Meet the Pharmacy Residents, Yoohee Chu and Sapna Shah

Yoohee Chu was born in South Korea and grew up in the suburbs outside of Philadelphia. Before entering pharmacy school, Yoohee graduated from the Pennsylvania State University with a Bachelor of Arts in Advertising and a minor in Psychology. After working as a pharmacy technician as a summer job, she found an interest in pharmacy and decided to pursue a career as a pharmacist. She completed her PharmD degree at Thomas Jefferson University in Philadelphia where she gained more interest in practicing pharmacy in the inpatient setting. She joined The Valley Hospital in July as a resident pharmacist with a goal of being involved in a variety of opportunities and experiences throughout the one year residency program. Yoohee has so far completed rotations in the Emergency Department, internal medicine, and oncology and looks forward to the upcoming rotations which include: medication safety, critical care, infectious disease, cardiology and others. Yoohee currently lives in Jersey City, NJ with her newlywed husband. In her free time, Yoohee enjoys creative projects, watching Broadway musicals, and playing with her new puppy named Mello.

Sapna Shah was born and raised in North Bergen, New Jersey. Throughout her grade school days, she knew she wanted to enter a profession where she could make a difference in another individual’s life. Because she was afraid of doctors and needles, she thought she might try pharmacy school. She completed her PharmD degree at The University of the Sciences in Philadelphia. Originally, she had no idea what she was doing in pharmacy school. After joining APhA and getting involved with health fairs, she realized that she had chosen the right profession. Some personal health experiences further changed her life, and she knew that she wanted to pursue a residency. Sapna joined The Valley Hospital in July as a resident pharmacist with the goal of finding her niche in the pharmacy profession. She is very interested in advancing the role of pharmacists and educating others. In addition, she is also interested in Critical Care and Emergency Medicine. She looks forward to working with everyone and learning more about them. In her spare time, Sapna loves to travel, bake, do creative projects, and spend time with her family and friends. Most of all, Sapna loves to laugh and make others laugh.
Valley hospital pharmacists; Fatima Torres, Patricia Esty, and Carlo Lupano collaborated together to conduct a study that assessed the appropriate indications for the initiation of parenteral nutrition, the duration of TPN therapy, and the cost of TPN use at the Valley Hospital. Data was analyzed over a five month time period for patients who were ordered a customized parenteral nutrition therapy to see if TPN was appropriately ordered according to the 2009 American Society for Parenteral and Enteral Nutrition (ASPEN) recommendations.

Patients were included if they had a customized TPN from August to December 2011. Patients were excluded if they had recurrent TPN use during the study period, TPN use at home or in a nursing home prior to admission, and under 18 years of age. The study design was a single center, non-randomized, retrospective analysis. The data was collected via the Meditech computer system and included demographics, indication of parenteral therapy, date of initiation of therapy, duration of therapy, and body mass index to determine nutritional status.

Over the five months, 119 patients were ordered TPN of which 88 patients were included in the study. The two most common indications for parenteral nutrition included gastrointestinal surgery and critically ill patients. Findings of the study showed that 46 out of 88 patients (52%) were prescribed parenteral nutrition appropriately according to the ASPEN guidelines. 42 out of 88 patients (48%) were inappropriately initiated on TPN. The study showed a minor difference between appropriate vs. inappropriate initiation of TPN therapy at The Valley Hospital. A very small amount of patients prescribed TPN were clinically underweight or malnourished, and the need for TPN in these patients could be reconsidered. The average duration of therapy was 7 days per patient. A total of 165 bags were found to have errors, which cost the pharmacy approximately $11,385.00.

