Centegra HealthSystem

Pharmacy&Therapeutics

As approved at P&T Committee Meeting September 22, 2016 | Volume16, Number 5

Anticoagulation Update

Enoxaparin Injection Sites

As we know, administration of subcutaneous **enoxaparin** (LOVENOX) should be alternated between the left and right anterolateral and left and right posterolateral abdominal wall. Pharmacy has received requests for administration to be made in areas such as the thigh. Research into alternate site administration is limited. Only one study was found which compared **enoxaparin** administration into the thigh versus the standard injection site. This study was conducted in obese patients and found that when **enoxaparin** was injected into the thigh, anti Xa levels were found to be significantly lower. Based on this limited information and the inability to monitor in-house anti Xa levels at CHS, administration at the sites outlined by the manufacturer should be followed.

Formulary Additions

Loxapine Inhalation (ADASUVE)

ADASUVE was approved at the September, 2014 Pharmacy and Therapeutics Committee meeting on a trial basis. Based on results from that trial, full approval has been granted at this time. ADASUVE, a typical antipsychotic, is an inhalation powder of **loxapine** supplied in a single-use, disposable inhaler containing 10 mg of **loxapine** base. ADASUVE is a drug /device combination product. The drug is indicated for the acute treatment of agitation associated with schizophrenia or bipolar I disorder in adults. This drug is associated with a REMS program and must be administered only in an enrolled healthcare facility.

The drug is contraindicated in patients with current diagnosis or history of asthma, chronic obstructive pulmonary disease (COPD), or other lung disease associated with bronchospasm, including:

- Acute respiratory signs/symptoms (e.g., wheezing)

- Current use of medications to treat airways disease, such as asthma or COPD
- History of bronchospasm following ADASUVE treatment
- Known hypersensitivity to **loxapine** or **amoxapine**

The mechanism of action of **loxapine** in the treatment of agitation associated with schizophrenia or bipolar 1 disorder is unknown. However, its efficacy could be mediated through a combination of antagonism of central dopamine D2 and serotonin 5-HT2A receptors. Administration of ADASUVE resulted in rapid absorption of **loxapine**, with a median time of maximum plasma concentration (Tmax) of 2 minutes. As a consequence of the very rapid absorption of **loxapine** after oral inhalation, there is substantial variability in the early plasma concentrations of **loxapine**.

Because ADASUVE can cause bronchospasm, it carries the following box warning: **BRONCHOSPASM - ADASUVE can cause bronchospasm that has the potential to lead to respiratory distress and respiratory arrest. INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS.**

Other Precautions and warnings include:

- *Neuroleptic Malignant Syndrome:* May develop in patients treated with antipsychotic drugs. Discontinue treatment
- *Hypotension and Syncope:* Use with caution in patients with known cardiovascular or cerebrovascular disease
- *Seizure:* Use with caution in patients with a history of seizures or with conditions that lower the seizure threshold
- *Potential for Cognitive and Motor Impairment:* Use caution when driving or operating machinery

- *Cerebrovascular Adverse Reactions:* Increased incidence of stroke and transient ischemic attack in elderly patients with dementia-related psychosis treated with antipsychotic drugs ADASUVE is listed in pregnancy category C - Neonates exposed to antipsychotic drugs during the third trimester of pregnancy are at risk of extrapyramidal and/or withdrawal symptoms after delivery. ADASUVE should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus. It is not known if the drug is excreted in human breast milk. However it is recommended to either discontinue the drug or nursing.

The most common adverse reactions associated with the drug include sedation, dysgeusia and throat irritation. Branchospasm also occurred more frequently when compared to placebo.

The concurrent use of ADASUVE with other CNS depressants (e.g., alcohol, opioid analgesics, benzodiazepines, tricyclic antidepressants, general anesthetics, phenothiazines, sedative/hypnotics, muscle relaxants, and/or illicit CNS depressants) can increase the risk of respiratory depression, hypotension, profound sedation, and syncope. Therefore, consider reducing the dose of CNS depressants if used concomitantly with ADASUVE. ADASUVE also has anticholinergic activity. The concomitant use of ADASUVE and other anticholinergic drugs can increase the risk of anticholinergic

adverse reactions including exacerbation of glaucoma and urinary retention.

Prior to administering ADASUVE, screen all patients for a history of asthma, COPD, or other pulmonary disease, and examine patients (including chest auscultation) for respiratory signs (e.g. wheezing). Adasuve must be administered only by a healthcare professional.

