

# 23RD ANNUAL RESEARCH DAY MARCH 21, 2011

Oral and Poster Presentations  
Marshall University Medical Center  
Huntington, West Virginia

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**This event is supported annually by educational grants from the following Endowments:**

Roland H. Burns Memorial  
Anagene Bartram Heiner Memorial  
Thelma V. Owen Memorial  
Richard J. Stevens Memorial

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**No Faculty Disclosure or conflicts of interest are indicated for this CME activity.**

**Disclosure of Conflicts of Interest**

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Completed faculty disclosure forms are on file in the CME Office.



Marshall University Joan C. Edwards School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

## 2 0 1 1 P R O G R A M

The program will consist of a series of oral and poster presentations highlighting basic and clinical research performed by School of Medicine students, residents and fellows. Please use pages 11 through 15, to locate presenters, their abstracts, presentation times and location of presentation. The complete agenda is available at <http://www.musom.marshall.edu>.

### **INTENDED AUDIENCE**

The 23rd Annual Research Day is designed for physicians, residents, basic scientists, medical students, graduate students, and other interested health professionals.

### **GOALS**

- 1) To involve faculty, medical and graduate students in the process required to formally present their research in either oral or poster presentations.
- 2) To inform and involve the community in ongoing research at Marshall University Joan C. Edwards School of Medicine.
- 3) To encourage the attitude among faculty, residents, and students for Continuing Medical Education in the area of clinical research.

### **GLOBAL LEARNING OBJECTIVES**

By the end of these lectures the participant will be able to:

- 1) Compare different approaches to medical investigation.
- 2) Compare and contrast the importance of basic research and cellular mechanisms as it relates to human disease.
- 3) Discuss and review research related to current and future improvements in the clinical management of patients.
- 4) Interpret and analyze data for medical investigation to potentially determine the effectiveness towards improving patient care.
- 5) Stress the importance of translational research benefits to the basic scientist in support of the practicing physician.
- 6) Discuss the quality of research in medical education and its application to educational practice in undergraduate and graduate medical education.

**CREDIT STATEMENT**

Marshall University Joan C. Edwards School of Medicine designates this educational activity for a maximum of 4.0 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity. (Session Registration and Evaluation are required).

**EVALUATION FORM Completion**

Please follow specific instructions for completing the bar coded evaluation form. Keep your “X’s” in the bubbles and your written comments in the designated boxes. Your input is needed for planning future events.

**ASSISTED SERVICES**

If special arrangements are required for an individual with a disability to attend these events, please contact Continuing Medical Education at (304) 691-1770 no later than 1 week before the event date or See a CME Representative at the Registration Area on the day of the event.

**PLANNING COMMITTEE - NO DISCLOSURE**

- David N. Bailey, MBA, CME
- Todd Gress, MD
- Richard Niles, PhD, Chair
- Darshana Shah, PhD

**STAFF COORDINATORS - NO DISCLOSURE**

- Beverly McCoy, MA .....Event Promotion and Media Coordinator
- Anita Mathis .....BMS Coordination & Registration
- Patricia “Trish” Martin ....Registration
- Judy Ross .....Web Publications
- Brian Patton .....Online Abstract Submission Form Design and Content Retrieval

## RESEARCH DAY



## PAST INVITED LECTURERS

### **2010 – Gregory Germino, MD**

Deputy Director of the National Institute of Diabetes and Digestive & Kidney Disease (NIDDK) at the National Institutes of Health (NIH) Bethesda, Maryland

- 1) *Dia-besity: converging problems, emerging science*

### **2008 – Gregory Alan Hale, MD**

Associate Professor of Pediatrics  
University of Tennessee

- 1) *Transplantation and Cellular Therapies: Current Research and Future Opportunities*
- 2) *An introduction to Hematopoietic Cell Transplantation*

### **2007 –Daniel D. Bikle, M.D., Ph.D.**

Professor of Medicine and Dermatology  
In residence University of California

- 1) *The skin game: Calcium and vitamin D regulated cellular differentiation*
- 2) *Vitamin D: how much do we need and why*

