR EFFECTS: Changes in Nerve Conduction Velocity and Firing Rate, Increased Pain Threshold, Changes in Muscle Strength, METABOLIC EFFECTS: Increased Metabolic Rate, ALTERED TISSUE EXTENSIBILITY: Increased Collagen Extensibility.