Pharmascript

Volume 35, No. 2
March/April 2011

Newsletter of the Maryland Society of Health System Pharmacy

MSHP Vision - To be recognized as the leading organization in Maryland promoting excellence, accountability and leadership through education, research and the practice of pharmacy to improve patient outcomes.

R.E.A.L. - Respected through Education, Accountability and Leadership

MSHP Spring Seminar - Introduces Society Name Change

MSHP's Spring All-Day CE Seminar, **FILTERING FACTS: Framework for the Future** was held on Saturday March 26, 2011 at the Conference Center at the Maritime Institute. The morning started with a continental breakfast with our industry exhibitors; concurrently, the Maryland Directors of Pharmacy & Leadership Group had their meeting.

Jared Calish visits the McKesson display

Educational programming began with a separate morning track of technician specific programming with *Circuits, Membranes, and Dialysate: The Basics of Continuous Renal Replacement Therapy* presented by Dr. Christopher R Ensor with the Comprehensive Transplant Center at The Johns Hopkins Hospital followed by *New Faces & Old Friends: Drug Updates for 2010 & 2011* presented by pharmacotherapy residents Jennifer Bailey and Kathleen Fuller from the University of Maryland Medical Center. The pharmacists attended a two part program on *Dialysis* by Dr. Ronald Abrams from the Hartford Hospital in Hartford Connecticut.

After a break with Industry partners Brian Pinto, Immediate Past President of MSHP facilitated a panel with discussion from the Seminar participants on the *ASHP Pharmacy Practice Model Initiative (PPMI) What's In Store for Pharmacy's Future.* Panelists included: Bonnie Levin from Medstar Health, Dan Ashby, Janet Mighty and Todd Nesbit from The Johns Hopkins Hospital and pharmacy resident Emily Dotter who participated in ASHP PPMI discussions.

Elizabeth Wade and John Lewin accept the Safety Award from President Jill Morgan

The lucky winners of the trade show raffle who split included: Marsha Dudding, Veronica Aloyon, Gail May and Anna Kakavas-Hammonds .

At lunch President Jill Morgan presented the Technician of the Year to Catherine Venturina from Johns Hopkins Bayview Medical Center and the Medication Safety Award was presented to The Johns Hopkins Hospital's Carnegie Pharmacy Lean 55 Project and was accepted by John Lewin and Elizabeth Wade.

Jill Morgan with Catherine Venturina

President Morgan also discussed a name change for the Society form the Maryland Society of Health System Pharmac**ists** to the Maryland Society of Health System Pharm**acy** to better encompass all members of the pharmacy health care team. After a motion for the change was made by member Brian Pinto and a second by Asha Tata a vote was taken and the motion passed.

The afternoon programming included *Euvolemic and Hypervolemic Hyponatremia and the Use of Vasopressin Receptor Antagonists* presented by Dr. John Lindsley from The Johns Hopkins Hospital, the *Use of Cockcroft-Gault vs. MDRD Equation for Renal Dosing* by Professor Tom Dowling from the University of Maryland School of Pharmacy and Drs. John Lewin and Michael Veltri, both from The Johns Hopkins Hospital presented the final program of the day *Continuous Renal Replacement Therapy: Principles of Drug Elimination and Dosing.*

ASHP PPMI - Panelists

Mark your calendar for the Fall Seminar already confirmed for Saturday November 12, 2011 at the same location, the Conference Center at the Maritime Institute, adjacent to BWI. The Seminar will be a joint partnership with the Pharmacists Education and Advocacy Council (PEAC) Initial programming by the education committee include: a women pharmacist's road from addiction to recovery, optimizing bone health in cancer patients, as well as updates on breast cancer, osteoporosis, HIV, antibiotics and PPMI , Additional details and registration forms will be available in early summer.

An article explaining this year's Medication Safety Award Project will appear in the May/June issue of the ***MSHP Pharmascript***.