### **2006 - Mark E. Shirtliff, Ph.D.**

Assistant Professor, Department of Biomedical Sciences  
Dental School, University of Maryland-Baltimore  
Baltimore, Maryland

- 1) *Staphylococcus aureus biofilms: in vitro and in vivo studies*

### **2006 - J. William Costerton, Ph.D.**

Director & Professor, Center for Biofilms, School of Dentistry  
University of Southern California  
Los Angeles, California

- 1) *Biofilms in Device-related and other Chronic Bacterial Diseases*

### **2005 – William F. Balistreri, MD**

Director, Gastroenterology  
Cincinnati Children's Hospital Medical Center

- 1) *Inborn Errors of Bile Acid Biosynthesis*
- 2) *Viral Hepatitis 2005*

### **2004 – Joseph S. McLaughlin, MD**

Professor Emeritus of Surgery  
University of Maryland

- 1) *Traumatic Ruptured Aorta*
- 2) *Strange Tumor I Have Known*

### **2003 – W. Jackson Pledger, Ph.D.**

Professor, Interdisciplinary Oncology  
University of South Florida College of Medicine  
Tampa, Florida

- 1) *Regulation of proliferation by cyclin dependent kinase*
- 2) *Functional genomics and cancer therapy*

## PAST INVITED LECTURERS

### **2002 – Alan H. Jobe, M.D., Ph.D.**

Professor of Pediatrics  
Cincinnati Children's Hospital Medical Center  
Cincinnati, Ohio

- 1) *Mechanisms of lung injury in the preterm*
- 2) *Translational research on lung maturation based on clinical observations*

### **2001 - Arnold Starr, M.D.**

Director, Alzheimers' Research Center  
Institute Brain Research of California, Irvine

- 1) *Hearing but not understanding: auditory nerve dysfunction in the presence of preserved cochlear receptors*
- 2) *Patients' stories and their seminal importance for research*

### **2000–Fredrick L. Brancati, M.D., M.H.S.**

Associate Professor, Medicine and Epidemiology  
John Hopkins Medical Institute

- 1) *Novel risk factors for type 2 diabetes mellitus and their implications for treatment*
- 2) *Prevention and clinical epidemiology in the new millennium*

### **1999 – Robert B. Belshe, MD**

Director and Professor, Div. of Infectious Diseases and Immunology  
St. Louis University

- 1) *Live attenuated influenza vaccine: using genetics to defeat the flu*
- 2) *Vaccines for the 21<sup>st</sup> century*

### **1998 – Jerome S. Brody, MD**

Vice-Chairman of Medicine for Research, Professor of Medicine  
Director, Pulmonary Center  
Boston University School of Medicine

- 1) *Lung development: lesson from flies connections to cancer*
- 2) *Molecular approaches to the diagnosis of lung cancer*

### **1997 – Rochelle Hirschhorn, MD**

Professor of Medicine, Department of Medicine  
NYU School of Medicine

- 1) *Advances in defects in host defense*
- 2) *Reflection on the changing face of medicine*

### **1996 – Stuart F. Schlossman, MD**

Baruj Benacerraf Professor of Medicine  
Harvard Medical School  
Chief, Division of Tumor Immunology  
Dana-Barber Cancer Institute, Boston

- 1) *Human T-cell activation*
- 2) *What's in a name – cd nomenclature*

## PAST INVITED LECTURERS

### **1995 – Frank M. Torti, MPH, MD, FACP**

Director, Comprehensive Cancer Center  
Professor Charles L. Spurr Professor of Medicine  
Section Head for Hematology/Oncology, Wake Forest University  
Chairman, Department of Cancer Biology  
Bowman Gray School of Medicine

- 1) *New pathways for the regulation of iron*
- 2) *Popeye spinach and iron: the politics*

### **1994 – Abner Louis Notkins, MDB**

Director, Intramural Research Program  
Chief, Laboratory of Oral Medicine National Institute of Dental Research,  
National Institutes of Health, Bethesda, MD

