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The Mortar & Pestle:

MD Custom Rx's monthly e-newsletter

November 2016

Greetings!

Thank you for entrusting in the compounding services at MD Custom Rx to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to continuing to be your medication problem solvers. Please don't ever hesitate to let us know how we can be of further assistance to you and your practice.

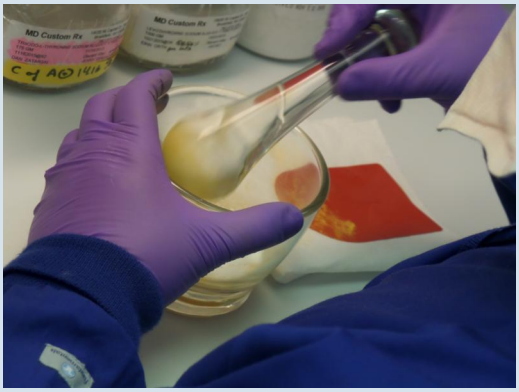
Sincerely,
Dan, Monica and John

Compounded Topical Analgesics for Chronic Pain

Analgesic medications compounded for topical use are gaining popularity for the management of chronic pain. The advantages of topical pain medications include reduction of systemic adverse effects, improved patient acceptance, fewer drug interactions, ease of dose determination, avoidance of first-pass metabolism, and direct access to the target site. Compounded topical medications often include a mixture of three or more drugs to achieve complementary effects at lower doses of each medication.

Dermatitis. 2016 Sep-Oct;27(5):263-71.

Mucoadhesive Polymer Blend for Application of Medications to Oral Mucosa



The efficacy of active pharmaceutical ingredients (API) in compounded medications for oral mucosa greatly depends on the composition of the base. Researchers assessed the safety, facilitation of cell migration, and mucoadhesive properties of a newly developed mucoadhesive polymer blend (MPB) which contains pullulan, tamarindus indica polysaccharide, and sodium hyaluronate. No cell death was observed when human oral keratinocyte and fibroblast cells were exposed to 1% MPB for 24 hours. Epithelial cells in a 3D buccal tissue model (EpiOral) were unaffected when exposed to 50% MPB for 20 hours. The expressions of cytokines IL1α and IL1β and cell proliferation markers in EpiOral tissue did not increase suggesting that MPB is neither an irritant nor a mitogen. Markers of apoptosis were not observed in cells exposed to MPB. MPB showed stronger mucoadhesion on the human EpiOral tissue model compared with a reference product. The research concluded that MPB can safely deliver an API within the oral mucosa, facilitate cell migration, and may increase drug efficacy through its strong mucoadhesive property.

AAPS PharmSciTech. 2016 Sep 19.

Topical Anesthetics for Chronic Pruritus

Chronic itch is a debilitating symptom that significant decreases patients' quality of life. Topical corticosteroids and antihistamines are commonly used for itch. However, these therapies are not long-term solutions for chronic pruritus due to their adverse effects, including skin atrophy and cognitive impairment, respectively. As such, dermatologists require additional therapies for long-term management of chronic pruritus. Topical anesthetics have been shown in many studies to be effective antipruritic agents. Randomized controlled trials, prospective and retrospective studies, and case series studied various types of chronic pruritus treated with topical anesthetics, and suggest that topical anesthetics have the potential to be rapidly effective antipruritic agents for a variety of causes of chronic pruritus, including pruritic dermatoses (e.g. contact dermatitis, seborrheic dermatitis), postburn pruritus, and neurogenic itch (e.g. nostalgia paresthetica, central neurogenic itch). While there is insufficient evidence to definitely conclude the efficacy of topical anesthetics for pruritus, they should be considered for patients with refractory pruritus. Topical anesthetics have many advantages, including ease of use, minimal adverse effects, and minimal systemic absorption when applied properly.

J Dermatolog Treat. 2016 Sep 30:1-16.

Novel and Combination Therapies for Androgenetic Alopecia

Androgenetic alopecia (AGA) is a genetically determined progressive hair-loss condition and the most common cause of hair loss in men. In addition to androgen-dependent changes in the hair cycle, sustained microscopic follicular inflammation contributes to its onset. Furthermore, prostaglandins have been demonstrated to have the ability to modulate the hair follicle cycle. Due to the progressive nature of AGA, treatment should be started early and continued indefinitely, since the benefit will not be maintained upon ceasing therapy. To date, only two therapeutic agents have been approved by the Food and Drug Administration and European Medicines Agency for the treatment of AGA: topical minoxidil and oral finasteride. However, there are other topical and systemic treatment options to address the many pathogenetic mechanisms involved in AGA. Therapy should be personalized and targeted at the different pathophysiological aspects of AGA.

In the search for treatment alternatives to oral finasteride and topical minoxidil, melatonin, a potent antioxidant and growth modulator, was identified as a promising candidate for treatment of AGA based on in vitro and in vivo studies. One pharmacodynamic study on topical application of melatonin and four clinical pre-post studies were performed in patients with AGA or general hair loss and evaluated by standardized questionnaires, TrichoScan, 60-second hair count test and hair pull test.

All five clinical studies showed positive effects of a topical melatonin solution in the treatment of men and women while showing good tolerability:
Pharmacodynamics under once-daily topical application in the evening showed no significant influence on endogenous serum melatonin levels.
An observational study involving 30 men and women showed a significant reduction in the degree of severity of alopecia after 30 and 90 days based on questionnaires completed by investigators and patients.
Using a digital software-supported epiluminescence technique (TrichoScan) in 35 men with AGA, after 3 and 6 months in 54.8% to 58.1% of the patients a significant increase of hair density of 29% and 41%, respectively was measured.
In 60 men and women with hair loss, a significant reduction in hair loss was observed in women, while hair loss in men remained constant.
In a large, 3-month, multi-center study with more than 1800 volunteers at 200 centers, the percentage of patients with a 2- to 3-fold positive hair-pull test decreased from 61.6% to 7.8%, while the percentage of patients with a negative hair-pull test increased from 12.2.% to 61.5%. In addition, a decrease in seborrhea and seborrheic dermatitis of the scalp was observed.
"Since safety and tolerability in all of the studies was good, the topical application of a cosmetic melatonin solution may be considered as a treatment option in androgenetic alopecia."

The effects on scalp and serum dihydrotestosterone (DHT) of different doses of a novel topical solution of 0.25% finasteride, a type 2 5α-reductase, were investigated in healthy men with AGA. Two randomized, parallel-group studies were conducted. Study I: 18 men received 1 mL (2.275 mg), applied to the scalp once a day or twice a day or 1 mg oral tablet daily for 1 week. Study II: 32 men received finasteride solution at the dose of 0.2275 mg, 0.455 mg, 0.6285 mg) or 0.91 mg or the vehicle daily for 1 week. Scalp and serum DHT and serum testosterone were evaluated at baseline and

treatment end. Change from baseline in scalp DHT was -70% for finasteride daily and approximately -50% for twice daily topical usage. Serum DHT decreased by 60 - 70%. No relevant changes occurred for serum testosterone.

Conclusion: The novel finasteride 0.25% solution applied daily at the doses of 0.2275 mg and 0.455 mg results in an appropriate inhibition of scalp DHT, potentially minimizing the untoward sexual side-effects linked to a systemic DHT reduction.

Dermatol Ther. 2016 Jul 18.
Int J Trichology. 2012 Oct;4(4):236-45.
Int J Clin Pharmacol Ther. 2016 Jan;54(1):19-27.

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