2011 Officers

President
Jill Morgan

President Elect
Lindsay Helms

Secretary
Kristine Parbuoni

Treasurer
John Ness

Immediate Past President
Brian Pinto

Board Members at Large
Marilyn Cox
Lauren Hynicka
Marybeth Kazanas
Kathryn Walker

Publications Committee
Chris Ensor
Carolyn Orendorff
Brian Watson

MSHP Headquarters
8480M Baltimore
National Pike, #252
Ellicott City, MD 21043
Phone: 410/465-9975
Fax: 410/465-7073

E-mail:
mshp@rxassociationmgt.com

WEBSITE:
www.mshp.org

The views expressed by contributing authors do not necessarily reflect those of MSHP or the affiliated institutions of MSHP unless expressly stated.

MEMBERS IN THE NEWS

Robert Beardsley Re-Elected to ACPE Executive Committee

The Accreditation Council for Pharmacy Education (ACPE) announced the re-election Robert S. Beardsley as a member of the ACPE Executive Committee for the 2011-2012 term of office.

Robert S. Beardsley, RPh, PhD, was re-elected as Vice President. He is a Professor and Vice-chair for Education in the Department of Pharmaceutical Health Services Research at University of Maryland School of Pharmacy. Previously, he has served as chair of the Council of Deans for the American Association of Colleges of Pharmacy and on the association's Board of Directors. Dr. Beardsley was appointed to the ACPE Board by the American Association of Colleges of Pharmacy (AACP).

Daniel Ashby 2011 Harvey AK Whitney Lecture Award Recipient

Daniel M. Ashby, M.S., FASHP., Senior Director of Pharmacy at The Johns Hopkins Hospital in Baltimore, has been named the recipient of ASHP's 2011 Harvey A.K. Whitney Lecture Award.

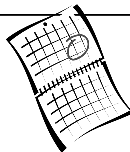
A past president of ASHP, Ashby has shown a strong commitment to the expansion of clinical pharmacy services, the use of innovative technologies, and educational programs for pharmacists, pharmacy students, and pharmacy technicians.

Ashby has also served on the Board of Directors and in the House of Delegates. He was a member of the Society's Commission on Credentialing and was chair of the Ad Hoc Student Advisory Group. He also plays an influential role in the development and implementation of ASHP's Pharmacy Practice Model Initiative and serves as the facilitator of the Initiative's advisory group.

Before coming to Johns Hopkins, He also led pharmacy programs at Methodist Healthcare in Memphis, Tenn. and Harper Hospital in Detroit.

He is a graduate of Wayne State University where he received a B.S. in pharmacy and a M.S. in hospital pharmacy administration.

ASHP has administered the Harvey A. K. Whitney Lecture Award, established in 1950 by the Southeastern Michigan Society of Hospital Pharmacists, since 1963. Harvey A. K. Whitney, ASHP's first president, was an editor, author, educator, practitioner, and leader in hospital pharmacy. Nominations for the award are made by past recipients and ASHP members. The winner is selected by a majority vote of past honorees.



Upcoming Dates to Remember

Tuesday May 24th - 5:00 pm
MSHP Resident Research Night
University of MD-School of Pharmacy

Saturday June 4th - 10:00 am
Drug Shortage Summit
Anne Arundel Medical Center

Wednesday July 27th
Pharmacy Leadership Group
Hilton Pikesville

Tuesday August 2nd
MSHP New Resident Welcome

ASHP Delegates Looking for Items of Concern

This year's ASHP delegates are requesting input from all MSHP members on topics of concern or interest for your Maryland House of Delegates to raise in discussion during the upcoming House of Delegates Meetings. This year's delegates are: Bruce Gordon, Brian Pinto, John Santell and Jim Trovato. Send your concerns to MSHP Headquarters and they will be forwarded to the Delegates for review.

