Iontophoresis: Lab notes

I. Orientation to equipment and supplies for Iontophoresis

- Equipment - Dupel units by EMPI; cost is $500. Electrode cost to the clinic can be $6-8 each. Drug solution is another cost (often for the patient).

- Drug Solution: Dexamethasone Sodium Phosphate (0.4 % injectible grade); 0.2% is also OK to use. Some will dilute the 0.4% Dex by 50% using distilled water to make it 0.2%

- Understand the process of drawing drug solution into the needle-less syringe.

- Will only use one set of electrodes today, they are designed for single use; these electrodes CAN be used with other lonto devices (regardless of what the companies say; they only want you to use their devices with their electrodes).

II. Preparatory techniques and Procedures for iontophoresis with the Dupel unit.

- Dosage equation:  amplitude x duration (time) = mA·min; Range is 40-80 mA·min; Suggest doing 40-60 mA·min on most patients if time allows.

- Placement of inactive (non-medicinal) electrode: stay on same side of body, put at least 6 inches away over an area of soft tissue (proximal OR distal).

- Precautions on amplitude: make all adjustments in the first few minutes of the Rx; sensory accommodation will occur but the risk of skin damage does not lessen. (accommodation often can occur in 2 - 5 minutes)

- Normal descriptors from DC stimulation:  mild, tolerable itching, stinging, or mild burning

- Normal skin response:  pink to moderate redness; mottling (spotty red) is common; a few small, raised vesicles is OK. All this will last a few hours, at the most. Decrease the amplitude if skin is excessively red (subjective) or if you see many small vesicles. Check the skin periodically if the pt has never had iontophoresis; about every 5 minutes if the Rx.

- The patient needs to be still & comfortable during treatment.

- The DUPEL is fully automated: you program dosage, you set amplitude, unit calculates time needed for that dosage.

- Settings on the DUPEL:  S1 - set channel one dosage
  S2 - set channel two dosage
  P - Pause, also can Preset amplitude greater than the default amplitude of less than 1.0mA if desired (dangerous) ; use PAUSE when checking skin
  R - run the treatment, adjust amplitude during this mode; always be aware of what you are viewing on the screen (current, time, or dose); cannot view all 3 parameters on the screen at one time.

Procedures for application:

- Alcohol prep the skin

- Deliver the drug on the absorbent drug electrode using syringe; apply both electrodes & connect Channel 1; Dexamethasone is negative ion (-) so place the cathode (-) over the drug.

- Turn Dupel on and put in S1 position; channel 1 dosage needs to be at least 40 mA min; max of 80mA min. MAKE SURE THE AMPLITUDE KNOB IS TURNED ALL THE WAY DOWN.

- Put in “R” position; let amplitude automatically ramp up to it’s preset default (between .5 & 1.0mA); screen may change to “Dose” view when done ramping up; make sure screen is on “current view” then increase amplitude to patient’s tolerance over the next few minutes. Typically, a person will feel something under both electrodes but the drug electrode (smaller) is often stronger. Some people tolerate very well and hardly feel anything.

- The unit will monitor the Rx time; you can toggle the view on the screen dosage, amplitude and treatment time. Unit will automatically shut off when done. Any loose connections will sound an alarm - put it in P (pause), fix the problem, then run ( R) again.
Common Conditions Treated with Dexamethasone Iontophoresis

1. Myofascial Trigger Points
2. Tendonitis / Tenosynovitis or Myositis (general)
3. AC joint
4. SC joint
5. Costochondral sprain
6. Impingement syndrome (possibly too deep)
7. Biceps tendonitis (proximal or distal)
8. Triceps tendonitis (distal)
9. Olecranon bursitis
10. Lateral Epicondylitis
11. Medial Epicondylitis
12. Carpal Tunnel (-itis)
13. Wrist sprain
14. TMJ syndrome
15. Trochanteric bursitis
16. Patellar tendonitis
17. Pre-patellar or Infrapatellar bursitis
18. IT Band Friction syndrome
19. Plica syndrome
20. Hamstring (popliteal) tendonitis
21. Shin Splints (myositis/tendonitis/periostitis)
22. Achilles tendonitis
23. Calcaneal bursitis
24. Plantar fasciitis