OUR LADY OF THE LAKE RMC

InPharmation

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Inside this issue:

Staff Spotlight

Nakeisha Brown, PharmD

Favorite Quote: Be who you are and say what you feel because those who mind don't matter and those who matter don't mind.
Dr. Seuss

Born and raised in Uptown New Orleans, Nakeisha comes from a family of 8 siblings, the youngest of which is 4 years old. Her siblings are the most important thing to her in the world. However, Nakeisha really enjoys the simple things in life like shooting pool and eating crawfish and Dungeness crabs. A true Louisianian at heart, she would mix potatoes, corn, smoked sausage and turkey necks in too!

Nakeisha loves being a pharmacist at the Lake because she enjoys her coworkers, but she would ditch the pharmacy world and become a full time Netflix/HULU connoisseur if she could. As one of the newest pharmacists to the department, Nakeisha has two pieces of advice to the new pharmacists and residents coming in. First, take the time to learn a little something from every person because everyone has their own special hacks and tricks that can be very useful. Second, enjoy the praline candy from the gift shop!

Resident Research Projects

Attainment of Target Anti-Xa Levels in Patients with Acute Kidney Injury Requiring Continuous Renal Replacement Therapy

by Kellee Brown, PharmD

Continuous renal replacement therapy (CRRT) is utilized in critically ill patients with acute kidney injury due to its better hemodynamic tolerability and more efficient clearance of solute. When systemic anticoagulation is required in a patient receiving CRRT, the optimal choice of anticoagulant is controversial. Guidelines recommend heparin for patients with poor renal function requiring systemic anticoagulation and use of enoxaparin in these patients requiring CRRT is not well studied. At our institution, renal dose adjusted enoxaparin is frequently utilized in these patients due to its ease of administration and the ability to monitor its efficacy by measurement of anti-Xa levels. Literature currently supports specific target anti-Xa values based on the indication for anticoagulation; 0.2-0.4 units/mL for prophylaxis of DVT/PE and 0.6-1.0 units/mL for treatment of DVT/PE. The purpose of this study was to evaluate the ability of the currently employed enoxaparin dosing strategy at our institution to attain target anti-Xa levels in critically ill patients requiring CRRT. Adults newly initiated on CRRT and receiving concomitant anticoagulant therapy with enoxaparin were included in this study. From October 2015 through March 2016 a total of six patients were eligible for inclusion with five patients initiated on enoxaparin 30mg daily for prophylaxis of DVT/PE and one initiated on treatment dose enoxaparin (1mg/kg q24h). One patient of the six total resulted with an Anti-Xa level within the target range. Although the sample size in this study was small, it brings light to our current practices of systemic anticoagulation of our patients on CRRT. An optimal dosing strategy for enoxaparin in CRRT patients has not been validated in clinical trials, and our current strategy of using renally adjusted doses of enoxaparin is not able to adequately anticoagulate these patients based on predetermined target Anit-Xa levels. Ideally if enoxaparin is continued to be utilized in this population, anti-Xa levels should be ordered and the doses adjusted based on the P&T approved pharmacy monitoring protocol to ensure adequate anticoagulation of this population.

Impact of an Antimicrobial Stewardship Program on Discontinuation of Empiric Anti-MRSA Therapy

by Stephanie Chang, PharmD

The purpose of this project was to evaluate the impact of a pharmacist-run antimicrobial stewardship program (ASP) on Methicillin-resistant *Staphylococcus aureus* (MRSA) therapy quantified by days of therapy and length of stay. Using data retrospectively collected from the institution's electronic records, we compared a two-month historic control period to a two-month period after implementation of the pharmacist-run ASP. The study population included adult patients in the general medicine units that received any one or combination of the following broad spectrum anti-MRSA agents: vancomycin, linezolid, daptomycin, tigecycline, and ceftaroline for at least 48 hours. The baseline data collected included patient age, gender, anti-MRSA agent, antibiotic allergies, infectious disease diagnosis, length of stay, days of therapy, MRSA risk

continued on page 2

factors, and time culture collected with respect to antibiotic initiation. The groups were analyzed for differences in length of stay and days of therapy, pre and post implementation of the ASP. For the primary endpoints, there was a slight decrease in average days of therapy from 8.0 days in the historic group to 7.6 days in the stewardship group and there was a slight increase in total length of stay from 11.2 days in the historic group to 11.9 days in the stewardship group. Both differences were not clinically significant. A total of 234 electronic medical records were reviewed in the stewardship group, which includes patients who did not meet criteria for intervention. From this study, we identified some future directions for our stewardship initiatives. We would like to provide education on antimicrobial stewardship initiatives to all pharmacists so everyone can be more involved. We also plan to expand our ASP to provide focused utilization reviews on other antibiotic classes.

