

Tunica albuginea tissue analysis after electromotive drug administration.

[Levine LA](#), [Estrada CR](#), [Shou W](#), [Cole A](#).

Source

Department of Urology, Rush Medical College, Chicago, IL, USA.

Abstract

PURPOSE:

To minimize patient discomfort electromotive drug administration has been used as noninvasive transdermal therapy for Peyronie's disease. We directly measured the tissue concentration of verapamil after electromotive drug administration to investigate whether this treatment modality is an effective drug delivery system.

MATERIALS AND METHODS:

A total of 19 tunica albuginea samples from 16 men undergoing surgical treatment for Peyronie's disease were used for analysis. Of these 16 men 14 underwent electromotive drug administration, including 12 with 10 mg. verapamil and 2 with 10 mg. verapamil plus 0.05 mg. epinephrine. In 2 men partial plaque excision was performed and the tunica albuginea samples were directly injected with verapamil. Another 3 men who served as controls had no exposure to verapamil. Electromotive drug administration was performed at an output of 2 mA. for 20 minutes. Tissue analysis was done using liquid chromatography-tandem mass spectrometry.

RESULTS:

Control tunica albuginea samples showed a verapamil level that was undetectable up to 109 ng./gm. The 14 verapamil electromotive drug administration treated specimens demonstrated undetectable to 37,510 ng./gm. verapamil. Overall 10 of the 14 electromotive drug administration treated tunica albuginea specimens (71.5%) contained measurable levels of verapamil. Adding epinephrine to the drug solution did not appear to enhance drug delivery. The concentration of verapamil in the 2 direct verapamil injection tunica albuginea samples was 166,898 and 118,411 ng./gm., respectively. There were no surgery or electromotive drug administration related complications.

CONCLUSIONS:

Electromotive drug administration is a safe and noninvasive treatment modality. Verapamil was detected in 71.5% of tunica albuginea specimens after electromotive drug administration with a wide range of verapamil levels. To our knowledge whether these levels affect change in Peyronie's disease plaque, resulting in improvement in penile deformity, is unknown and requires further placebo controlled trials.

PMID:

12686831

[PubMed - indexed for MEDLINE]

MeSH Terms, Substances

MeSH Terms

- [Drug Administration Routes](#)
- [Electricity](#)
- [Epinephrine/administration & dosage](#)
- [Humans](#)
- [Male](#)
- [Penile Induration/surgery](#)
- [Penis/chemistry*](#)
- [Penis/metabolism](#)
- [Tissue Distribution](#)
- [Verapamil/administration & dosage*](#)
- [Verapamil/analysis*](#)
- [Verapamil/pharmacokinetics](#)

Substances

- [Epinephrine](#)
- [Verapamil](#)

LinkOut - more resources

Full Text Sources

- [Elsevier Science](#)
- [EBSCO](#)
- [OhioLINK Electronic Journal Center](#)
- [Ovid Technologies, Inc.](#)

- [Swets Information Services](#)

Molecular Biology Databases

- [EPINEPHRINE - HSDB](#)
- [VERAPAMIL HYDROCHLORIDE - HSDB](#)