OUR LADY OF THE LAKE RMC

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PARP Inhibitors in Ovarian Cancer

By Donyika Joseph, PharmD

Ovarian cancer is the fifth leading cause of cancer-related death among women in the United States and those with BRCA1 and BRCA2 mutations face a 40-60% increase in the chance of developing ovarian cancer. 75-80% of women will experience a recurrence of their disease, making medications for recurrence and maintenance very important. Poly Adenosine-diphosphate Ribose Polymerase (PARP) inhibitors prevent the repair of DNA damage which eventually leads to cell death. The National Comprehensive Cancer Network (NCCN) recommends the use of PARP inhibitors in the relapse and maintenance therapy settings, most often as third line or further in a patient's treatment course.

Currently, there are three FDA approved PARP inhibitors available in the United States: olaparib (Lynparza®), rucaparib (Rubraca®), and niraparib (Zejula®). Use of these medications for relapsed or maintenance ovarian cancer are supported by several trials including ARIEL2, which showed an increase in progression free survival in patients with BRCA mutations and SOLO2 as well as NOVA which showed an increase in progression free survival when olaparib and niraparib were compared with placebo. New and ongoing studies are exploring the use of PARP inhibitors as first line therapy in ovarian cancer and other cancers.

Resident Seminars

Neurostimulant Use in Traumatic Brain Injury

By Emily Johnston, PharmD

Thirty percent of all injury-related deaths are due to traumatic brain injuries (TBI), and the average US cost of these injuries is around $77 billion each year. Some patients, especially those who suffer from severe TBIs may remain in a vegetative state or minimally conscious state for weeks, months, or years after their injury. One way to measure the degree of their disability is through a Disability Rating Scale (DRS), which uses eye opening, communication, activities of daily living, and level of functioning. This score is generally used in a rehabilitation setting, while the Glasgow Coma Scale (GCS) is used in the inpatient setting to determine level of consciousness. After a TBI, there are several alterations in synapse functions necessary for a conscious state. The theory behind using neurostimulants in TBIs is to restore the balance of synaptic hemostasis and neural plasticity. Methylphenidate (Ritalin) and amantadine are two neurostimulants that have been used in TBIs.

In one study, methylphenidate given two days post-admission showed a decrease in ICU days and in hospital stay by 19%; however, there was no difference in GCS. This study demonstrated that there is a possible use for methylphenidate in the inpatient setting. In another study, amantadine was given 4-42 days post-admission, which resulted in an improvement in the rehabilitation setting. Overall, methylphenidate may be good for use in the early days following a TBI, while amantadine may be more useful in rehabilitation setting.

Use of Tranexamic Acid in Trauma Patients

By Rosanna Dastoori, PharmD

Trauma patients presenting to the emergency department can arrive with a prolonged prothrombin (PT) and/or activated partial thromboplastin time (aPTT) at admission. The elevated lab values have been associated with a 3-4 times higher mortality rate and have been independently associated with increased transfusion requirements, septic complications, ICU length of stay, and organ injury. This phenomenon is known as acute traumatic coagulopathy, or trauma induced coagulopathy. Some possible contributing factors include acidosis, hypothermia, and hemodilution. A recent study also determined that the trend of mortality was associated with INR, concluding that with an INR of greater than 3, the probability of death was between 17-35%.

Tranexamic acid has been shown to reduce the risk of bleeding, as well as the amount of blood transfusion requirements. There have been 2 major controlled trials that looked into the effects of tranexamic acid: CRASH2 and MATTERs trials. CRASH2 determined that the use of Tranexamic acid within 3 hours of injury can reduce the risk of death due to bleeding in trauma patients. The MATTERs trial looked at patients with wartime injuries and determined that tranexamic acid resulted in lower mortality, especially in patients with a higher injury severity. Tranexamic acid has been included in the recent guidelines, but have not yet been fully adopted by most clinicians.

Resident Seminars (Continued)