Programs by Other Organizations

June 11-14
MPhA 129th Annual Convention
Clarion Fontainebleau - Ocean City

August 5-6
MD-ASCP Mid-Atlantic Conference
Sheraton - Annapolis

Pancreatic Enzyme Replacement Therapy

Kate McHenry, Pharm.D. Candidate 2011
University of Maryland School of Pharmacy

The Issue

Pancreatic Enzymes are essential for the effective breakdown of fats, proteins and carbohydrates in the small intestine to allow for adequate absorption of these nutrients into the body. When these enzymes are lacking, malabsorption occurs leading to issues with poor weight gain and steatorrhea if left untreated. Pancreatic Enzyme Replacement Therapies (PERT) are commonly used in patients with Cystic Fibrosis (CF) or pancreatic insufficiency caused by conditions such as chronic pancreatitis or pancreatectomies.

PERTs have been available in the United States since before the 1938 Food, Drug, and Cosmetic Act, therefore studies proving efficacy and safety were never required to be performed. In April 2004, the Food and Drug Administration (FDA) announced that all PERTs were considered new drugs and required manufacturers to submit new drug applications. Manufacturers were given until April 28, 2010 to acquire FDA approval or be removed from the market.

The three PERTs that have successfully completed the FDA Approval process are Creon™, Zenpep™, and Pancreaze™. These medications have met the FDA regulatory standards for quality, safety, and effectiveness. The new regulations for these medications include a mandatory medication guide to be dispensed with each prescription explaining the risks and benefits of therapy.

Administration

PERTs are only available as capsules. Patients should ingest capsules immediately prior to meals and snacks. For patients who cannot swallow capsules, they may opened and the contents of the capsule sprinkled over small amounts of acidic food (e.g., applesauce). The contents should not be chewed or crushed as this may inactivate the enzymes. For infants, the contents of the capsule may be mixed with acidic foods, such as apple sauce or commercially available preparations of bananas or pears, or may be given directly into the infants' mouth. They should not be mixed with breast milk or infant formula. However, breast milk or formula may be offered after the infant has ingested the capsule contents. Infants should be given their dosage within 15 minutes immediately prior to feedings. For patients of any age, contents of the capsule should not be retained within the mouth as mucosal irritation may occur.

Currently, none of the products are approved for administration via gastrostomy tubes (G tubes). Manufacturers are currently conducting tests to evaluate the safety of this administration route. The FDA is aware of this issue and will release recommendations as data becomes available. At this time, it is not recommended that any PERT be administered via G tube.

Dosing: Initiation and Maintenance

Pancreatic insufficient patients should be encouraged to consume a high-calorie diet that is appropriate for age and clinical status. Nutritional assessments should be performed and these patients followed closely for response to therapy. Dosing is based on lipase content at the following empiric recommendations. Infants (up to 12 months) should be administered 2,000-4,000 lipase units per 120ml of formula or per breast feeding. Children less than four years of age should receive 1000 lipase units/kg per meal, and children greater than four years of age should receive 500 lipase units/kg per meal. As children age and their weight begin to increase, they tend to ingest less fat per kilogram of body weight, hence the smaller lipase requirements. For snacks, half of the standard meal dose is recommended, assuming snacks are less in volume and fat content. Dosing can then be titrated based on clinical response. The Cystic Fibrosis Foundation has set forth maximum dosing guidelines, in an effort to minimize the occurrence of the rare, but serious side effect, colonic strictures. The maximum recommended dosage is 2,500 lipase units/kg per meal or 10,000 lipase units/kg per day. Patients should not be instructed to increase their dosage on their own and changes in dosage may require an adjustment period of a few days. Patients may also be placed on H-2 antagonists (e.g. ranitidine, etc) or proton pump inhibitors (e.g. omeprazole, etc). These medications help to create a more alkaline environment so that the PERTs are better able to exert their therapeutic effect.

> Example: For a child 6 years old and weighing 48 kilograms, 500 lipase units/kg per meal is the starting dosage. 48 kg x 500 lipase units = 24,000 lipase units per meal. For a snack dose, half the standard meal dose is recommended, therefore 12,000 lipase units per snack. For this patient, Creon 12 2 capsule per meal and 1 capsule with snacks may be recommended.