Dose

• 10 mg by oral inhalation using an inhaler

• Administer only a single dose within any 24-hour period

Monitor the patient for signs and symptoms of bronchospasm after ADASUVE administration. Perform a physical examination, including chest auscultation at least every 15 minutes for at least one hour after ADASUVE administration.

All health care workers associated with the product (physicians, nurses, pharmacists) must complete an Adasuve Education program.

Formulary Additions for Lurie Pediatric Patients

With the arrival of the physicians from Lurie Children's Hospital, new order sets needed to be built. These order sets contain medications that were non-formulary at CHS. The following medications were added to the formulary for use in pediatric patients:

1. **Ampicillin sulbactam** (UNASYN) 1.5 GM for injection – added with pediatric restriction
2. **Cefotaxime** (CLAFORAN) 500 mg, 1 GM, 2 GM for injection – added with pediatric restriction
3. **Ibuprofen** chewable tablet 50 mg and 100 mg – added for pediatrics
4. **Montelukast** (SINGULAR) 5 mg tablet – added for pediatrics
5. **Ranitidine** (ZANTAC) 15 mg/mL Syrup – added for pediatrics
6. Sodium Chloride 3% Nebs – added for pediatrics
7. Vitamin A & D Ointment – added for pediatrics
8. **Sacchromyces** boulardi (FLORASTOR) 250 mg capsule and packet – add for pediatric **and** adult patients

Formulary Deletions

1. **Alvimopan (**ENTEREG) - Pharmacy will maintain supply until current stock expires. If this product has little or no use, it will be removed from formulary.
2. **Lidocaine** 5%/D7.5W (PF) 100 mg/2 mL injection
3. **Bupivacaine-dextrose-water** (PF) 15 mg/2 mL injection
4. **Heparin** 1000 units/mL 30 mL MDV
5. **Tromethamine** 36 mg/mL 500 mL solution for injection (THAM) – off market
6. **Sodium polystyrene sulfonate** powder 454 GM

Therapeutic Substitutions

Drug Ordered	*Dispensed With*
Acetaminophen IV(OFIRMEV) 650 mg for non-pediatric patients	**Acetaminophen** IV (OFIRMEV) 1000 mg
Zolpidem CR (AMBIEN CR) 12.5 mg or 6.25 mg	**Zolpidem** (AMBIEN) 5 mg
Brinzolamide (AZOPT) Ophthalmic Solution 1 drop tid affected eye(s).	**Dorzolamide** (TRUSOPT) Ophthalmic Solution 1 drop tid affected eye(s).

Policy/Protocol Revision

7300-531PT Medication Order Duration Policy

This policy, which specifies medication order duration based on individual medication or medication class type, had previously been deleted. At the February, 2016 Pharmacy and Therapeutics Committee meeting, it was resurrected so that appropriate durations could be placed in Paragon. The revision that was made at this time was reorganization to make incorporation into Paragon easier.

7300-621PT Argatroban Dosing and Monitoring per Pharmacy Protocol

This protocol has been used for many years without substantial change. It details Argatroban dosing and dose adjustment when the drug is used for heparin induced thrombocytopenia or heparin induced thrombocytopenia with thrombotic syndrome. The only change that was made at this time regards removal of wording for a paper order.

7300-690PT Pediatric Medication Preparation and Administration

This policy, recognizing that the pediatric population has significant specific needs, an interdisciplinary process is designed to ensure that pediatric medication therapy is prepared and dispensed in a safe, effective, and timely manner and that all medications administered to pediatric patients are given accurately, safely, and with proper technique for each method of administration. The change that was made to this policy was the removal of the 0.1 mL overfill on IM and subcutaneous medications drawn up by Pharmacy.

Pharmacy & Therapeutics Committee Newsletter

Marcel Hoffman, M.D.	Chairman
Alan Mader, PharmD	Editor, Pharmacy Clinical Coordinator
Paul Troiano, MS, RPh, FACHE	Director of Pharmacy, Interim
Caryn Beck, CPhT	Contributor

Pharmacy Contact Information

Centegra Hospital - McHenry	Retail Pharmacy - McHenry
Phone: 815-759-4400	Phone: 815-759-4899
Fax: 815-759-8090	Fax: 815-759-4914
Centegra Hospital – Woodstock	Retail Pharmacy - Woodstock
Phone: 815-334-3880	Phone: 815-334-3899
Fax: 815-334-3128	Fax: 815-334-3897
Centegra Hospital – Huntley	Retail Pharmacy – Huntley
Phone: 224-654-0600	Phone: 224-654-0630
Fax: 224-654-0605	Fax: 224-654-0635

This P&T Newsletter and past editions available at inside.centegra.com on the Pharmacy Department page

References available upon request