- 1) *Polyreactive antibody molecules and matter*
- 2) *The Bethesda experiment*

### **1993 – Erling Norrby, MD, PhD**

Dean of Research and Professor of Virology  
Karolinska Institute, Department of Virology Sweden

- 1) *Immunization against HIV-2/SIV in monkeys*
- 2) *The selection of Nobel Prize winners*

### **1992 – Simon Karpatkin, MD**

Professor of Medicine  
New York University School of Medicine

- 1) *Role of thrombin, integrins and oncogenes*
- 2) *How scientific discoveries are made*

### **1991 – Robert M. Chanock, MD**

Chief, Laboratory of Infectious Diseases  
National Institute of Allergy & Infectious Diseases  
National Institutes of Health, Bethesda, MD

- 1) *Epidemiology, pathogenesis, therapy*
- 2) *New approaches to development of treatment plans*

### **1990 – Dewitt S. Goodman, MD**

Director, Institute of Human Nutrition  
Director, Arteriosclerosis Research Center  
Tiden-Weger-Bieler Professor of Preventative Medicine  
Professor of Medicine, Columbia University,  
College of Physicians and Surgeons  
Director, Division of Metabolism and Nutrition  
Department of Medicine  
Columbia-Presbyterian Medical Center, New York  
*Retinoid and retinoid-binding proteins*

### **1989 – Michael A. Zasloff, MD, PhD**

Charles E.H. Upham, Profess of Pediatrics  
University of Pennsylvania School of Medicine  
Chief, Division of Human Genetics & Molecular Biology  
The Children's Hospital of Philadelphia

- 1) *The flow of genetic information*
- 2) *Magainin peptides*

**MARCH 31, 2010**

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**THELMA V. OWEN MEMORIAL  
CLINICAL VIGNETTE POSTER WINNER**

**Minty A. Shah**

*"Wernicke's encephalopathy after bariatric surgery"*

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**ROLAND H. BURNS MEMORIAL  
CLINICAL SCIENCE POSTER WINNER**

**Mateen Hotiana**

*"Association of Retinol Binding Protein-4 and Obesity in Children"*

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**ANAGENE B. HEINER MEMORIAL  
BASIC SCIENCE POSTER WINNER**

**Aileen Marcelo**

*"The Potential Role of Vascular Endothelial Growth factor (VEGF) in the Diabetic Brain Microvasculature"*

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**ROLAND H. BURNS MEMORIAL  
CLINICAL SCIENCE ORAL WINNER**

**Susan Flesher**

*"Improved growth and development in premature infants managed with nasal continuous positive airway pressure"*

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**THELMA V. OWEN MEMORIAL  
CLINICAL VIGNETTE ORAL WINNER**

**Andrea Lauffer**

*"A MSM with VDRL-negative neurosyphilis co-infected with previously undiagnosed AIDS"*

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**ANAGENE B. HEINER MEMORIAL  
BASIC SCIENCE ORAL WINNER**

**Melinda Asbury**

*"The Specific Mechanism by which Dopamine induces MAPK P38 Activation Serves as a Molecular Switch Between Cellular Protection and Destruction in a Model of Methamphetamine Neurotoxicity"*

**RICHARD J. STEVENS, MD MEMORIAL LECTURE**  
**MARCH 21, 2011, 11:45 AM**  
**INVITED LECTURER**

## ***"Cardiovascular Complications of Obesity"***



**Susan S. Smyth, M.D., Ph.D.**

*Professor of Medicine*  
Director, MD/PhD Program  
University of Kentucky  
College of Medicine  
Cardiovascular Research Center

***No Disclosure or Conflicts of Interest***

### **Learning Objectives:**

1. Review how complex relationship between obesity, cardiovascular disease risks, and mortality form cardiovascular disease.
2. Provide insight into possible mechanisms by which obesity alters risk factors for cardiovascular disease, including inflammation, hypertension, and thrombosis.

