

# PHARMASCRIP

NEWSLETTER OF THE MARYLAND SOCIETY OF HEALTH-SYSTEM PHARMACISTS

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## Medications and the Internet

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Last week, as I was flipping through a copy of the Reader's Digest magazine, a certain advertisement caught my eye. The advertisement pictured an amber prescription vial with a green auxiliary label that read "want to know more than can fit on a sticker?" The advertisement was clearly making the point that everything you need to know about your prescription medication cannot be printed on your prescription vial. I agreed with this point and immediately thought that the solution to this question presented on the sticker is simply "the pharmacist." Who better than the pharmacist should a patient turn to for more information about prescription medications? Apparently, the people who developed the advertisement thought differently. As I read on, I discovered that their solution for all your medication information needs was WebMD's drug reference.

WebMD is an Internet site for both patients and professionals. Patients can ask physicians medical questions via email and have access to databases for prescription, OTC, and herbal medications. I think the technology of the Internet is great in that it has allowed patients to become more knowledgeable and take a more active role in their health care needs. Patients can easily and readily retrieve vast amounts of information about their medical conditions and medications. This helps them to make informal decisions and ask appropriate questions.

My major concern with Internet sites is that the public may perceive that the role of the pharmacist in ensuring safe medication use will no longer be needed. It now becomes easy for patients to self medicate without consulting with a pharmacist. The importance of the pharmacist needs to be recognized by these Internet sites and patients should be reminded that these sites are not a replacement for the valuable information they can receive from their neighborhood pharmacist. Leaving the pharmacist out of the equation will only increase the risk of medication misadventures a patient may experience.

Another concern of mine is the loss of personal contact between the pharmacist and the patient. Interpersonal communication between the pharmacist and patient is essential in ensuring safe and effective use of the medication. This communication allows the pharmacist to identify any pertinent patient related variables and to confirm that the patient understands how and why she is taking the prescribed medication. This type of communication is lacking with Internet sites like WebMD.

As many of you are aware, prescription medications can now be purchased via the Internet. What some of you may not realize is that from some of these Internet sites prescription medications can be purchased without a prescription and some sites do not require online physician evaluation. One published study (Ann Intern Med 1999; 131: 830-833) identified several Internet sites based outside the U.S. that allowed for the purchase of prescription medications without a physician order or consultation. A second study (N Engl J Med 1999; 341: 1389-1392) concluded that certain prescription medications were easily obtainable over the Internet without the need for a visit to the physician or review by a pharmacist.

This opportunity to illegally acquire prescription medications has the potential of increasing the risk of adverse events for the patient. I think it important that we, as pharmacists, be aware that there are Internet sites that are illegally selling prescription medications. I encourage you to take an active role in protecting patients by supporting legislative efforts that will help monitor and regulate the operations of these Internet sites.

## Calcium Channel Blocker Overdose

**Suzanne Doyon, MD, ACMT**  
**Medical Director, Maryland Poison Center**

*An 80-year-old woman presented to the emergency department (ED) 3 hours after ingesting 20 tablets of verapamil-SR 240 mg. She was slightly lethargic with a pulse of 43/minute and blood pressure of 50mmHg systolic. She received one dose of activated*

*charcoal in the ED. Two liters of NS were administered over one hour without an improvement in the blood pressure. Dopamine was started at a rate of 5 mcg/kg/min and she was given 1 gram of calcium gluconate IV. Her vital signs remained unchanged. The Maryland Poison Center was consulted at this time.*

Calcium Channel Blocker (CCB) overdoses are one of the leading causes of death from poisoning in the U.S. In 1998 there were 8600 potentially toxic exposures with 48 deaths attributable to CCBs reported to the American Association of Poison Control Centers. There are 3 general types of CCBs: dihydropyridines which include nifedipine; phenylalkylamines which include diltiazem; and benzothiazepines which include verapamil. The majority of deaths are due to exposures to verapamil and diltiazem, which exert profound myocardial depression and severe peripheral dilatation. Fatalities are least common with nifedipine-like drugs because they are associated with peripheral vasodilation but less myocardial suppression than verapamil and diltiazem. The sustained release preparations (such as Calan-SR<sup>®</sup> and Cardizem-CD<sup>®</sup>) are particularly difficult to manage because peak effects are not reached until approximately 24 hours post-ingestion. Children are especially susceptible to the toxic effects of CCBs, exhibiting severe symptoms with as little as one tablet. CCB overdoses may present with altered mental status, bradycardia and hypotension. Hyperglycemia and lactic acidosis occasionally occur. A newly documented complication of CCB overdose is ischemic colitis occurring more than 24 hours post ingestion. It carries a poor prognosis for the patient if recognition is delayed.

