

CONNECTIVE TISSUE DISORDERS

Phonophoresis represents a method to apply topical medications through the skin to treat soft tissue injuries and inflammatory conditions. The following study concluded that phonophoretic effect occurred with dexamethasone - "Phonophoresis and the absorption of dexamethasone in the presence of an occlusive dressing" (*J Athl Train.* 2007 Jul-Sep;42(3):349-54).

CONTEXT: Phonophoresis is purported to represent a method to apply topical medications through the skin to treat soft tissue injuries and inflammatory conditions. Few data are available to demonstrate the clinical effectiveness of the treatment.

OBJECTIVE: To determine the effect of ultrasound on the transcutaneous absorption of dexamethasone when occluded with a dressing.

DESIGN: Crossover design.

SETTING: University general clinical research center.

PATIENTS OR OTHER PARTICIPANTS: Ten healthy subjects (age = 29.2 +/- 8.8 years; height = 170.0 +/- 3.9 cm; mass = 67.5 +/- 18.4 kg).

INTERVENTION(S): Two grams of 0.33% dexamethasone cream were applied to a 10-cm (2) area on the anterior forearm. The drug was applied to the skin and occluded with a dressing for 30 minutes before the ultrasound and sham ultrasound treatments. The treatments were applied over the drug and occlusive dressing. Ultrasound treatments were delivered at an intensity of 1.0 W/cm (2) (50% pulsed) at an output frequency of 3 MHz for 5 minutes and compared with sham ultrasound treatments that were delivered at an intensity of 0.0 W/cm (2) (50% pulsed) at an output frequency of 3 MHz for 5 minutes. All subjects received both the ultrasound and sham treatments, and the order in which subjects received the treatments was counterbalanced.

MAIN OUTCOME MEASURE(S): Serum samples were drawn before treatment and immediately posttreatment and at 2, 4, 6, 8, and 10 hours posttreatment. Using high-performance liquid chromatography, we analyzed serum to determine dexamethasone concentrations.

RESULTS: A 2-way repeated-measures analysis of variance (condition x time) revealed a significant main effect for ultrasound treatment (P = .047). The rate of appearance and the total concentration of dexamethasone in the serum were greater in subjects after phonophoresis than after sham ultrasound. The sham group had only trace amounts of dexamethasone in the serum, indicating that drug absorption was negligible without the ultrasound energy. The effect size of the phonophoresis condition fell within a 95% confidence interval after the baseline measurement.

CONCLUSIONS: We found that a phonophoretic effect occurred with dexamethasone when its application saturated the skin. PMID: 18059989.

We have the ability to compound dexamethasone as an ultrasound gel for use in phonophoresis.

An example of how you might prescribe follows:

COMPOUNDED MEDICATION

Dexamethasone 0.4%
Phonophoresis Gel
 30ml
 Use as directed in office