## ABOUT THE RICHARD J. STEVENS, MD MEMORIAL LECTURE

The Richard J. Stevens, MD Memorial Lecture is supported annually by the family of Dr. Stevens. Dr. Stevens was an outstanding medical practitioner characterized by Dean Charles H. McKown, Jr., of the Marshall University Joan C. Edwards School of Medicine as a pioneer “who was never in a hurry but always on the move.”

Born in Portsmouth, Ohio, Dr. Stevens received his undergraduate degree from Marshall University, attended West Virginia School of Medicine for two years, then went on to earn his medical degree from Rush Medical School in Chicago.

Dr. Stevens returned to Huntington in 1941 as one of the first board certified practitioners in internal medicine in the area. He was a member of the Alpha Omega Alpha, the medical honorary, as well as gastroenterology and research societies.

Dr. Stevens was one of three physicians who first researched prothrombin testing for guidance in administering anticoagulants to patients with coronary occlusion.

Remembered as genuinely committed to his profession, his community and those around him, he had the unique ability to bring about a meeting of the minds among colleagues, patients and families.

The memorial lecture is presented each year at the Marshall University Joan C. Edwards School of Medicine’s Research Day. It was established by Dr. Steven’s wife, Dr. Sarah Louise Cockrell Stevens, and their seven children: Chari Louise Stevens Singleton, Mary Alice Stevens, Richard J. Stevens II, Johanna Stevens Holswade, Robert C. Stevens, and Randall C. Stevens.



### **PROMOTING EXCELLENCE IN MEDICAL EDUCATION**

Since its inception, the Academy of Medical Educators has provided some of our school's most outstanding faculty and residents with a breadth and depth of teaching resources that are taking our educational program to a new level of excellence. As we conclude the fifth successful year for this innovative program, at the JCESOM, Academy takes on even greater importance when the members pursue scholarship in teaching and learning. The scholarly activity generated by the members themselves continues to bring honor and recognition to Marshall.

Nomination for the academy will be accepted in October 2011.

### **PRESENTING AT THE 2011 RESEARCH DAY ORAL SESSION I, PAGE 17**

**Nesreen BenHamed, MD**  
**Stephen Petrany, MD**  
**Tina Sias, MD**  
**Mary Kathryn Gould, EdD, RD, LD**  
**Kelli Williams, PhD**

**Teaching Scholar:**  
**Stephen Eaton, MD**



*Since its inception, the Academy of Medical Educators has provided some of our school's most outstanding faculty and residents with a breadth and depth of teaching resources that are taking our educational program to a new level of excellence.*

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No Disclosures or Conflicts of Interest

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## RESEARCH DAY AGENDA

<b>REGISTRATION</b>		<b>7:00am</b>
<b>OPENING LECTURES</b>	<b>Welcome/Introduction - Richard Niles, PhD, Conference Chair</b>	<b>8:15am</b>

<b>ORAL SESSION 1</b>	<b>PAGE 17 - Academy of Medical Educators Presentation</b>	
1 Williams and Gould	Preparedness Of Third Year Medical Students	
	For Clerkships After Exposure To A Systems Based Curriculum	8:30am
2 Nesreen Benhamed	Improving The Feedback Process & Medical Student Performance:	8:42am
3 Stephen R. Eaton	Department Of Surgery Intern Handbook	8:54am
4 Tina M. Sias	Perceptions Of Cardiovascular Fellows Of Effective Methods Of Learning To Read Completed Echocardiograms	9:06am
5 Stephen M. Petrazy	Comparison Of Outcomes Of Rural And Traditional Tracks At The Marshall University Family Medicine Residency Program	9:18am

