CT–ASCP

CHAPTER NEWSLETTER
A SENIORx CARE PERSPECTIVE

****Students:** *Check out Page 5 for Scholarship Info!!*

September 2004

Chapter Newsletter: Volume I, Number 4

From the Dean's Desk

Robert L. McCarthy, PhD

Dear Colleagues:

I am pleased to have the opportunity to update CT-ASCP members about happenings in the School of Pharmacy. Connecticut pharmacy is justly proud to have one of the preeminent ASCP chapters in the nation. We are grateful for the numerous ways in which Connecticut consultant pharmacists support our School, especially by providing state-of-the-art practice site learning opportunities for our students. We are equally proud of two accomplished members of our faculty—Professors Dennis Chapron and Sean Jeffery—who have played and continue to play such integral roles in the chapter's success. Clearly, pharmacy practice in Connecticut, and the patients we serve, is indebted to the high standards set by CT-ASCP and its members.

The 2004-2005 academic year will culminate with the completion of a new home for the School of Pharmacy. We expect to begin moving some areas within the School into the new building as soon as early May 2005; we should be fully operational in time for the start of classes in late August 2005. We plan to combine the building dedication, annual pharmacy alumni banquet, and 80th anniversary celebration of the School into a festive weekend tentatively scheduled for Friday-Saturday, October 21-22, 2005. Please mark your calendars; details to follow.

The Professionalism Task Force, under the leadership of Dr. Gerry Gianutsos, has made a series of preliminary recommendations, a number of which will be implemented by the School's Executive Committee immediately; the faculty will consider others.

Director Dr. Philip Hritcko and the staff of the Office of Experiential Education are busy at work on several projects, the most exciting being serving as one of the pilot's for the University's e-portfolio initiative. We hope to develop a student portfolio of work that can move with the student from rotation to rotation as they complete their advanced practice experiences. Dr. Hritcko is also overseeing the redesign of our P1-P3 introductory practice experiences.

I am pleased to announce the Hewitt Scholar in Residence Program. This program, funded from an endowment established by the 3rd dean of the School of Pharmacy Harold Hewitt, will bring one-two national-recognized scholars to campus each year for an intensive period of scholarly exchange with faculty members, postdocs, graduate students, residents and fellows. It is expected that the scholar will contribute to the research efforts of the School and will have broad-based appeal to multiple researchers or programs.

This is but a glimpse of some of the exciting happenings on campus. To learn more, be sure to watch for our annual report and the reintroduction of our experiential education newsletter later this fall.

With warm regards,

Robert L. McCarthy, Ph.D.

Dean and Professor, School of Pharmacy

University of Connecticut

August 2004

CT-ASCP Chapter Communications Committee:

- **Amy Huie-Li, PharmD, CGP**
- **Kevin Chamberlin, PharmD**
- **Anna Egle, RPh, FASCP**
- **James Conklin, PharmD**

Medication Appropriateness Index and Inpatients

Kevin W. Chamberlin, PharmD

The prevalence of inappropriate prescribing in frail nursing home residents has been well described[1]. However, with regard to their inpatient counterparts, the data has lacked sufficient examination. In the early 1990s, Joseph Hanlon, PharmD, MS and colleagues developed a systematic approach to assessing drug therapy appropriateness in the ambulatory elderly by way of the Medication Appropriateness Index (MAI). The study of primary interest looked at how this tool might also be applied to hospitalized frail elderly patients[1].

The study involved 11 VA Medical Centers and the Geriatric Evaluation and Management (GEM) unit patients. The eligibility requirements of the 1388 patients enrolled included: over 65 years, hospitalized on a medical or surgical ward more than 48 hours, and met 2 or more criteria for frailty. As expected with frailty eligibility criteria, the patients had multiple comorbidities and medications and most had fair or poor self-rated health.

As defined by the MAI ratings, there are 10 questions per medication. For 2796 total medications, there were then 27,960 ratings of which 2207 (8%) had inappropriateness of some level. 78% of the drugs and nearly 92% of the patients had one or more MAI problems. The common problems exposed by the MAI involved: expense, practical directions, and dosage. Drug interactions, duplication, and effectiveness were among the least common problems identified. According to pharmacologic class, cardiovascular, gastric, CNS, and respiratory agents were among the most common offenders identified.

Where lower is better, only 8% of patients reviewed had an MAI score of 0; 19.4% had a score > 15, with the average score being 8.95. Analyses revealed that the only significant factors associated with having a higher MAI score was the total number of prescription and nonprescription drugs. Of concern was the number of drugs with no indication (n = 250, 8.9%) within the patients' drug regimens.

