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## PHARMACY

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Thank you for entrusting in the compounding services at Madison Medical Compounding Pharmacy to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to working with you. Please don't hesitate to let us know how we can assist you and your practice.

*LeAnn Chambers, Pharm.D. and Matthew Chambers, Pharm.D.*

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## Options for Anxiety and Depression

Approximately 20% of Americans suffer from some form of mental illness. While there is no one-size-fits-all solution when it comes to treating anxiety and depression, various options are available and should be explored, especially when improvement is not being achieved. Many times, medications can require long periods of trial and error and at times the side effects can outweigh the benefits. It is important to know that additional options exist. Our experienced team can work with you and your patients to help provide nutritional support and customized prescription options.



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## Intranasal Ketamine for Treatment-Resistant Depression

Growing evidence of the rapid antidepressant effects of intranasal ketamine represents a promising advance in treatment-resistant depression (TRD) therapeutics. Most studies report a duration of response up to 7 days and remission up to 3-5 days after a single dose. Investigators enrolled more than 200 patients aged 18 to 64 years at 39 sites in the United States, Germany, Poland, Spain, and the Czech Republic. All of the participants had not

responded to at least two previous antidepressants. For nearly two years, patients were randomly assigned to receive daily for 4 weeks a newly initiated open-label antidepressant plus intranasal esketamine or placebo.

The primary efficacy endpoint (change from baseline to day 28 on the MADRS total score) was significantly greater for the treatment group compared with the placebo group (adjusted mean difference, -4.0; 95% confidence interval [CI], -7.31 to -0.64; 1-sided P = .01). "Response was rapid in onset and increased over time during repeated dosing," per the investigators.

More of the patients who received esketamine achieved remission, defined as a MADRS total score of 12 or less at day 28, than those who received placebo (52.5% vs 31.0%, respectively; P = .001). Response rate, defined as achieving at least a 50% improvement over baseline on the MADRS, was achieved by 69.3% vs 52.0% of the groups, respectively.

"Most adverse events ... subsided spontaneously by 60 to 90 minutes post dose," said presenting author Vanina Popova, MD. In addition, "there was no pushback" in regards to the nasal delivery system. "The route of administration was well received, and it was certainly more convenient than intravenous administration," she said.

While this study used an isomer of ketamine (eskatamine), intranasal ketamine has been shown to be effective with minimal side effects. Ask our pharmacist for more information about compounded intranasal ketamine.

<https://pubmed.ncbi.nlm.nih.gov/29656663/>

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## 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.

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 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). **Analyses suggested that patients taking LDN reported significantly lower average pain scores, lower 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."

Another small study examined the efficacy of low dose naltrexone for patients with breakthrough symptoms of major depressive disorder while taking antidepressants. Some benefits were seen, however larger studies need to be performed to confirm.

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