Impact of implementing a parenteral nutrition algorithm on prescribing patterns

By Lauren Linder, PharmD

The Association for Parenteral and Enteral Nutrition (ASPEN) recommends discontinuing parenteral nutrition (PN) when a patient is tolerating > 60% of goal calories from enteral nutrition (EN). In a recent review at our institution, 61% of adult patients on PN had EN overlap, with the majority of patients tolerating > 60% of their prescribed EN. There is minimal data that demonstrates the utilization of an evidence-based PN algorithm on proper discontinuation of PNs. The primary outcome was to determine the impact of the PN algorithm on the total duration of inappropriate days of PN therapy, with inappropriate PN therapy defined as a patient tolerating > 60% of goal calories while on EN and PN, with PN continued.

A pharmacy and therapeutics committee (P&T) approved PN algorithm was created to establish evidence-based criteria for the appropriate utilization of PNs. The electronic medical record was examined in a retrospective manner for all patients ≥ 18 years of age consulted for PN management in a 3- month time period pre- and post-implementation (October – December 2015, January – March 2016) of the PN algorithm at Our Lady of the Lake Regional Medical Center. Data collection included patient demographics, hospital length of stay, duration of PN therapy, evaluation of nutritional intake for patients with a calorie count consult and overlapping EN and PN therapies.

Sixty-one patients were included in the study. Forty-one patients were included in the historical cohort and twenty patients in the intervention cohort. Mean days of inappropriate PNs (4 days vs. 1 day) number of PNs (41 vs. 20), and average length of stay (25 vs. 19) were all reduced in the intervention cohort in comparison to the historical cohort. Twenty-five patients in the historical cohort (66%) had PN & EN overlap, and of those patients 14 (56%) had a calorie counts ordered and tolerated on average 49.8% of goal calories while on PN therapy. Eleven patients in the intervention cohort (55%) had PN & EN overlap, and of those patients 10 (91%) had a calorie count ordered and tolerated on average 41.7% of goal calories while on PN therapy.

While there were no statistically significant different in the outcomes evaluated, the introduction of the PN algorithm in addition to pharmacist initiated calorie count consults, decreased the number of PN therapies initiated by greater than fifty percent, reduced length of stay by six days, and decreased the continuation of inappropriate PN therapies. Data collection will extend through April and May to evaluate continued trends. Larger prospective studies are needed to examine the utilization of a PN algorithm.

ISMP 2016-2017 Best Practice:

The purpose of the Targeted Medication Safety Best Practices for Hospitals is to identify, inspire, and mobilize widespread, national adoption of consensus-based best practices for specific medication safety issues that continue to cause fatal and harmful errors in patients, despite repeated warnings in ISMP publications. Numbers 1-9 were detailed in prior newsletters.

ISMP Best Practice 10: Eliminate all 1,000mL BAGS of sterile water (labeled for "injection", "irrigation", or "inhalation") from all areas outside the pharmacy.

Rationale: ISMP has received multiple reports of patients receiving 1 Liter bags of sterile water when patients were supposed to be receiving 1 Liter bags of dextrose 5% (D5W) or 0.9% sodium chloride. We want to prevent any and all accidental administration of an IV infusion of sterile water to avoid patient harm. Large volumes of hypotonic sterile water given IV have led to death from hemolysis of cells.

Recommended Prevention Methods:

- Establish a policy that 1 Liter bags of sterile water can only be ordered by the pharmacy
- Work with respiratory therapists and other departments who utilize 1 Liter bags of sterile water frequently to generate ideas on the safest way to provide patient care
- Consider removing the 1 Liter sterile water bags for injection, irrigation, or inhalation and replace with 2 Liter bags or bottles of sterile water for irrigation.