The Maryland Poison Center can provide invaluable help and expertise in the management of these poisonings as will be illustrated in this case. The initial approach to treatment of these poisonings is to place the patient on a cardiac monitor, establish oxygenation, and administer intravenous fluid boluses to correct the hypotension. Symptomatic bradycardia secondary to CCB overdose should be treated with atropine. A total of 3 mg of atropine is administered intravenously.

Calcium administration is indicated for hypotension and cardiac conduction defects. However, meta analyses of severe CCB overdoses have shown calcium to be effective in about 50% of cases. Calcium chloride, which provides 13.6 mEq calcium/10 cc, is preferred over calcium gluconate. This is approximately 3 times more available calcium than in 10 cc of calcium gluconate (4.65 mEq). There is no consensus on the proper administration of parenteral calcium. Multiple IV boluses of 1 gram calcium chloride (10 cc of 10%) every 15-30 minutes to keep the serum calcium between 10–15 mEq/L is reasonable. The same can be achieved with a bolus followed by an infusion of calcium chloride. **Caution is advised to not overshoot** since serum calcium above 15 mEq/L has been associated with multiple complications including CNS depression, arrhythmias and death. The preferred second line agent is intravenous glucagon. Radiolabeled glucagon has been documented to bind to the myocardium and, therefore, is believed to have its own receptor on the heart muscle. The inotropic action of glucagon seems to be related to an increase of cAMP levels in the myocardium. Glucagon increases the heart rate, cardiac index, blood pressure and stroke volume. The initial dose of glucagon is 3 mg IV over 1 minute. If ineffective, it should be followed by a 7-mg dose over 1 minute. The onset of action of glucagon is within 5 minutes and the duration of action is 15 minutes. Therefore, the bolus must be followed with an infusion of 3-5 mg or more per hour in order to support the heart rate and blood pressure. Hyperglycemia and vomiting are the adverse events most often associated with glucagon administration. It is, therefore, recommended that the patient have an NG tube placed followed by low wall suction, and that blood glucose be closely monitored with the administration of insulin to treat hyperglycemia (when blood sugars reach double the baseline). Glucagon is supplied in vials containing 1 mg/vial and a diluent containing phenol. **Sterile water should be used as the diluent rather than the phenol** since phenol given intravenously can cause hypotension and renal disturbances.

The choice of sympathomimetic agent is based upon numerous factors including pharmacologic profile of each drug, the patient's underlying physiologic condition and the physician's familiarity and comfort level with the agent. Direct acting agents like norepinephrine and epinephrine are preferred because of direct alpha and beta effects. If the sympathomimetic agent is unsuccessful at supporting the blood pressure and heart rate, a Swan Ganz catheter insertion may be helpful in determining whether myocardial suppressant or peripheral vasodilatory effects are responsible for the hypotension.

The fourth line agent is amrinone, which is a non-catecholamine inotropic agent that increases cAMP intracellularly. There are several animal studies and a few human case reports where it was used successfully in the treatment of CCB overdoses. However, amrinone has the potential to cause peripheral vasodilation and should be used with extreme caution and never without the concomitant use of another vasopressor agent.

Intra-aortic balloon counterpulsation is another possible invasive therapeutic modality. A large balloon is inserted in the femoral artery and inflated and deflated in cycle to simulate systole and diastole. There are case reports of its successful use in isolated severe CCB cases. Simultaneous cardiac pacing is usually required.

*After consultation with the Maryland Poison Center and their medical toxicologist on-call, the patient received glucagon 3 mg followed by glucagon 7 mg. She responded to the second glucagon dose and an infusion of glucagon at 7 mg/hr was started. Norepinephrine 4 ug/min had already been administered and continued to be administered for approximately 20 hours. She received over 175 mg of glucagon IV over a 28-hour period. The Maryland Poison Center was able to communicate to the hospital pharmacy the 24-hour glucagon needs of this patient. Since an insufficient amount of glucagon was in stock at the hospital, the MPC assisted in obtaining the required amount from other sources. The patient was extubated on hospital day 3 and did not develop any additional complications from this overdose.*

This case illustrates how deficient our hospitals are in glucagon. The Maryland Poison Center suggests that every hospital maintain a minimum supply of 20 mg and maintain access to an additional 100-150 mg supply of glucagon. This minimum supply would cost approximately \$1,000.

## Afghan Opportunity

The Student Chapter is selling pharmacy Afghans. The Afghans are 50"x 65" and 100% machine washable cotton. There is a choice of colors: Williamsburg Blue, Cranberry Red, or Hunter Green. For an additional \$5.50, you can have a three letter monogram sewn right into the Afghan. This great gift is only \$55 including shipping and handling and is shipped right to your home or office, whichever you prefer.