<b>Discussion</b>	<b>9:30 am</b>
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<b>BREAK</b>	<b>POSTER SESSION I - ATRIUM • PAGE 45</b>	<b>9:45-10:30am</b>
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<b>ORAL SESSION II</b>	<b>PAGE 23</b>	
6 Feras El Bash	Anti Arrhythmic Effect Of Chronic Acetaminophen Treatment In The Aging Fischer Brown Norway Rat Involves Gap Junction Protein Connexion 43	10:30am
7 Gabriele Ion	Increasing Docetaxel Sensitivity Of Prostate Cancer Cells By Omega 3 Fatty Acids	10:42am
8 Christopher Adams	Sex Differences In Linked Chromosome 16Q13 Chemokines In Patients With Coronary Artery Disease: Wv Appalachian Heart Study	10:54am
9 Sydnee S. McElroy	Copper Deficiency As An Unusual Cause Of Peripheral Polyneuropathy	11:06am
10 Awni Al Subu	Deaths Of Infants; Rates & Causes, A Five Year Report From West Virginia	11:18am
11 Dhanjal, A	Observed Patient Outcomes Following Vascular Brachytherapy For In Stent Restenosis In Drug Eluting Stents	11:30am

<b>Dr. Niles Intro</b>	<b>Susan S. Smyth, MD, Ph.D.</b>	<b>11:45am</b>
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*Professor of Medicine  
Director, MD/PhD Program  
University Of Kentucky  
College Of Medicine  
Cardiovascular Research Center*

**Title:** Cardiovascular Complications Of Obesity

**Objectives:**

1. Review how complex relationship between obesity, cardiovascular disease risks, and mortality form cardiovascular disease.
2. Provide insight into possible mechanisms by which obesity Alters risk factors for cardiovascular disease, including inflammation, hypertension, and thrombosis.

<b>Box Lunch – Visit Poster Exhibits</b>	<b>12:40pm</b>
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## RESEARCH DAY AGENDA

<b>ORAL SESSION III</b>	<b>PAGE 31</b>	
12 Carrie Willis	Anomalous Right Coronary Artery Branching From Left Main Coronary Artery	1:40Pm
13 Andrea Lauffer	Alice In Wonderland Syndrome With Concurrent Ebv Psychosis In A Previously Normal Adolescent	1:52pm
14 Anne M. Silvis	Neuroblastoma Differentiation Marker Neurofilament M Is Enhanced By Silencing Of The Mnsod Gene	2:04pm
15 Valentine, M	Chmp1 Protein Controls Wing Vein Development In Drosophila	2:16pm
16 Juliana A. Akinsete	Effects Of High ? 3 Fatty Acid Diet On Prostate Tumorigenesis In C3(1) Tag Mice	2:28pm

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<b>BREAK</b>	<b>POSTER SESSION II- ATRIUM • PAGE 77</b>	<b>2:30PM 3:15PM</b>
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<b>ORAL SESSION IV</b>	<b>PAGE 37</b>	
17 Awni Al Subu	The Accuracy Of Esophageal Mucosal Features Of EE In Children The WV Experience	3:15pm
18 Aaron M. Dom	The Alpha7 Nicotinic Acetylcholine Receptor And Mmp 2/9 Pathway Mediate The Pro Angiogenic Effect Of Nicotine In Human Retinal Endothelial Cells	3:27pm
19 Jenelle B. Hao	Clinical Features Of Patients With Recurrent Invasive Streptococcus Pneumoniae Disease	
20 Elke Fahrman	Diabetes Type 1, Cardiovascular Morbidity, And Mortality: New Insights	3:39pm
	<b>Evaluation Turn In</b>	<b>3:51pm</b>

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<b>RESEARCH DAY AWARDS PRESENTATION HARLESS AUDITORIUM</b>	<b>4:00PM</b>
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<b>PRESENTER</b>	<b>POSTER PRESENTATIONS SESSION I, ATRIUM • PAGE 43</b>	<b>9:45AM-10:30AM</b>
1 Salah El Bash	Age Related Cardiac Hypertrophy Is Predominantly Mediated Via Upregulation Of ERK1/2 And MTOR Signaling In Fischer Brown Norway Rats.	9:45am-10:30am
2 Sumaiya Chaudhry	Detection Of Load And Muscle Force: Physiological Tests Of A Finite Element Model Of Responses Of Cockroach Trochanteral Campaniform Sensilla	9:45am-10:30am
3 Ben Owen	Short Term Activity Dependent Changes In Axonal Function In Hippocampal CA3 Pyramidal Neurons	9:45am-10:30am
4 Morgan Efav	Temperature And Exercise Effects On Bone Mineral Density And Growth Plate Morphology In Mice	9:45am-10:30am
5 Rebecca A. King	The Omega 3 Fatty Acid EPA Does Not Inhibit Progesterin Stimulation Of In Vitro Invasive Properties In T47D Human Breast Cancer Cells	9:45am-10:30am
6 Siva K. Nalabotu	Systemic Toxicological Effects Of Nanoceria Following Intratracheal Instillation	9:45am-10:30am
7 Aileen J. Marcelo	Modulation Of The Blood Brain Barrier (BBB) By Vascular Endothelial Growth Factor (VEGF) In Diabetes	9:45am-10:30am

