UMMC Pharmacy Newsletter

January – February 2012

The UMMC Pharmacy and Therapeutics Committee: An Overview and 2011 Updates

The University of Mississippi Medical Center’s (UMMC) Pharmacy and Therapeutics Committee (P&T) is responsible for maintaining a formulary system or list of medications that are ordered and stocked for use in the hospital. The P&T Committee is comprised of at least four members from the medical staff as well as the director of pharmacy services, and one representative from hospital administration, nursing services, nutrition services, and the resident staff. This formulary is utilized to ensure medication access but avoid therapeutic duplications, allow competitive purchasing, provide quality patient care, and optimize patient safety. The formulary list is maintained by the Department of Pharmacy Services and is available at: http://paws0.umsmed.edu/Pharmacy/search.action.

P & T Formulary Request Process

Addition and Removal

Any full-time attending physician at UMMC may request that any medication meeting criteria be removed or added to the formulary. To make a request, a signed and completed request form must be submitted to the P&T Committee Chair at least four weeks before the next scheduled meeting (available at: http://pharmacy.umc.edu/documents/formulary_request.pdf). The Department of Pharmacy Services then prepares an evidence-based monograph for presentation and committee review.

Non-formulary Medications

If a physician writes an order for a non-formulary medication, a pharmacist may contact the physician and offer an alternative. If the alternative is not acceptable, the physician must submit a completed non-formulary request form (available at: http://pharmacy.umc.edu/intranet/polproc/documents/D-009attachment-NFform.pdf). Only attending physicians may sign the non-formulary request forms. An exception to this process is if the patient is admitted on a medication and a substitute doesn’t exist. In this case, a request form does not need to be completed. Once the non-formulary form is submitted, medications may take up to 24 hours during the week and 48 hours during weekends and holidays for delivery.

2011 Updates

P & T Process

- Formulary Review – A 6 month time period must lapse before a second request will be considered for a medication addition or removal. This period may be used by the requestor to gather additional evidence for submission to the committee.
- Formulary Requests – Medications must be on the U.S. market for at least 6 months before requests will be accepted. In certain cases, the committee may deem it necessary to grant a waiver to this requirement.
Updated Therapeutic Interchanges and Limitations

- Primaxin® orders – change to Merrem®
- Recombinant thrombin – change to Thrombin JMI® (approved for all indications and ages)
- Acetaminophen – limit to 325 mg per dosage unit (FDA mandate)

Subcommittee Reviews and Additions

<table>
<thead>
<tr>
<th>Medication</th>
<th>Recommendation</th>
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</thead>
<tbody>
<tr>
<td>Hirudo Medicinalis (leeches)</td>
<td>Used by plastic surgery</td>
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<tr>
<td>Sulfadiazine 500 mg tablet</td>
<td>Integral part of triple therapy for toxoplasmosis</td>
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<tr>
<td>Polymyxin B 500,000 unit vial</td>
<td>Used in surgery as topical preparation</td>
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<tr>
<td>Duloxetine (Cymbalta®)</td>
<td>High usage as an antidepressant and neuropathic agent</td>
</tr>
<tr>
<td>Cinacalcet (Senispar®)</td>
<td>Novel agent used to decrease parathyroid hormone</td>
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<tr>
<td>Bendamustine (Treanda®)</td>
<td>Used for CLL and non-Hodgkin lymphomas. Easy to use and good single activity compared to current combination therapies.</td>
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New Medication Additions

Three new medications were added to the formulary in 2011: Brilinta™, Pradaxa® and Ofirmev®. These are highlighted below.

**Ticagrelor (BRILINTA™)**

**Therapeutic Use:** Approved for all FDA indications for all ages. FDA approved = Acute coronary syndrome – thrombosis; Percutaneous coronary intervention thrombosis

**Dosing:** Load 180 mg PO w/ aspirin 325 mg x 1 dose, then 90 mg PO BID with aspirin 75 – 100 mg daily; do not exceed 100 mg of maintenance aspirin

May take w/ or w/o food. No dose adjustments required for renal impairment or mild hepatic impairment

**Contraindications:** Severe hepatic impairment; Intracranial hemorrhage; Active bleeding

**Mechanism of Action:** Reversibly interacts with platelet P2Y(12) ADP-receptor preventing signal transduction and platelet activation and aggregation

**Pharmacokinetics:**
- **Absorption** – 36% oral bioavailability, peak concentration ~ 2 hrs
- **Distribution** – Vd = 88 L, Protein binding = 99%
• **Metabolism** – CYP3A4 in liver to active metabolites

