OUR LADY OF THE LAKE RMC

InPharmation

The official publication of the Pharmacy Department

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Staff Spotlight

Jennifer Hartenstein, PharmD

Jennifer is proudly from Mississippi, she has a soon to be 21-year-old son named Eric, who is a Mechanical Engineering major at LSU. When she is not at work, you can find her doing work around her house and hanging out with her dog, Buster. Jennifer's favorite meal is anything that someone else cooks. Some of her favorite hobbies include gardening and repairing all of the things that Buster has chewed on. She admits to listening to Today's Homeowner with Danny Lipford, a home improvement podcast, as her guilty pleasure. If she won the lottery, she would buy a second home in Jackson, MS and a plane so that she could visit and be closer to her mother and sister.

John Shamma, PharmD

John is a Baton Rouge native who graduated from the University of Louisiana at Monroe College of Pharmacy. Some of his hobbies include jogging, watching sports (mostly football and basketball), playing video games, and playing disk golf, a hobby he picked up while living in Monroe. Travelling has always been really enjoyable to him. He would really love to go to California, Europe, or anywhere with a great beach. What John loves most about being a pharmacist is that he can help directly make a difference in patient's lives by being involved with their care.

Resident Seminars

Giapreza

By Christina Metrejean, PharmD

Sepsis is a life-threatening organ dysfunction caused by a dysregulated host response to infection. Updated literature and recommendations are frequently released and new information is vital to administering the most updated, safe, and effective patient care.

It is now recommended that patients receive the "Hour 1 Bundle" upon presentation with sepsis. The Hour 1 Bundle includes fluids (with the most recent literature showing a preference towards lactated ringers for most patients), broad-spectrum antimicrobial therapy (after appropriate cultures have been obtained), administration of vasopressors (if needed to maintain adequate mean arterial pressure), and measuring lactate level.

The newest vasopressor available is Giapreza. Giapreza is a synthetic human angiotensin II and it is FDA approved for use in patients with septic or other distributive shock. This vasoactive agent was studied in the ATHOS-3 trial in patients with catecholamine-resistant hypotension who were deemed to be adequately fluid resuscitated. Mean arterial pressure increases at 3 hours after presentation were statistically significantly higher in the Giapreza group versus the saline placebo group.

Emerging literature suggests the addition of thiamine and vitamin C may have favorable effects in septic patients. A small study of 94 patients recently showed administration of vitamin C 1.5 g every 6 hours for 4 days, hydrocortisone 50 mg every 6 hours for 7 days, and thiamine 200 mg every 12 hours for 4 days decreased hospital mortality and the need for vasopressor therapy. Information regarding upcoming trials including VICTAS, HYVITS, and ACTS can be found on www.clinicaltrials.gov.

Andexanet alfa

By Mackenzie Piche, PharmD

Andexanet alfa is a recombinant human factor Xa protein, designed for the reversal of life-threatening bleeding due to the anticoagulants rivaroxaban and apixaban. The agent's mechanism is to act as a decoy protein, binding to the circulating anticoagulant, and thus freeing up endogenous factor Xa. However, it does not assist with elimination of the factor Xa inhibitor.

Andexanet has been studied in healthy volunteers, which showed a rapid reduction in anti-Xa activity following administration. Currently, it is part of an ongoing, single-arm study evaluating safety and efficacy for the reversal of severe bleeding in patients taking factor Xa inhibitors. Most patients experienced an intracranial hemorrhage or gastrointestinal bleed; the medication has not been studied for use in emergent surgery. Preliminary results indicate that 66% of patients accomplished excellent hemostasis and 12.8% achieved good hemostasis at 12 hours post-infusion. About 18% of patients experienced a thromboembolic event within the 30 day follow-up period. In both studies, the anti-Xa levels were shown to increase after the infusion was stopped. It is unknown what clinical impact this may have on patients and bleeding.

Andexanet was approved by the FDA via an accelerated process in May 2018, however the FDA is requiring that the manufacturer conducts a study comparing it to the standard of care in the coming months. Andexanet will be added to hospital formulary pending the development and approval of a protocol and restrictions for use.

Resident Seminars (Continued)

Medication Safety in Pediatrics

By Chris Kennie-Richardson, PharmD

Utilizing safe medication practices is an essential component of patient care across all patient populations. It is especially crucial amongst our pediatric patient population because of their physiologic differences in comparison to adults. The incidence of medication errors is three times more likely in pediatric patients. Causes for medication errors in pediatric patients are often multifactorial including: developmental differences, inability to communicate possible adverse events, limited data on safety and efficacy of medications, and lack of standardization.

The National Coordinating Council for Medication Error Reporting and Prevention defines a medication error as any preventable event that occurs in the process of ordering or delivering a medication, regardless of whether an injury or the potential for injury was present. A majority of medication errors are seen in the order entry phase of the medication administration process, often stemming from factors which may include alert fatigue and overdependence on technology. This, coupled with the fact that health information technology systems are often developed without the needs of pediatric patients in mind creates an elevated opportunity for errors.

The American Society of Health-System Pharmacists in association with the Pediatric Pharmacy Advocacy Group (ASHP-PPAG) have recently released updated guideline recommendations for providing pediatric pharmacy services in a hospital or health system. They highlight some important details about technology systems such as computerized provider order entry (CPOE) and infusion pumps which can be very useful in an effort to maintain safe medication practices. It is important for us to use guideline recommendations such as these as well as other resources to continually reassess our processes to ensure that we are creating a safe environment for this vulnerable patient population.