The study concluded that improvement is needed in the TPN orders for the GI surgery and pancreatitis groups. In addition, it was recommended that education and the possibility of creating a new TPN order sheets may increase prescriber awareness of clinical indication, nutritional status, and the findings of this study.
<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2013</td>
<td>Radium 223 (Xofigo) has been added to the formulary for the FDA indication of treatment of patients with castration resistant prostate cancer and symptomatic bone metastasis. In a Phase III clinical trial it was proven efficacious in prolonging survival in patients with castration resistant prostate cancer by 2.9 – 3.6 months, and delayed time to first skeletal event by 5.2 months compared to placebo. Most common adverse events were nausea, diarrhea, vomiting, peripheral edema, anemia, lymphocytopenia, leukopenia, thrombocytopenia, and neutropenia. The usual dose is 50 kBq/kg of body weight, given at 4 week intervals for 6 injections. Tranexamic Acid (Cyclokapron) was approved for the addition to the formulary and the ordering protocol has now been approved. Information sheets regarding Tranexamic acid are also available.</td>
</tr>
<tr>
<td>October 2013</td>
<td>Liposomal Bupivacaine (Exparel) will be used for the requested indication of breast microsurgery. Exparel is currently being used at TVH for bunionectomy and hemorrhoidectomy. Exparel is a liposomal formulation of bupivacaine indicated for single dose administration into the surgical site to produce post-surgical analgesia. New data supports the benefits of Exparel for post-surgical analgesia following aesthetic plastic surgery procedures. The results are low pain scores, minimal opioid use, high satisfaction with pain management and an excellent overall patient score benefit of analgesia. Ferumoxytol (Feraheme) has been added to the formulary with the FDA indications in place of Iron sucrose (Venofer) for the treatment of iron deficiency anemia in CKD for outpatient use only. Ferumoxytol has been approved by the FDA based on three Phase III clinical trials which showed a statistically significant increase in hemoglobin levels from baseline when compared to oral iron. Adverse effects are mild to moderate in intensity which includes: nausea, dizziness, diarrhea, chills, rash, dysgeusia, injection site swelling, constipation, and abdominal pain. Sipuleucel-T (Provenge) has been added to the formulary with the FDA indications for asymptomatic or minimally symptomatic metastatic castrate resistant (hormone refractory) prostate cancer OUTpatient use ONLY. According to clinical trials, sipuleucel-T significantly increases median overall survival by approximately 4.1 months, with adverse events related to infusion reactions (chills, fever, headache, fatigue, nausea, joint pain, and back pain). It is administered as 3 injections, 2 weeks apart requiring a collection of peripheral blood mononuclear cells via leukepheresis. The pharmacy would not be charged for the dose until 30 days after and only if the patient receives the dose.</td>
</tr>
<tr>
<td>June 2013</td>
<td>Prothrombin Complex Concentrate (KCENTRA) has been added to the formulary for only those patients on Warfarin, having an elevated INR, and who sustain life-threatening bleeds requiring emergent surgery within six hours.</td>
</tr>
<tr>
<td>April 2013</td>
<td>Acetaminophen IV (Oxmirex) has been added to the formulary and has been restricted to the anesthesiologists and obstetricians at The Valley Hospital. Apixaban (Eliquis) has been added to the formulary as a treatment option for Atrial fibrillation, Nonvalvular – Cerebrovascular accident; Prophylaxis – Embolism; Prophylaxis. Over the last two years three new drugs have been developed for stroke to replace warfarin. Two of these drugs are being used at Valley, Pradaxa and Xarelto. Eliquis has had no reported increase in adverse outcomes and is being use in the community. It is also well tolerated. Dosage: 5mg orally twice daily (or 2.5 mg twice daily in subjects with at least 2 of the following characteristics: age 80 yrs. or older or body weight 60 kg or less.</td>
</tr>
<tr>
<td>January 2013</td>
<td>PDA automatic substitution and reduce dosing to three times a week where the utilization criteria that doses of ESA will be held when the hemoglobin is ≥ 12. Doxercalciferol (Hectorol) has been added to the formulary for the treatment of hyperparathyroidism in hemodialysis patients. Paricalcitol (Zemplar) is very similar to doxercalciferol with clinical equivalence and similar side effect profiles. Paricalcitol is currently on the formulary. Dr. Kozlwoski is requesting this formulary addition based on the increase use of doxercalciferol in the outpatient setting and to maintain drug therapy if/when the patient is admitted to the hospital. The addition of doxercalciferol is budget neutral. The pharmacy would like to carry both of these drugs on formulary. Rolflumilast (Dailiesp) has been added to the formulary for reduction of COPD exacerbations in patients with severe COPD associated with chronic bronchitis and have a history of exacerbations. It is not indicated for the treatment of acute bronchospasms. Rolflumilast is considered to be the gold standard in the reduction of COPD exacerbations. In addition, Dr. Barasch indicated that Rolflumilast has been shown to reduce the readmission rates for COPD patients. Dosage: 500 mcg once daily, with or without food. Florbetapir F-18 (Amyvid) has been added to the formulary for outpatient use only with FDA approved indications. This medication is provided by a nuclear pharmacy and will be ordered on a case by case basis.</td>
</tr>
<tr>
<td>October 2012</td>
<td>For SCIP patients, the nurse will hold Lovenox and contact the physician when there is a decrease of 1.5 grams in the hemoglobin level, Hurricane Spray was added to the Formulary with FDA approved indications. Pertuzumab was added to the formulary with FDA approved indications for OUTpatient infusion use only. There is an automatic conversion to Oral Vancomycin to 125 mg except for patients in critical care units, The antibiotic automatic stop order period be decreased from seven days to four days, Acetaminophen IV (Oxmirex) has been added to the formulary as a treatment option for Atrial fibrillation, Nonvalvular – Cerebrovascular accident; Prophylaxis – Embolism; Prophylaxis. Over the last two years three new drugs have been developed for stroke to replace warfarin. Two of these drugs are being used at Valley, Pradaxa and Xarelto. Eliquis has had no reported increase in adverse outcomes and is being use in the community. It is also well tolerated. Dosage: 5mg orally twice daily (or 2.5 mg twice daily in subjects with at least 2 of the following characteristics: age 80 yrs. or older or body weight 60 kg or less.</td>
</tr>
<tr>
<td>December 2012</td>
<td>Palonosetron (Aloxi) was added to the Formulary with the inclusion of both inpatient and outpatient oncology patients according to the NCCN guidelines, to be prescribed by medical oncologists only.</td>
</tr>
</tbody>
</table>
P&T Committee (continued): Formulary Additions in Review

