Iontophoresis

Electricity reduces the impedance of skin to current flow.
Local drug delivery through the skin can be facilitated with electricity.
“Charged” medication is placed in a buffered electrode.
Like charges repel, therefore, the medication “runs away” from the electrode and in the body through the skin. This is called “charge-charge repulsion.”

Iontophoresis

Describes the use of electrodes to deliver medication under the skin.
Once the electrode is applied to the skin, charged medication travels through skin pores.
Time for medication delivery is dependent on the charge, time of the treatment, and density of current.
Dosage (mA – min) for iontophoresis are based on intensity (milliampere) and treatment time (minutes).

Iontophoresis

Medication dosages are based on drug properties.
Typical dosages range from 40mA-min to 80 mA-min.
Most electrodes are manufactured to be consistent with 0.5 mA/cm² current density.
Treatment time will depend on the electrode properties and method of introducing current (e.g., commercial unit vs. self-contained patch, vs. Hybresis).
Most common agents used in PT include NSAIDS, steroid-derivatives, lidocaine, and acetic acid.

Iontophoresis

Most common adverse reaction is skin irritation due to increase in skin pH.
Some report pain/shocking sensation consistent with high skin impedance.
Medications delivered must be prescribed by a MD or PCP, then PT may deliver the treatment.

Iontophoresis

General application procedures
Identify treatment area.
Usually by palpation, depth of treatment is shallow.
Check skin for abrasions, clean with alcohol.
Fill appropriate electrode with medication (e.g., dexamethasone is (-), so would be filled on cathode (-).
Fill opposite electrode with normal saline.
Apply to skin, securing electrode by pressing edges of patch – no compression to conducting parts.
Depending on delivery method, introduce low current and calculate treatment time as needed based on targeted dose.

Types of Iontophoresis electrodes

Types of Iontophoresis electrodes
Phonophoresis

- Uses ultrasound to deliver medication under the skin
- Common medications are hydrocortisone, lidocaine, and dexamethasone
- Medications are mixed by a pharmacist into the coupling gel
- Research findings are inconsistent with true drug delivery to target tissue

Role of the PTA

- PT will indicate iontophoresis and approved medication in the plan of care
- PT may indicate target dose, or may delegate this to PTA depending on experience
- PT Aides may not dispense iontophoresis
- Check skin, inform patient of expectations, modify for comfort
- Document dosage, location, medication, consent
- Follow-up with patient next visit regarding treatment effects