Updates in the Management of Pneumonia

By Joey LeBert, PharmD

There have been many recent updates to the management of patients with all classifications of pneumonia. In 2014, the Society for Healthcare Epidemiology of America released prevention strategies for ventilator-associated pneumonia (VAP). These strategies included many practices currently employed at Our Lady of the Lake (i.e. DVT and stress ulcer prophylaxis, chlorhexidine oral care, removal of nasogastric endotracheal tubes, and sedation vacations). Later, in 2016, the Infectious Diseases Society of America revised the hospital-acquired pneumonia (HAP) and ventilator-associated pneumonia guidelines. Key revisions to these guidelines include the removal of healthcare-associated pneumonia (HCAP) from its inclusion in the guidelines, a review of various predictive biomarkers for antibiotic initiation and discontinuation, diagnosis strategies of both HAP and VAP, and edits to the approach of empiric therapy. There has also been a lot of new literature regarding the management of pneumonia that has yet to be addressed by a specific set of guidelines. There have been newly published studies that recommend consideration of a three day course of therapy rather than the current guideline-recommended seven days. There are also reports that have led to the avoidance of certain antibiotics (i.e. doripenem and tigecycline) in the treatment of various pneumonia settings. In contrast to this, other sources have provided reasonable evidence to promote the use of ceftaroline and telavancin in select patient populations with pneumonia. Finally, the community-acquired pneumonia (CAP) guidelines are currently being revised with a predicted release date set for 2018. Needless to say, pneumonia continues to be a topic of great importance and clinicians should be encouraged to remain up-to-date with the most recent management strategies.

Policy Changes

IV Push/B-Port Program

The IV push protocol has been amended to include the B-Port program to include LPNs with regards to IV drug administration. However, RNs may still administer medications as IV Push without the use of the B-Port. Major changes are outlined below.

- All antibiotics are administered over 6 minutes.
- Protonix must be diluted and pushed over 2 minutes
- The following administration rates of medications that do not require dilution have been changed:

Generic Name	Brand	Administration Rate	Max dose for undiluted administration
Dexamethasone	Decadron	5 min	10mg
Diphenhydramine	Benadryl	1 min	50mg
Hydrocortisone	Solu-cortef	1 min	500mg
Methylprednisolone	Solu-Medrol	3min	125mg
Metoclopramide	Reglan	2 min	10mg
Methocarbamol	Robaxin	3 min	1000mg
Ondansetron	Zofran	2 min	8mg
Famotidine	Pepcid	2 min	20 mg

Formulary Changes

Added to Formulary:

Suprep bowel prep kit (sodium sulfate, potassium sulfate, magnesium sulfate)

- New formulation that has a smaller volume than our commonly used GoLytely solution.
- Patients may better tolerate the solution since it has a smaller volume (about 1.5L).
- It should be avoided in patients with renal failure or gout. It is available to be ordered by a GI physician.

Changes to Formulary:

- FML Forte eye drops to Fluorometholone 0.1%
- Removal of Prednisolone sodium phosphate and substitution to prednisolone acetate 1%
- Removal of Bacitracin ointment and substitution to Bacitracin/Polymyxin B
- Removal of Bacitracin/Neomycin/Polymyxin B/ Hydrocortisone and Neomycin/Polymyxin/ Gramcidin ophthalmic preparations and substitution to Neomycin/Polymyxin/Dexamethasone

Deletions from Formulary:

- Sulfacetamide 10% ophthalmic
- Blephamide ophthalmic
- Blephamide SOP ophthalmic

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.

Best Practice 1:

Dispense vincristine and other vinca alkaloids in a minibag of a compatible solutions and not in a syringe.

Rationale:

- This best practice will help ensure that vinca alkaloids are given strictly by the intravenous route.
- If given by the intrathecal route, vinca alkaloids can lead to fatal neurological effects.
- Intrathecal administration can cause destruction of the central nervous system and the few survivors of this medication error have experienced devastating neurological damage.
- Diluting the drug in a minibag that contains a volume that is too large for intrathecal administration is an effective prevention strategy to help avoid this medication error.
- Minibags that use 25 mL for pediatric patients and 50 mL for adult patients are useful in employing this prevention strategy.

Sneaux Day

Regulatory

Recent FDA Approvals

- Juluca (dolutegravir and rilpivirine): for the treatment of HIV-1 infections in adults (November 2017)
- Mepsevii (vestronidase alfa): for treatment of Mucopolysaccharidosis VII (November 2017)
- Hemlibra (emicizumab): for the prevention or reduction of bleeding episodes in patients with hemophilia A (November 2017)
- Yescarta (axicabtagene ciloleucel): for the treatment of relapsed or refractory large B-cell lymphomas (October 2017)
- Solosec (secnidazole): for treatment of bacterial vaginosis (September 2017)
- KedRab (Rabies Immune Globulin): for post-exposure prophylaxis of rabies infection (August 2017)

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
- **Current Drug Shortages:**
  - Hydromorphone 2mg/mL injection
  - Epinephrine 1mg/10 mL Bristojects
  - Morphine 2mg and 4mg carpujects
  - Fentanyl 50 mg/mL injections
  - Sodium and Potassium Acetate
  - Levophed injection
  - Bicillin L-A and Bicllin CR
  - Etopophos

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