Adverse Effects

The most common adverse events are abdominal pain, flatulence, headache, cough, and early satiety. Another, more serious, adverse effect is fibrosing colonopathy (FC). FC is a condition that leads to colonic strictures and should be considered in patients with evidence of obstruction or bloody diarrhea in combination with abdominal pain with continuing diarrhea, poor weight gain, or both. The amount of pancreatic enzymes ingested has been found to be linked to the occurrence of this condition. Because of this, the Cystic Fibrosis Foundation set forth maximum dosing guidelines.

Converting PERT

These medications cannot be substituted with each other nor are they substitutable with the prior PERTs marketed. This requires that physicians be contacted to authorize an equivalent product for the patient prior to dispensing to the patient. Thus, the issue becomes what product to convert these patients to. This decision is based on determining a product with similar lipase,

(Continued on page 6)

ESAs

Jurgita Savageot, Shenandoah University

To ensure that the benefits of using a specific drug outweighs its risks the Food and Drug Administration (FDA) gained authority to require a Risk Evaluation and Mitigation Strategy (REMS) from manufacturers, a result of the FDA Amendments Act of 2007. On a daily basis, however, health care practitioners and patients routinely assess risks and benefits of many treatments and medications to guide, manage and optimize the therapy for the best possible outcome. Nevertheless, population based clinical trials continuously supplement scientific knowledge with findings, some of which reveal the results that seriously compromise patient safety. Therefore, REMS-subjected product list continues to grow. Although REMS is not a new concept, this increasing list of "REMS-medications" is subjecting many healthcare providers to implement increasingly complicated standards of practice. The goal of this report is to focus on the most recently announced REMS for Erythropoiesis-Stimulating Agents (ESAs). Specifically, what warranted REMS for these agents; what are the requirements for the ESAs prescribers and pharmacies, dispensing ESAs; and where to find more information about ESAs REMS.

Awareness

On February 16, 2010 based on the outcomes of the clinical studies, in addition to the Black Box Warnings, FDA issued a directive[1] for all drugs called ESAs to be prescribed, dispensed and used according to REMS. The following ESAs are included: Aranesp® (darbepoetin alpha)[2] and Epogen®/ Procrit® (Epoetin alpha)[3]. As the mechanism of action of an ESA implies, these agents are widely used in the modern clinical practice, mostly in Nephrology and Oncology. Recent inclusion of the ESAs in the REMS list is based on the FDA's conclusion, that using ESAs may seriously compromise patient safety.[1] Notably, Epogen®, Procrit ® and Aranesp® were found to increase the risk of heart attack, stroke or blood clots in patients who use these drugs (see Table 1); additionally, studies also show that ESAs can increase the risk of tumor growth and shorten survival in patients with cancer who use these products (see Table 2). The program titled "Assisting Providers and cancer Patients with Risk Information for the Safe use of ESAs " (ESA APPRISE) is a part of REMS[2,3], designed specifically for oncology providers and patients; the program also applies to healthcare establishments, such as hospitals, clinics and pharmacies where ESAs are prescribed, dispensed and administered.

What requirements are imposed on the healthcare providers and pharmacies

The overarching goal of the ESA REMS is to mitigate risks associated with the use of these medications. To reach this goal, FDA outlined several elements of the REMS program that must be implemented by the healthcare providers and the manufacturer (Amgen, Inc.):

A. Provision of Medication Guides to patients (requirement for retail/hospital outpatient pharmacies and inpatient pharmacies)
B. Communication Plan: how healthcare professionals will be informed (timeline, methods of information delivery) by the manufacturer of the ESA REMS and APPRISE
C. Elements to Assure Safe Use (health care providers who prescribe or prescribe and dispense ESAs to patient with cancer must complete registration, training and certification through ESA APPRISE Oncology Program). Healthcare providers