Bupivacaine Liposome Injection (Exparel) was added to the Formulary for the indication of hemorrhoidectomy for use in SDS at Luckow Pavilion, with a requirement that pharmacy report back to the committee with usage data in three months.

March 2012
Palonosetron (Aloxi) was added to the Formulary with a contingency that an EKG be performed prior to the administration of the drug. Aloxi will be restricted for use by Medical Oncologists and to the outpatient setting at Luckow Infusion. The Board asked that this item be brought back to the Committee to discuss how it could be used on inpatients requiring the drug.

February 2012
Ibuprofen (Caldolor) was added to the Formulary with restricted use for Anesthesiology and Pain Management.

Cefaroline (Teflaro) was added to the formulary for FDA indications (restricted to use at Luckow Infusion),

Tolvaptan, (Samsca) was added to the Formulary for the indication of pulmonary edema for hospitalized patients with heart failure in heart failure treatment with a maximum duration of 48 hours.

Ceftaroline (Teflaro) was added to the Valley Hospital formulary with restricted use for Anesthesiology and Pain Management.

Ibuprofen (Caldolor) was added to the Valley Hospital formulary with restricted use for Anesthesiology and Pain Management.

November 2011
The expanded use of acetaminophen IV (Ofrimev) was approved in post-operative patients for a maximum duration of 48 hours.

October 2011
Ticagrelor (Brilinta) was added to The Valley Hospital formulary to be used according to FDA approved indications.

Tapentadol (Nucynta) was added to The Valley Hospital formulary to be used according to FDA approved indications.

Rivaroxaban (Xarelto) was added to the Valley Hospital formulary restricted to patients with sodium of 125 and below and to monitor usage for the next three to six months to determine further usage to be used according to FDA approved indications.

Belimumab (Benlysta) was added to the Valley Hospital formulary according to FDA approved indications, restricted to OUTpatient use at Luckow ONLY.

Tol Provastatin, (Samisca) was added to the Valley Hospital formulary restricted to patients with sodium of 125 and below and to monitor usage for the next three to six months to determine further usage to be used according to FDA approved indications.

May and June 2011
Halaven (eribulin) was added to the Formulary for FDA indications (restricted to use at Luckow Infusion).

Xgeva (denosumab) was added to the Formulary for FDA indications (restricted to use at Luckow Infusion).

The automatic stop order was changed for Lovenox and Arixtra to 7 days.

Cimoral (sulindac) was REMOVED from the Formulary.

MTM and the Heart Failure Clinic

Pharmacists have been collaborating with nurse practitioners Robin Giordano and Vera Usinowisz in the outpatient heart failure clinic located on 4th floor Phillips building since early August 2012. The clinic, which was originally accessible to patients primarily on Tuesdays and Thursdays, has opened its doors to 5 days a week since last December. Through Medication Therapy Management (MTM), pharmacists are able to perform medication reconciliation and educate patients about their medication regimen as well as answer any questions they may have. In addition, pharmacists review patient medication lists and collaborate with the nurse practitioners to optimize the patient’s heart failure medication therapy.

The heart failure clinic has been extremely successful and pharmacists at The Valley Hospital have been excited for the opportunity to help make a positive impact in the lives of these patients.

Story submitted by: Farah Rose Namissa, PharmD
PGY1 Former Resident and Yooyee Chu, PharmD Pharmacy Resident

Pharmacist Involvement in the Stroke Discharge Process to Reduce Readmission Rates

Pharmacists are now involved in completing the medication reconciliation prior to discharge for patients who are newly diagnosed with stroke. A retrospective study of the impact of pharmacist involvement was completed and presented in the Midyear Clinical Meeting for pharmacists. Although the data collection was limited to 1.5 months, the results showed an increase in the number of patients discharged on the appropriate medications (statins, antiplatelets, anticoagulants).

Readmission data was limited however, a decrease in the readmission rate was seen (15% to 4%) post pharmacist involvement in the stroke discharge process.

(please refer to the below supplemental for more information).