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Case Reports

Droperidol 10 mg/mL in Pluronic Lecithin Organogel for the Treatment of Severe Nausea and Vomiting

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In September 1999, a 42-year-old man who has been a client of our pharmacy began to experience an increase in the severity of nausea and vomiting. When he was in his early 20s, he was diagnosed as having cerebral palsy, and he has been confined to a wheelchair for some time. This patient has severe scoliosis (> 120 degrees), kyphosis, and cervical syrinx. These conditions are causing increased cerebral spinal fluid pressure, and the scoliosis in particular is causing increased pressure on the patient’s viscera. This increase in pressure has resulted in increased nausea caused by stimulation of the chemoreceptor trigger zone.

This patient has been taking the following medications:
- promethazine (Phenergan) 25 to 50 mg by mouth at bedtime
- cisapride (Propulsid) 20 mg before meals and at bedtime
- metoclopramide (Reglan) 5 to 10 mg by mouth before meals and at bedtime
- dronabinol (Marinol) 10 mg by mouth before meals and at bedtime

While taking the medications listed above, the patient rated his nausea as “8 to 9 on a 10-point scale.” His physician prescribed droperidol (Inapsine), which is an antiemetic with sedative and antianxiety effects that is used in injectable form primarily in patients undergoing surgical or diagnostic procedures. The droperidol was mixed in a Pluronic lecithin organogel at a concentration of 10 mg/mL, and the patient was instructed to rub 1 mL (10 mg) on his inner wrist 3 times per day. When he uses the droperidol in addition to his other medications, the patient rates his level of nausea as a 2 to 4 on a 10-point scale. He knows that this medication is working well for him because without it, his nausea increases to its prior intense level of severity.

Reference

ABHR gel in Pluronic Lecithin Organogel

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Patients with advanced illnesses experience particularly severe symptoms or a complex set of symptoms that requires special attention. Home hospice care is palliative medical care and psychologic and spiritual support for terminally ill patients during the end-of-life process. Palliative care is the active total care of patients who have advanced illnesses for which there is no cure. For those patients, the control of symptoms (rather than the prolongation of life) is the focus of care.

In June 2000, our service accepted a 74-year-old woman who had been diagnosed as having cancer of the liver and bone. Prochlorperazine maleate capsules (Compazine Spansules) 15 mg twice a day had been prescribed to control this patient’s uncontrolled nausea and vomiting, but that treatment provided little or no relief. Because oral prochlorperazine was ineffective, alternate routes of administration were discussed. The patient’s physician prescribed a topical ABHR gel, which is a combination formula of the 4 medications listed below that were mixed in a Pluronic lecithin organogel in the following concentrations:
- lorazepam (Ativan) 1 mg/0.5 mL
- diphenhydramine (Benadryl) 12.5 mg/0.5 mL
- haloperidol (Haldol) 1 mg/0.5 mL
- metoclopramide (Reglan) 20 mg/0.5 mL

Continued on Reverse.
The patient was instructed to apply 0.5 mL of gel to the wrist every 4 to 6 hours as needed. He found that the combination of medications, when applied topically, is very effective in decreasing the patient’s anxiety and nausea during the end-of-life process.

Acute Bronchial Asthma


3. Palliative Care Service at the University of Arkansas for Medical Sciences, Arkansas Cancer Research Center, 4301 West Markham, Slot #748, Little Rock, Arkansas 72205. Available at: www.uams.edu/medcenter/special/pali.htm

Literature Summary

Nebulized Magnesium Sulfate Versus Nebulized Salbutamol in Acute Bronchial Asthma: A Clinical Trial


Magnesium is a naturally occurring intracellular cation. Nebulized magnesium sulfate (MgSO4) is a diuretic and muscle relaxant. It may also inhibit histamine release from cholinergic nerve terminals. As a result, attention has been recently devoted to the effect of MgSO4 as an effective bronchodilator.

The authors described the mechanism of action of MgSO4, which is thought to inhibit smooth muscle contraction by facilitating calcium uptake into the sarcoplasmic reticulum and by inhibiting the slow inward calcium current and calcium-induced calcium release. It may also inhibit potassium efflux from mast cells as well as acetylcholine release from cholinergic nerve terminals. As a result, attention has been recently devoted to the effect of MgSO4 as an effective bronchodilator.

However, most studies to date have examined the effect of intravenous MgSO4 in reversing bronchospasm in cases of acute asthma or that of nebulized MgSO4 in decreasing airway resistance in bronchial challenge tests. The clinical trial by Mangat and colleagues investigated whether nebulized magnesium sulfate (MgSO4) used alone to treat acute asthma.

The study participants consisted of 33 patients with bronchial asthma who ranged in age from 12 to 60 years and who exhibited a peak expiratory flow (PEF) of < 300 L/min. Patients who were febrile; exhibited lower respiratory tract infection; had a history of bronchial asthma, chronic obstructive pulmonary disease, or emphysema; were pregnant; required ventilatory care; or had received oral or parenteral bronchodilators in the past 4 hours or solids in the past 12 hours were excluded from the trial. The authors noted that the trial was conducted in India, where antiasthmatic medications are available over the counter, the most commonly used β-agonists and theophyllines have a 6-hour duration of action, and steroid preparations have a 12-hour duration of action.