Certainly the management of medications from the outpatient-to-inpatient-to-outpatient setting is a challenge. The MAI may be a useful tool in managing the medication additions occurring while the frail elderly are inpatients. While the validity of its predictability may still need to be assessed for inpatients, the MAI is nonetheless an excellent assessment for any clinical pharmacist to apply to any drug regimen.

Medication Appropriateness Index Criteria

1. Is there an indication for the drug?
2. Is the medication effective for the condition?
3. Is the dosage correct?
4. Are the directions correct?
5. Are there clinically significant drug-drug interactions?
6. Are there clinically significant drug-disease interactions?
7. Are the directions practical?
8. Is the drug the least expensive alternative compared to others of equal utility?
9. Is there unnecessary duplication with other drugs?
10. Is the duration of therapy acceptable?

Reference of primary interest:

[1]Hanlon JT, et al. "Inappropriate Medication Use Among Frail Elderly Inpatients." *The Annals of Pharmacotherapy.* 2004;38:9-14.

Additional resources:

Cohen HJ et al. "A controlled trial of inpatient and outpatient geriatric evaluation and management." *NEJM.* 2002;346:905-912.

Hanlon JT, et al. "A method for assessing drug therapy appropriateness." *J Clinical Epidemiology.* 1992;45:1045-1051.

Kevin W. Chamberlin, PharmD is an Assistant Clinical Faculty in Internal Medicine at the University of Connecticut School of Pharmacy.

Mechanism of the Synergistic Effect of Metolazone & Furosemide

Trinh T. Bùi, PharmD

The diuretic effect of the combination treatment metolazone-furosemide is greater than either therapy alone. This phenomenon is due to the pharmacokinetic and pharmacodynamic interaction within the kidneys. A kidney has approximately 300,000 nephrons which are the functional units. Nephrons are composed of a Bowman's capsule, the proximal tubule, the loop of Henle, distal tubule, collecting duct and closely associated blood vessels. In the Bowman's capsule, water, sodium, chloride, salts, urea, glucose, and amino acids are filtered from the blood. In the descending and ascending loops of Henle and in distal tubule, reabsorption of water, sodium, chloride, amino acids, and glucose are returned to the kidney and ultimately to the blood. In the distal tubule, secretion K^+, H^+, some drugs, and toxins are removed from the blood. In the collecting ducts, renal pelvis, ureter, bladder and urethra, urine is removed from the body.

Mechanism of action:

Loop diuretics are anthranilic acid derivatives with a sulfonamide substituent (e.g., furosemide, bumetanide), or aryloxyacetic acids without a sulfonamide substituent (e.g., athacrynic acid). These agents are believed to reversibly bind to the sodium, potassium, and chloride mainly in the lumen of the loop of Henle, thereby inhibiting the active reabsorption of these ions. Loop diuretics are used to treat edema from congestive heart failure (CHF), hepatic cirrhosis, renal disease and pulmonary edema, and ascites.

The commonly used thiazide diuretics are most closely related to the benzothiadiazides with variable substituents. The prototypical agent is chlorothiazide. The primary action of benxothiadiazides is to increase diuresis by blocking the reabsorption of sodium, chloride and water in the distal tubule. These agents are used to treat chronic edema, hypertension, and heart failure.

Conclusion:

This treatment regimen takes advantage of the different pharmacologic classes and mechanisms of action of metolazone and furosemide. This combination therapy can be helpful in the treatment of refractory edema, chronic heart disease, or conditions that have accumulated large volumes of fluid. However, this intensive therapy is accompanied by high risks of electrolyte imbalances (hypomagnesemia, hypochloremic alkalosis, hyponatremia), orthostatic hypotension, and dizziness. Additional monitoring is advised with regard to blood pressure, weight, chemistry, input and output, and renal and hepatic function. In order to maximize this additive effect, metolazone should be administered 30 minutes *after* furosemide allowing for sequential removal of sodium, chloride, and water. However, there is no clear evidence in literature indicating which one should be given prior to the other.

Reference of primary interest:

Pharmacy Newscapsule. Jan—Feb 2003. <http://dhfs.wisconsin.gov/rl_DSL/Publications/pharmJanFeb03.pdf>

Trinh T. Bùi, PharmD is a 2004 graduate of the University of Connecticut School of Pharmacy and is currently doing a Pharmacy Practice Residency at the VA Connecticut Healthcare System.

Pharmacy Students & Fellow Practitioners: Why complete a Pharmacy Practice Residency?

Amy Huie-Li, PharmD, CGP

A general pharmacy practice residency is an organized, directed, salaried, postgraduate training program of one-year duration that concentrates on the development of knowledge, attitudes, and skills needed to pursue rational drug therapy for a wide range of patients in a variety of pharmacy practice settings. A specialized residency program provides an additional year of training in a more focused area of pharmacy practice such as geriatrics, cardiology, oncology, acute care, and so on, while a pharmacy fellowship program of 1-2 year duration prepares a participant to develop competency in the scientific research process.