To order your Afghan, mail a check for \$55 (or \$60.50 including the monogram), payable to ASHP/MSHP Student Chapter, along with your name, address, color, quantity, and monogram information to:

Robin Plesset  
c/o ASHP Student Chapter  
847 Hollins Street  
Baltimore, MD 2101

The sale ends April 22. If you have any questions, please call Robin at 410-783-0159 or email at [4ples001@umaryland.edu](mailto:4ples001@umaryland.edu). We will also have pictures and order forms available at the next two MSHP monthly program meetings selling the Afghan and some other great pharmacy gift items.

## Annual Seminar Committee

The Annual Seminar Committee is working on the program and lining up speakers. Committee members are Kathleen Truelove, Chair, Bonnie Pitt, Bobbie Brown, Vivian Rexroad, Mark Sanford, Brett Steckman, Peg Waterworth, Nancy Tzeng, Madge Rumrill, and Cynthia Boyle. We have plenty of room at the Sheraton for booths and are looking for as many exhibitors as possible. Please refer potential exhibitors to Kathleen Truelove at Johns Hopkins Hospital, 410-955-6337.

## Welcome New Members

Nancy Clark  
George H. Huber  
Lien B. Iljas

## Upcoming Events

**April 12** Monthly Mtg. - New Drugs for Asthma  
Leslie Hendeles Columbia Hilton  
**April 19** Joint Seminar - MSHP and PSA Financial  
Investing in the New Millennium  
PSA Headquarters  
**April 20** Board Meeting St Joe's (8-10 am)  
**April 30** May *Pharmascript* published  
**May 18** Board Meeting St. Joe's (8-10 am)  
**May 18** Monthly Meeting, Diabetes, Stuart Haines  
**May 28** June *Pharmascript* published

## MSHP Charges Automation Task Force

Joe Botticelli

Last year the Practice Committee of the Maryland Board of Pharmacy convened a subcommittee, chaired by Board of Pharmacy and MSHP Member Jeanne Furman, to draft regulations regarding the use of automated medication distribution systems. After months of extensive literature review and comprehensive site visits, the subcommittee published new regulations in draft form for review. Since these regulations will have a long term effect on the practice of pharmacy in acute and long term care practices, MSHP charged a task

force to assure that all the issues surrounding the use of automation are addressed. The task force, under the leadership of MSHP Board Member Bob Feroli, was asked to review and make recommendations to the MSHP Board for improvements on the proposed regulations.

The Task Force met on March 7, 2000 at Mercy Hospital and spent more than four hours reviewing each section of the draft regulations. Notes were taken and recommendations for change have been developed. These recommendations are currently under review by the Task Force and will be presented to the MSHP Board for approval. Ultimately, members of the Task Force will meet with the Practice Committee to address the recommendations in order to submit a quality set of regulations to the full Board of Pharmacy later this year.

The Task Force is comprised of: Bob Feroli, Larry Siegel, Joe Botticelli, Jeanne Furman, Bonnie Pitt, Dave Chason, Lieser Mayo-Michelson, Dan Ashby, Gary Flax, Mo Delcher, Cathy Crowley, Karen Nishi, Jim Trovato and Joe Gallina.

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## Maryland Society of Health System Pharmacists Monthly Meeting

### "New Drugs for Asthma"

**Leslie Hendeles, Pharm.D.**

**Professor, Pharmacy and Pediatrics, University of Florida**

**Wednesday, April 12, 2000**

**Columbia Hilton**

**5485 Twin Knolls Road, Columbia, MD (410-997-1060)**

**Sponsored by: Merck & Co.**

Directions: Route 29 to Columbia. Take 175 East towards Jessup. At the first traffic light turn right onto Thunder Hill Road. Stay in the right lane and make the first right onto Twin Knolls Road. Take the fifth driveway on the right.

FSchedule: 6:00 p.m. Registration and Networking; 6:30 Dinner; 7:30 p.m. Dr. Hendeles' Remarks

FThe Maryland Pharmacy Continuing Coordinating Council is approved by the American Council on Pharmaceutical Education as a provider of continuing pharmaceutical education for pharmacists. The ACPE Universal program number assigned to the program by CECC is 144-999-00-014-L01.

FObjectives - After attending this program, the participant should be able to:

1. Select an albuterol nebulizer product that does not contain a broncoconstricting preservative.
2. Determine the cost/benefit ration of levalbuterol for acute asthma.
3. Understand the role of leukotriene modifiers in asthma.

FAdvance registration is required for this meeting. Please respond by April 6 using either email: [judi@assoqh.com](mailto:judi@assoqh.com) or fax: 410-418-4805.

FCost: Free for MSHP members, \$20 for non members and guests.

### MSHP Registration Form - April Meeting

Name: \_\_\_\_\_

Institution: \_\_\_\_\_ Phone: \_\_\_\_\_

**Maryland Society of Health-System Pharmacists**  
**3525 Ellicott Mills Drive, Suite N**  
**Ellicott City, MD 21043-4547**

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