Table 1: Summary of safety data revealed among non-cancer patients using ESAs

Study	Comparative groups, target metric	Outcomes
CHOIR[4] n=1432	Group 1: Hgb= 13.5 g/dl (n=715) Group 2: Hgb=11.3 g/dl (n=717)	Death n=125 (18%) n= 97 (14%)
TREAT[5] n=4038	Darbepoetin group , n=2012 (goal Hgb =13 g/dl) Placebo group , n=2026 (rescue Darbopoetin, if Hgb <9 g/dl)	Stroke: n=101 (5%); VT: n=41 (2%) Stroke: n=53 (2.6%), p<0.001; VT: n=23 (1.1%), p=0.02
Normal vs Low Hematocrit n=1233[6,7]	Group 1, n=618 (goal Hct=42±3%) Group 2, n=615 (goal Hct=30±3%)	Death: n=183(29%); non-fatal MI: n=19 (3.1%); VAT: n=243 (39%) Death: n=150 (24%); non-fatal MI: n=14 (2.3%); VAT: n=176 (29%)

Hgb- hemoglobin; g/dl - grams per deciliter; VT – venous thrombo-embolism; Hct – hematocrit; VAT – vascular access thrombosis
[4] CHOIR – Correction of Hemoglobin and Outcomes in Renal Insufficiency; open-label randomized prospective trial of patients with chronic kidney disease, not undergoing dialysis;
[5]TREAT – Trial to Reduce Cardiovascular Events with Aranesp Therapy; randomized double blind placebo controlled trial of patients not on dialysis, with type 2 diabetes and chronic kidney disease;
[6]Randomised prospective trial of patients undergoing hemodialysis and with clinical evidence of ischemic heart disease or congestive heart failure.

(Continued from page 4)

supply and patients sign an acknowledgement form prior to patient receiving an ESA. The acknowledgement form attests that the healthcare professional and patient have discussed the risks of using an ESA.

Hospitals must do the following:

- Be enrolled in the ESA APPRISE Oncology program in order to dispense ESAs to patients with cancer, even if the prescribing healthcare professional is certified under the program.
- Have a system in place that ensures that all healthcare providers who prescribe ESAs in the hospital are enrolled and comply with the ESA APPRISE Oncology program. Amgen, the manufacturer of ESAs under REMS, will maintain a secure database of certified healthcare providers and their records of every 3 year mandatory re-certification.
- Failure to comply with ESA APPRISE program requirements will result in suspension of the access to ESAs.

D. Implementation System (private practice based clinics vs hospitals: monitoring of compliance with documentation, conduct of audits, Amgen and ESA distributor collaboration on shipments and distribution of ESA only to APPRISE certified healthcare providers.

E. Timetable for Submission of Assessments of the REMS

Amgen will submit assessments at 8 months, 1 year, 18 months and annually thereafter following approval of the REMS

What your patient with cancer, using ESAs, need to know and do:

Understand the risks associated with use of ESAs. The risks include:

1. ESAs may cause tumors to grow faster.
2. ESAs may cause some patients to die sooner.
3. ESAs may cause some patients to develop blood clots, and serious heart problems, such as a heart attack, heart failure or stroke.
4. Be aware that the healthcare professional has received special training about the use of ESAs in patients with cancer.
5. Read the ***Medication Guide*** to understand the benefits and risks of using an ESA.
6. Talk with the healthcare professional about using ESAs; ask any questions about using ESAs.
7. Sign an acknowledgment form that states your discussion with the healthcare provider about the risks of ESAs. This form must be signed before starting a course of treatment with an ESA.

What your patient with chronic kidney failure, using ESAs, need to know and do:

(Continued on page 8)

Table2: Summary of safety data revealed among cancer patients using ESAs[8]

Study	Hemoglobin Target	Adverse Outcomes for ESA-using ARM
Chemotherapy		
Cancer Study 1, metastatic breast cancer; n=939	12-14 g/dl	Decreased 12-month survival
Cancer Study 2, lymphoid malignancy; n=344	13-15 g/dl (males) 13-14 g/dl (females)	Decreased overall survival
Cancer Study 3, early breast cancer; n=733	12-14 g/dl	Decreased 3 year relapse-free and overall survival
Cancer Study 4, cervical cancer; n=114	12-14 g/dl	Decreased 3 year progression-free and overall survival and locoregional control
Radiotherapy Alone		
Cancer Study 5,hea and neck cancer; n=351	14-15.5 g/dl	Decreased locoregional disease control
No Chemotherapy or Radiation		
Cancer Study 7, non-small cell lung cancer; n=70	12-14 g/dl	Decreased overall survival
Cancer Study 8, non-myeloid malignancy; n=989	12-13 g/dl	Decreased overall survival

g/dl – grams per deciliter;
[8]Adapted from Epogen® (Epoeitin alpha)for injection. Package Insert, Amgen Inc. 2010