Study participants received an intravenous injection of hydrocortisone (100 mg) and then received either intravenous nebulized MgSO4 (3 mL) or nebulized salbutamol (2.5 mg) 20 minutes apart (the control group) or 4 doses of nebulized 3 mL (3.2% solution, 95 mg) MgSO4 20 minutes apart (the study group) in a randomised and double-blind manner. A Hudson’s nebulizer (Hudson Respiratory Care Inc, Temecula, Califórnia), which results in a mean particle size of 1.5 to 2.5 μm, was used to administer the medications. The subjects were monitored every 20 minutes for the first hour and twice during the second hour. The Fisch Index and percent predicted improvement in PEF, and admission rates were outcome variables. Results of the study indicated that the Fisch Index in the group treated with MgSO4 (4.31 to 0.43) was significant and comparable to that of patients treated with salbutamol (4.29 to 0.76). The percent of predicted improvement in PEF was statistically significant and comparable in both groups (35% predicted in the MgSO4 group and 42% predicted in the salbutamol group). One patient in the MgSO4 group and one patient in the placebo group showed no response and required admission.

The authors noted that the adverse affects produced by MgSO4 include nausea, vomiting, diaphoresis, tremulousness, dizziness, drowsiness, muscle weakness, loss of deep tendon reflexes, respiratory depression, and cardiac arrhythmia, which can lead to asystole and death. A 2-hour period of monitoring, only 1 patient in the MgSO4 group exhibited mild transient hypotension that resolved spontaneously. A similar case of hypotension occurred in the salbutamol group, but in that group 2 patients exhibited fine tremors of the hand and 1 experienced palpitations. However, none of the patients in the MgSO4 group demonstrated depressed deep tendon reflexes, which is an early clinical sign of magnesium toxicity.

In conclusion, the study demonstrated that serially nebulized MgSO4 produces a significant bronchodilatory effect similar to that of salbutamol in the treatment of patients with acute asthma. No side effects were noted, probably as a result of the greater therapeutic ratio resulting from the use of inhalation. The authors support the use of nebulized MgSO4 as an adjunct treatment in the management of acute asthma but recommend additional studies to determine the optimum dose-response relationship.

Gabapentin Enhances the Analgesic Effect of Morphine in Healthy Volunteers


The opioid morphine has long been the cornerstone of treatment for patients with intractable pain. However, the use of morphine presents disadvantages. As pain increases or tolerance to the drug develops, the dose must be increased; side effects such as constipation, nausea, vomiting, respiratory depression may occur; and opioids produce inadequacy analgesia in patients with certain types of pain. Because there are many mechanisms of pain, opioids may act on only one of these. Neuronal opioid analgesics can often produce a greater degree of pain relief and fewer side effects than those produced by opioid monotherapy.

This article reviews the authors’ randomized, placebo-controlled, double-blinded study of the pharmacokinetic and pharmacodynamic interaction of the anti-inflammatory drug gabapentin (GBP) and morphine.

Gabapentin is a structural analog of γ-aminobutyric acid that provides analgesia for patients with neuropathic pain such as that produced by diabetic neuropathy or postherpetic neuralgia. In healthy volunteers, it provides effective analgesia for postoperative, neuropathic, and inflammatory pain but is ineffective in relieving transient pain. GBP alone, however, elicits a transient (excreted unchanged via glomerular filtration) and is a safe and well-tolerated drug. Its synergistic effect on the analgesic action of morphine in humans subjected to the cold pressor test, whether GBP alone or in addition to morphine, was tested. GBPs analgesic effect was assessed via visual analog scales. Six hundred milligrams of GBP was administered in the form of a controlled release capsule to produce a constant analgesic effect 4 to 6 hours after its administration. GBP (600 mg) or placebo was administered 2 hours after the cold pressor test (when the constant analgesic effect of morphine had been achieved) so that the authors could determine the additional effect produced by GBP. Six hundred milligrams of GBP is within the range of doses used to treat neuropathic pain and epilepsy. The absorption of GBP decreases when higher doses are used. The protocol outlined above enabled the investigation of the analgesic effect of GBP for 4 hours.

According to the results of this study, a single oral GBP dose of 600 mg produces an independent analgesic effect when compared with that of placebo, GBP significantly enhanced the analgesic effect of morphine, and GBP pharmacokinetics (not measured) were altered significantly when GBP and morphine were coadministered.

This trial has demonstrated for the first time that in humans, GBP enhanced the analgesic effect of morphine in the tolerance of nociceptive pain produced by the cold pressor test. Eckhardt and colleagues emphasize the advantages of using GBP, which is not a known opioid agonist but a γ-aminobutyric acid (GABA) receptor, which is not a known opioid agonist but a GABA receptor, which is not a GABA agonist and is therefore free of the adverse effects associated with opioids. The absorption of GBP decreases when higher doses are used. The protocol outlined above enabled the investigation of the analgesic effect of GBP for 4 hours.

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