Glucarpidase Use in High-Dose Methotrexate Toxicity

By Jasmin Eugene, PharmD

High-dose Methotrexate (HDMTX) is used in different types of malignancies, such as acute lymphoblastic leukemia, osteosarcoma, and CNS lymphomas. HDMTX is usually dosed at 1gram/m^2 or greater, depending on the type of malignancy.

While receiving HDMTX, patients should concomitantly receive intravenous fluids, bicarbonate, and leucovorin to reduce the risk of HDMTX toxicity. Although patients receive the standard of care, they still experience toxicities such as myelosuppression, hepatotoxicity, and the most important toxicity, acute kidney injury (AKI). AKI occurs because MTX forms crystals in the renal tubules because of acidic urine. The crystals cause obstruction and delays MTX clearance.

Glucarpidase is a carboxypeptidase enzyme that is used as a rescue agent in patients experiencing delayed MTX clearance with MTX concentration of > 1 micromolar. It works by hydrolyzing extracellular methotrexate into inactive metabolites: glutamate and DAMPA.

Glucarpidase can be given intravenously dosed at 50 units/kg or intrathecally flat dosed at 2000 units. Glucarpidase must be given 2 hours before or after leucovorin to avoid a decrease in leucovorin concentration. Glucarpidase also interacts with the MTX immunoassay lab by causing falsely elevated MTX levels within 48 hours of glucarpidase administration.

Until recently, there were no guidelines on which patient would benefit from glucarpidase. The 2017 consensus guidelines were created to address this need. It recommends that patients can receive glucarpidase 48-60 hours after MTX infusion if they are experiencing delayed MTX clearance. It goes on to recommend which patients could benefit from glucarpidase based on dose, infusion time, and MTX concentration.

Formulary Changes

Deletions from Formulary:

- Buprenorphine 0.3 mg/mL injection
- Buprenorphine and naloxone 8 mg/2mg sublingual film
- Butabarbital sodium 30 mg tablet
- Butorphanol nasal spray, non-aerosol 10 mg/mL
- Clonazepam 0.125 mg ODT
- Butalbital, aspirin, caffeine, and codeine capsules
- Guaifenesin and pseudephedrine 100 mg-30 mg/5 mL syrup
- Methohexital 500 mg injection
- Morphine 30 mg capsule
- Oxycodone ER 80 mg tablet
- Pseudoephedrine ER 120 mg tablet
- Pseudoephedrine 60 mg tablet

Regulatory

Recent FDA Approvals

- Aemcolo (rifamycin) – antibiotic newly approved for travelers' diarrhea
- Yupelri (revefenacin) – long-acting, nebulized anticholinergic approved for the treatment of COPD
- Xofluza (baloxavir marboxil) – antiviral agent approved for the treatment of acute uncomplicated influenza in patients who have been symptomatic for no more than 48 hours
- Nuzyra (omadacycline) – tetracycline antibiotic approved for the treatment of community-acquired bacterial pneumonia and acute bacterial skin and skin structure infections

Patient Safety Corner

ISMP Safety Practice Guidelines

This patient safety corner is brought to you by the 2018-2019 ISMP Targeted Medication Safety Best Practices for Hospitals.

ISMP BEST PRACTICE

Separate and differentiate all neuromuscular blocking agents (NMB) from other medications whenever they are stored.

Place auxiliary labels on all storage bins/automated drug cabinets that contain NMBs

Remove NMB from areas in the hospital where they are not being used.

RATIONALE

- To prevent errors of accidentally administering NMBs to patients who are not receiving proper ventilator assistance
- ISMP have received reports of accidentally compounding NMBs instead of the intend drug
- Inadequate labeling and improper storage have been the cause of this error

Birthday Shout outs!

We would like to wish a very happy birthday to the following team members with birthdays in the month of December:

William Kleinpeter - December 2nd

LaKisha Cole - December 4th

Dinitza Nelson - December 17th

Kamryn Polk - December 20th

Tonda Cushenberry- December 25th

Tisha Flewellen– December 25th

Lashawn Sims - December 29th

Danny Tangarife - December 31st

Happy Holidays!

Current Shortages

Aminophylline inj.

Buspirone 5 mg UD tablets

Buspirone 10 mg UD tablets

Calcitriol 1 mcg/mL inj.

Cefazolin 1 gm inj.

Cefotaxime 500 mg inj.

Cefoxitin 2 gm

Diazepam 10 mg/2 mL inj.

Diphenhydramine 50 mg/1 mL inj.

Erythromycin 500 mg inj.

Hydralazine 20 mg/1 mL inj.

Lidocaine 5 mL topical jelly

Lidocaine/Buffered 1% 0.25 mL inj.

Lorazepam inj.

PCA pump vials

Sincalide inj.

Sodium Phosphate 45 mmol/15 mL inj.

Thrombin 5000 units

Reminders

- Using ear buds and cell phones in “on stage” area are not permitted
- Do not park in garage 2 (in front of the hospital) and in bone and joint clinic lot (located toward the back of campus)
- Only access a patient’s record if you are working on that unit or if you are working with that patient

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