(Continued from page 3)
amylase, and protease content. These allows for pharmacy intervention in both the institutional and community setting. When switching a patient, it is recommended to start with similar lipase content and adjust the dose based on patient's response. It may take 1-2 weeks to find a dose that works for the patient.

> Example: An 8 year old child weighing 56 kg has been taking Pancrecarb-8 4 capsules with meals and 3 capsules with snacks. Pancrecarb-8 contains 8,000 units of lipase per capsule. At meals, the child is ingesting 4 x 8,000 lipase = 32,000 lipase units or 571 lipase units/kg. At snacks, the child is ingesting 3 x 8,000 lipase = 24,000 lipase units or 428 lipase units/kg. For this patient, Zenpep 10 3 capsules at dinner and 2 capsules at snacks may be recommended. This gives the child 535 lipase units/kg at meals and 357 lipase units/kg at snacks. Although this is slightly lower than the previous dosage, this can be adjusted based on the patients response to therapy.

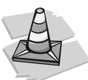
Special Thanks to
Angela Martinez, Pharm.D. The Johns Hopkins Hospital

References:

1. Borowitz DS, Grand RJ, and Durie PR. Use of Pancreatic Enzyme Supplements for Patients with Cystic Fibrosis in the Context of Fibrosing Colonopathy. Journal of Pediatrics 1995; 127 (5): 681-684.
2. Creon [package insert]. Marietta, GA: Solvay Pharmaceuticals, Inc; 2009.
3. Pancreaze [package insert]. Titusville, NJ: Ortho-McNeil -Janssen Pharmaceuticals, Inc; 2010.
4. Questions and Answers: Delayed-Release Pancreatic Enzyme Product Recieves FDA Approval. Food and Drug Administration Web site. http://www.fda.gov/. Accessed July 2, 2010.
5. Updated Questions and Answers for Healthcare Professionals and the Public: Use of an Approved Pancreatic Enzyme Product. Food and Drug Administration Web site. http://www.fda.gov/. Accessed July 2, 2010.
6. Zenpep [package insert]. Yardley, PA: Eurand Pharmaceuticals, Inc; 2010.

Currently FDA Approved Pancreatic Enzyme Products (October 2010)

Drug Name	Strength (in USP units)		
	Lipase	*Amylase*	*Protease*
Creon	6,000	30,000	19,000
	12,000	60,000	38,000
	24,000	120,000	76,000
Pancreaze	4,200	17,500	10,000
	10,500	43,750	25,000
	21,000	61,000	37,000
	16,800	70,000	40,000
Zenpep	5,000	27,000	17,000
	10,000	55,000	34,000
	15,000	82,000	51,000
	20,000	109,000	68,000



Work Continues on the MSHP Website

A mock-up of the MSHP website was reviewed by the MSHP Board at their April meeting. Currently the MSHP staff is learning how to navigate the site and security measures are being put in place to make signing up for program easy and safe. The new site promises to be more user friendly.

To complete this update, their may be times are website is out of date and/or out of service. We apologize in advance for any inconveniences dues to the disruptions. Thank you for your understanding.

7th Annual Orioles Night with MSHP

Orioles vs. California Angels

FRIDAY SEPTEMBER 16th

Garden Terrace Picnic 5:30-7:00pm

Game time: 7:05pm

Includes: Food, drinks, & game ticket!

I WILL ATTEND ORIOLES NIGHT WITH MSHP ON FRIDAY SEPTEMBER 16th

Member Name ______________________________

E-mail Address ______________________________

Day Phone ______________ Cell/Mobile ______________

A LIMITED NUMBER OF TICKETS ARE AVAILABLE
SEND YOUR REGISTRATION IN TODAY!