Pharmacy residency training provides not only a competitive advantage in the job market over applicants who have not completed residency program, but it also offers opportunities for networking, planning a pharmacy career and gaining an in-depth vision of the pharmacy profession during the course of the residency training.

I completed a Geriatric Specialty Residency Program at the University of Connecticut and VA Connecticut Healthcare System in 2003, which was designed to develop skilled clinicians and instructors in geriatric pharmacotherapy and senior care pharmacy practice. During the year-long program, I had the opportunity to gain valuable clinical, teaching and scholarly skills through interactions with multidisciplinary staff, faculty and trainees associated with the University Of Connecticut School Of Pharmacy, the VA Connecticut Healthcare System, the American Society of Consultant Pharmacists Foundation, and the Connecticut Area Agency on Aging. Through my residency training and my mentor, Dr. Sean Jeffery, I learned to apply the facts that I acquired in pharmacy school and I developed the competency in areas of sub-acute geriatric patient rehabilitation, home healthcare, geriatric ambulatory/primary care, and other areas of geriatric pharmacy that have been of immense help to me in my present position as a geriatric clinical pharmacist.

In conclusion, my advice to current pharmacy students and fellow practitioners is to consider your long-term professional and personal goals before determining whether post-graduate trainings such as general residency, specialty residency, fellowship, the ASHP or ASCP Pharmacotherapy Traineeship programs are the right paths for you to follow. I completed my Doctor of Pharmacy degree and residency training many years after receiving my BS degree; it is definitely possible to attain this goal even after a long absence from the academic field of pharmacy. Do develop a passion for the pharmacy profession and never stop learning. Get involved with your local, state, and national professional pharmacy organizations. Find a mentor or mentors for guidance regarding your career choices. There are many different avenues in the practice of pharmacy. Talk to other pharmacists, look around and do your research. You will find your niche and everything that would lead to a fulfilling career.

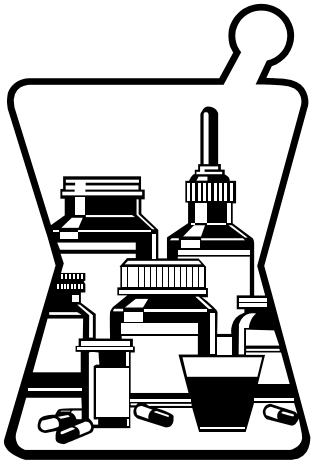
Further readings on residency information:

http://www.ashp.org/rtp/Seeking/why.cfm?cfid=1587186&CFToken=87904149

http://www.ascp.com/public/pr/residency/goals.shtml

http://www.accp.com/career.php

Amy Huie-Li, PharmD, CGP is a Clinical Pharmacist in the Geriatrics and Extended Care Unit at VA Connecticut Healthcare System, West Haven, CT.



Arnold S. Feldman Senior Care Pharmacy Scholarship Program

Irma Pomales-Connors

Applications are being accepted from fourth professional year pharmacy students for the The Arnold S. Feldman Memorial Senior Care Pharmacy Scholarship who, upon graduation will have completed at least one course in geriatrics or geriatric pharmacotherapy, and is committed to developing and implementing a specific research or educational project related to geriatric pharmacotherapy that will be completed during his/her final year of pharmacy school. Preference will be given to students who are ASCP members and have decided to dedicate their careers to serving the older adults by addressing the unique medication needs of this growing population.

The Arnold S. Feldman Memorial Senior Care Pharmacy Scholarship Program recognizes one pharmacy student in his/her fourth professional year of pharmacy school. One award $500 will be given on an annual basis. The first will be awarded in November 2004. The application deadline is **Monday, October 1, 2004**.

The Arnold S. Feldman Memorial Senior Care Pharmacy Scholarship Program is administered by ASCP Foundation and is supported by contributions from family members and friends of Arnold S. Feldman and his son Stephen Feldman, current Chair of the ASCP Board of Directors. This scholarship program acknowledges the contributions pharmacy students can make towards appropriate, safe and effective medication use for older adults.

Application materials can be downloaded from the ASCP Foundation Website at http://www.ascpfoundation.org/scholarship/scholarship.html Please share this information with other eligible classmates. For more information about the Arnold S. Feldman Memorial Senior Care Pharmacy Scholarship Program, please contact the American Society of Consultant Pharmacists Research and Education Foundation at 800-355-2727, extension 107.

Irma Pomales-Connors is the Program Officer and Senior Grant Writer for the American Society of Consultant Pharmacists Research and Education Foundation in Alexandria, Virginia.

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