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The Mortar & Pestle:

MD Custom Rx's monthly e-newsletter

April 2017

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

A Novel Glial Cell Inhibitor, Low Dose Naltrexone, Reduces Pain and Depression, and Improves Function in Chronic Pain

Low-dose naltrexone (LDN), 4.5 mg naltrexone hydrochloride, has efficacy in treating symptoms of fibromyalgia in clinical trials. LDN is an inexpensive drug with infrequent and mild side effects. One proposed mechanism for LDN's efficacy is through attenuation of the production of pro-inflammatory cytokines and neurotoxic superoxides via suppressive effects on central nervous system microglia cells. A number of chronic pain conditions (e.g. fibromyalgia, complex regional pain syndrome, migraine headache, interstitial cystitis) are thought to represent a "central sensitivity syndrome".



Noon et al. of the Stanford University Department of Anesthesiology, Perioperative, and Pain Medicine, Stanford, CA, used their Collaborative Health Outcomes Information Registry (CHOIR) to determine whether LDN improves pain, fatigue, sleep, mood, or physical function in chronic pain patients. In this study, 27 patients with chronic "central" pain states who were given a first-time prescription of LDN were followed and administered surveys at each visit to the Stanford Pain Management Clinic. A retrospective chart review was performed to confirm continued use of LDN at Time 1 (scores gathered between 31 and 60 days after LDN prescription) and Time 2 (scores gathered between 61 and 90 days after LDN prescription). Wilcoxon Signed Rank Test (WSRT) analyses suggested that patients taking LDN reported significantly lower average pain scores, lower "lowest" pain scores, and improved physical function from baseline to Time 2. Depression scores were also significantly reduced from baseline to Time 1 and from baseline to Time 2.

The authors concluded: "The significant findings of decreased average pain scores and depression and improved physical function after prescribing this well tolerated, inexpensive medication provides justification for larger, controlled trials in patients with central sensitivity syndromes." Funding was provided by the National Institutes of Health and the Redlich Pain Endowment.

[J Pain. April 2016; 17\(4\):S79](#)

Diabetic Foot Ulcer Infection Treated with Topical Compounded Medications

Case Report: "An adult diabetic male with three toes amputated on his right foot presented with an ulcer infection on his left foot, unresponsive to conventional antifungal oral medication for over two months. The ulcerated foot wound had a large impairment on the patient's quality of life, as determined by the Wound-QoL questionnaire. The compounding pharmacist recommended and the physician prescribed two topical compounded medicines."

Treatment was initiated with Zeasorb® Super Absorbent Powder (a commercial antifungal) that was compounded to include clotrimazole 2%, ibuprofen 2%, and metronidazole 2%. This preparation was applied twice daily for 6 days to dry up the discharge and treat the infection. During this treatment, the "pocket of infection" opened and revealed a much deeper wound, at which time a second compounded medication was prescribed. It contained the following ingredients: clotrimazole 2%, ibuprofen 2%, metronidazole 2%, nifedipine 0.2%, and dexpanthenol 3% in a proprietary topical anhydrous silicone base. This preparation was applied twice a day for 7 days, to the time of wound closure.

The foot ulcer infection was completely resolved following 13 days of treatment, and no longer impaired the patient's quality of life. "This scientific case study highlights the value of pharmaceutical compounding in current therapeutics, the importance of the triad relationship, and the key role of the compounding pharmacist in diabetes care."

[Intl J Pharm Comp. Jan-Feb 2017; 21\(1\):22-27](#)

Wound Care involves debridement (removal of dead tissue), cleansing (usually accomplished by irrigating the wound), maintenance of a moist environment, prevention of infection and further injury, and provision of materials needed to improve healing.

Topical dosage forms such as gels and sprays are used in conjunction with various dressings to treat wounds. Gels are water-soluble, tend to keep the area moist, and are easily removed from the wound using a gentle stream of warm water or saline. Almost any active ingredient can be formulated into a gel. Solutions can be used for irrigation, baths, soaks and sprays. An advantage of sprays is that the wound area does not need to be touched and sprays can have a cooling effect. Although some medications are commercially available as creams, creams may be more difficult to remove from the wound cavity and may affect the granulation process. Therefore, it may be preferable to compound the active ingredients into a gel or solution. Medications can also be prepared as powders that can be dispensed in a bellows bottle and puffed onto the affected area.

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The use of topical formulations for treatment of wounds decreases the risk of adverse effects and potential drug-drug interactions associated with systemic medications, and can result in significantly improved healing.

Topical Phenytoin for Diabetic Foot Ulcers

Topical application of phenytoin has been used successfully to enhance wound healing of diabetic foot ulcers. It stimulates the development of granulation tissue formation within 2 to 7 days after beginning treatment. Its ability to promote wound healing has been attributed to many mechanisms including increasing fibroblast proliferation, inhibiting collagenase activity, promoting collagen deposition, enhancing granulation tissue formation, decreasing bacterial contamination, reducing wound exudates formation, and upregulating growth factor receptors. Biopsies of phenytoin-treated wounds show neovascularization, collagenization and decreased polymorphonuclear and eosinophil cell infiltration.¹



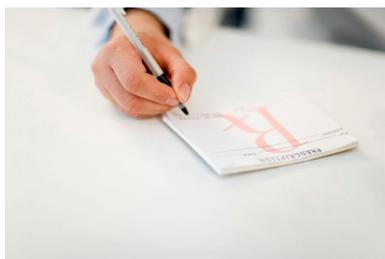
One-third of patients with diabetes seek hospital admission due to a diabetic foot ulcer. About 15% of diabetic patients will have a foot amputation following a diabetic foot ulcer. A study² assessed the efficacy of topical application of phenytoin powder on healing diabetic foot ulcers (class I or II, i.e., without abscess or gangrene). In total, 60 patients with diabetic foot ulcers were randomized into two groups, assigned saline and betadine dressings for the control group and phenytoin powder application for the study group. Patients with vascular impairment or uncontrolled diabetes are not included. Both the control and study group are compared for the reduction in slough, granulating tissue formation, pain, duration of hospital stay, mean surface reduction of ulcer, and to assess the healing process. At the end of 14 days, the presence of healthy granulation tissue was markedly noted in 60% of the study group treated with phenytoin, but only in 10% of the control group. Moreover, wound size was reduced by 66% in the study group, and 44% in the control group. Mean duration of time in the hospital was significantly reduced in the phenytoin group. Pain scores were also better in the study group.

Shaw et al. did a systematic review of the role of phenytoin as a topical agent in the healing of diabetic ulcers involving 14 available randomized controlled trials, and concluded that there is moderate evidence to support the use of phenytoin as a topical therapeutic agent in not only diabetic ulcers but also varicose leg ulcers and necrotic wounds.³

1 J Postgrad Med Inst. 2014; 28(3):297-302.

2 [IJSS. June 2015; 3\(3\):84-89](#)

3 [Br J Dermatol. 2007; 157:997-1004.](#)



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