BEFORE JULY 22th		**AFTER JULY 22th (Subject to availability)**	
☐ MEMBER FEE $35.00	_____ #	☐ MEMBER FEE $40.00	_____ #
☐ NON-MEMBER FEE $50.00	_____ #	☐ NON-MEMBER FEE $55.00	_____ #
☐ STUDENTS/CHILDREN $29.00	_____ #	☐ STUDENTS/CHILDREN $31.00	_____ #

AMOUNT PAID

☐ CHECK ENCLOSED TO **MSHP** ☐ MasterCard ☐ Visa ☐ American Express

CARD NUMBER ______________________ EXP DATE __________

CARD HOLDER SIGNATURE ______________________________

PRINT NAME AS IT APPEARS ON THE CARD ______________________

☐ **TICKETS SHOULD BE MAILED TO THE FOLLOWING ADDRESS:**

____

____

Mail or Fax (with credit card information) to:
MSHP Headquarters ** 8480M Baltimore National Pike, #252
Ellicott City, MD 21043 ** FAX: 410/465-7073
Questions? - Call MSHP at 410/465-9975

(Continued from page 5)

(including dialysis patients)

1. Know that the use of ESAs can increase the risk for death, stroke, heart attack, heart failure, and blood clots.
2. Read the ***Medication Guide*** to understand the benefits and risks of using an ESA.
3. Get blood tests while using ESAs. The test results may help guide the course of therapy and lower the risks of using these drugs. Your healthcare professionals will make you aware of how often to have blood tests.
4. Talk with the healthcare professional about the risks and benefits of using ESAs.

References

1. Erythropoiesis-Stimulating Agents(ESAs): Procrit, Epogen and Aranesp:Drug Safety Communication. http://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm109375.htm Accessed February 19, 2010
2. Appproved Risk Evaluation and Mitigation Strategies. Aranesp (darbepoeitin alpha) injection. http://www.fda.gov/downloads/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/UCM200104.pdf Accessed February 28, 2010
3. Approved Risk Evaluation and Mitigation Strategies. Epogen/Procrit (Epoeitin alpha). http://www.fda.gov/downloads/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/UCM200105.pdf Accessed March 10, 2010
4. Singh AK, Szczech L, Tang KL. Correction of Anemia with Epoetin alpha in Chronic Kidney Disease. N Engl J Med 2006;355 (20)85-98
5. Pfeffer MA N Engl J Med 2009;361(21)2019-
6. Besarab A, Bolton WK, Browne JK et al. The effects of normal as compared with low hematocrit values in patients with cardiac disease who are receiving hemodialysis and epoetin. N Engl J Med. 1998 Aug 27;339(9):584-90.
7. Besarab A, Goodkin DA, Nissenson AR. The Normal Hematocrit Study — Follow-up. N Engl J Med 358:433, January 24, 2008 *Correspondence*
8. Epogen® (Epoeitin alpha) for injection , Package Insert. Amgen Inc. Thousand Oaks, CA 91320-1799. 2010

MSHP Offers Research Grants for Practitioners and Students

Every year, the MSHP L.E.A.R.N. (Leadership, Education, And Research Network) offers two $1000 grants for research supporting the ASHP 2015 initiatives. Students, residents, and seasoned practitioners are encouraged to submit applications. Practitioners must be MSHP members, however students need not be MSHP members to apply.

Research advisors working with PGY-1 or PGY-2 residents or Pharm.D. students should encourage their advisees to apply. Award money can be used to offset cost of travel to a national meeting to present research findings, hiring personnel for data analysis, printing a poster for presentation, materials, or other costs directly related to conducting or presenting the research.

The practitioner application is due **September 30th** and the student application is due **October 31st**. For more information visit: http://www.mshp.org/grant.shtml or email Maureen Connors maureen.connors@medstar.net and Mehrnaz Pajoumand mpajoumand@umm.edu. Details of the ASHP 2015 initiative can be found at www.ashp.org/2015.

Maryland Society of Health System Pharmacy
8480M Baltimore National Pike, #252
Ellicott City, MD 21043