Safety Opportunities

- Please remember when verifying orders for weight-based medications to assess whether the patients' weight is practical. If the weight is very small or very large please confirm with the patients nurse. There have been instances of the patients' weight being documented incorrectly and the patient receiving too large of a dose, potentially causing harm.
- Please remember to double check all orders for factor products. It was discovered at checking that the wrong boxes were pulled for an Advate order. The dose had to be tossed out resulting in thousands of dollars wasted. We are currently developing a process for the Charge/Main pharmacist and IV room staff to help prevent future issues.

Regulatory

Recent FDA Drug Approvals

- **Aminolevulinic acid hydrochloride (Ameluz)** is a porphyrin precursor used in combination with the BF-RhodoLED lamp for photodynamic therapy (PDT) for the treatment of actinic keratoses
- **Antihemophilic Factor (Recombinant, Single Chain) (Afstyla)** is a recombinant, antihemophilic factor for the treatment of hemophillia A
- **Obeticholic acid (Ocaliva)** is a first-in-class farnesoid X receptor (FXR) agonist for the treatment of primary biliary cholangitis
- **Daclizumab (Zinbryta)** is an interleukin-2 receptor blocking antibody indicated for the treatment of relapsing multiple sclerosis
- **Lenvatinib (Lenvima)** is a multitargeted tyrosine kinase inhibitor for the treatment of advanced renal cell carcinoma
- **Nivolumab (Opdivo)** is a IgG4 monoclonal antibody that selectively inhibits programmed cell death-1 (PD-1) for the treatment of classical Hodgkin lymphoma
- **Atezolizumab (Tecentriq)** is a programmed death-ligand 1 (PD-L1) blocking antibody for the treatment of urothelial carcinoma

FDA Med Safety Alert

"FDA advises restricting fluoroquinolone antibiotic use for certain uncomplicated infections; warns about disabling side effects that can occur together"

The FDA has released a new proposed restriction for fluoroquinolones in uncomplicated infections. The FDA advisory committee has determined that the serious adverse events from fluoroquinolones outweigh the benefits in the disease states listed below and other antimicrobials should be used first line. The FDA recommends to reserve fluoroquinolones for those patients with no other treatment options available. The FDA will now be requiring all systemic (both oral and injectable) fluoroquinolones to have this new safety warning on its drug labels and medication guides.

- Acute sinusitis
- Acute bronchitis
- Uncomplicated UIT

Fluroquinolone adverse event and black box warning review:

- Serious adverse events for Fluroquinolones:
  - ◊ QTc prolongation
  - ◊ Peripheral neuropathy
  - ◊ CNS effects: tremor , restlessness, confusion, increased intracranial pressure, hallucinations
  - ◊ Hepatotoxicity
- U.S. Boxed Warnings:
  - ◊ Tendon inflammation and/or rupture
    - * Immunosupppressed patients (prolonged steroid use, organ transplant recipients)
    - * Age greater than 60 years old
  - ◊ Myasthenia gravis
    - * May exacerbate muscle weakness secondary to myasthenia gravis

WANTED

Pharmacy Technician to participate on Newsletter Committee

Committee member responsibilities include:

- Attending monthly committee meetings (2nd Monday of the month at 2:30)
- Bring ideas for newsletter content

Any interested persons should email:

Jennifer.jones2@ololrmc.com

INPHARMATION EDITORIAL STAFF

Editor-in-Chief
Jennifer Jones, PharmD, BCPS

Writing Staff
Kellee Brown, PharmD
Stephanie Chang, PharmD
Katie Ducote, PharmD, BCPS
Ashley Joseph, PharmD
Brandi LaFrance, PharmD, BCPS
Lauren Linder, PharmD
An Nguyen, PharmD

Reminders

June 27th: New Pharmacy Residents start

June 27th—July 13th: Team Member Blood Drive. Pizza for a Pint (FREE PIZZA!)

Sept 30th—Oct 2nd: Save the Date → LSHP Mid-Year Meeting in Shreveport LA