• **Elimination** – Fecal and renal excretion, t 1/2 = 7 hrs

**Adverse Effects (Common):**
- Dyspnea – most common
- Bleeding
- Headache
- Increased serum creatinine

**Drug Interactions:**
- Concurrent use of strong CYP3A4 inhibitors OR inducers
- Concurrent use of > 40 mg/day of simvastatin or lovastatin may increase statin-related adverse effects
- Concurrent use of digoxin (P-glycoprotein transporter) requires monitoring levels
- Other anticoagulants may increase bleeding risk

**Special Populations:**
- Pregnancy Category C; Avoid breastfeeding
- Safety and efficacy not studied in pediatrics

**Other:**
- Discontinue 5 days before surgery

**Availability:**
- 90 mg tablet

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**Dabigatran (PRADAXA®)**

**Therapeutic Use:**
- Approved for all FDA indications for all ages as an alternative for patients who are not acceptable candidates for warfarin therapy.
  
  - FDA approved = Prophylaxis of stroke or embolism in patients with non-valvular atrial fibrillation
  
  - Not P&T or FDA approved for DVT prophylaxis with knee and hip replacement or VTE treatment

**Dosing:**
- 150 mg PO BID. May take w/ or w/o food.

  - Renal impairment: CrCl 30 – 50 mL/min AND dronedarone or ketoconazole, decrease dose to 75 mg BID
  
  - CrCl 15 – 30 mL/min, 75 mg BID
  
  - CrCl 15 – 30 mL/min AND Pgp inhibitors (dronedarone, ketoconazole), AVOID
  
  - CrCl < 15 mL/min, no recommendations

**Contraindications:**
- Hypersensitivity; Active bleeding
**Mechanism of Action:** Reversible direct thrombin inhibitor

**Pharmacokinetics:**
- **Absorption** – 3 - 7% oral bioavailability, peak concentration ~ 1 - 6 hrs
- **Distribution** – Vd = 50-70 L, Protein binding = 35%
- **Metabolism** – Hydrolysis and conjugation in liver to active metabolites
- **Elimination** – Primarily renal excretion, t 1/2 = 12 - 17 hrs

**Adverse Effects (Common):**
- Bleeding
- Esophagitis
- Gastritis
- GERD
- GI hemorrhage

**Drug Interactions:** Concurrent use of Pgp inhibitors (dronedarone, ketoconazole) OR inducers (rifampin)
- Other anticoagulants may increase bleeding risk

**Special Populations:** Pregnancy Category C; Avoid breastfeeding
- Safety and efficacy not studied in pediatrics

**Other:**
- Discontinue 1-2 days before surgery (CrCl >50) or 3-5 days (CrCl <50)
- Discard bottle 4 months after opening

**Availability:** 75 mg and 150 mg capsule

**Acetaminophen IV (OFIRMEV®)**

**Therapeutic Use:** Approved for all FDA approved indications, but with the following restrictions:
- Pediatric patients only, 2 to 12 years
- No PRN orders
- No pre-med orders
- Auto stop of 24 hrs on all orders
- FDA approved = Management of mild to moderate pain, moderate to severe pain with adjunctive opioid analgesics, and for reduction of fever

**Dosing:**
- **Children ≥ 2 to 12 years:** 15 mg/kg every 6 hours or 12.5 mg/kg every 4 hours (max single dose 15mg/kg; 75 mg/kg over 24 hours); 1:1 conversion on oral to IV doses

**Contraindications:** Hypersensitivity; Severe hepatic impairment
Mechanism of Action: Centrally acting analgesic and antipyretic, acts via inhibition of prostaglandin synthesis

Pharmacokinetics:
- Absorption – Peak concentration 15 minutes
- Distribution – Vd = ~1.1 L
- Metabolism – Liver to active metabolites
- Elimination – Primarily urine excretion, t 1/2 = 3 -7 hrs

Adverse Effects (Common):
- Nausea and vomiting
- Pyrexia
- Headache
- Insomnia

Drug Interactions: Concurrent use of CYP2E1 inducers may increase hepatotoxic risk
Other anticoagulants may increase INR

Special Populations: Pregnancy Category C; Breastfeeding compatible

Availability: 10 mg/ml (100 ml) injection solution

References:
4. Department of Pharmacy [Internet]. Jackson, MS: University of Mississippi Medical Center [updated 2011 Sept 21]. Available from: http://pharmacy.umc.edu/
5. Department of Pharmacy [Internet]. Jackson, MS: University of Mississippi Medical Center [updated 2011 Sept 21]. Formulary List. Available from: http://paws0.umsmed.edu/Pharmacy/search.action