## RESEARCH DAY AGENDA

PRESENTER	POSTER PRESENTATIONS SESSION I, TRIUMPH • PAGE 79	9:45AM-10:30AM
8 Jeremiah Jeffers	Methylene Blue And Alzheimer's Disease	9:45am-10:30am
9 Tigran Garabekyan	The Value Of Immediate Preoperative Vascular Exam In An "At Risk" Patient For Total Knee Arthroplasty	9:45am-10:30am
10 Yanal Masannat	Pure Androgen Secreting Adenoma In Postmenopausal Female	9:45am-10:30am
11 Yanal Masannat	Hyperthyroid Induced Chorea	9:45am-10:30am
12 Firas Almahasneh	Inferior Wall Myocardial Infarction Complicated With A Ventricular Septal Defect Treated Percutaneously	9:45am-10:30am
13 Ashu Dhanja	Intercoronary Communications In Absence Of Obstructive Coronary Artery Disease: Rare Entity	9:45am-10:30am
14 Omar N. Akhtar	Right Thigh Pain In A Woman With Osteoporosis	9:45am-10:30am
15 Abdhrman Hamo	Cocaine And Hyperkalemia Unmasked The Electrocardiogram (EKG) Pattern Of Brugada Syndrome	9:45am-10:30am
16 Elise Henning	Moyamoya Disease In A Non Asian Patient: Case Report	9:45am-10:30am
17 Salmaan Jawaid	Portal Vein Thrombosis In A Non Cirrhotic 43 Year Old Male With A History Of Chronic Pancreatitis	9:45am-10:30am
18 A. Lataifeh	A Case Of Histiocytosis X Diagnosed By Ct Guided Lung Biopsy	9:45am-10:30am
19 Abdel Rahman Lataifeh	Fibrillary Glomerulonephritis: A Rare Cause Of Proteinuria	9:45am-10:30am
20 Miriah Gillispie	A Case Of Refractory Adult Onset Still's Disease Responding To Anakinra Therapy	9:45am-10:30am
21 Zeleke Gt	How Obscure Can An Gi Bleeding Be?	9:45Am-10:30am
22 Kelly Schrapp	A Case Of Patent Foramen Ovale Diagnosed In A 72 Year Old Female	9:45am-10:30am
23 Yohanna Gerges	Foreign Body Granulomatosis In Injection Drug Users	9:45am-10:30am
24 Andrew Guidry	Treatment Of Cryptococcal Meningitis In An Immunocompetent Patient	9:45am-10:30am
25 Nesreen Benhamed	Eruptive Xanthomas In A Patient With Diabetes Mellitus And Hypertriglyceridemia	9:45am-10:30am
26 Haresh Visweshwa	Surgical Management Of Trigeminal Neuralgia: A Case Report And Literature Review	9:45am-10:30am
27 Ghada Mesleh	Lambert Eaton Myasthenia Syndrome (Lems) Presenting As Recurrent Respiratory Failure And Ventilator Dependency	9:45am-10:30am
28 Rezwan Ahmed	Cardiomyopathy And Multiple Organ Failure In A Patient With Neurofibromatosis	9:45am-10:30am
29 Hatim Suleiman Al Jaroushi	Bilateral Chylothorax As The Initial Manifestation Of Systemic Amyloidosis	9:45am-10:30am
30 Joshua A. Hess	Arachnoid Cysts: A Case Report And Literature Review	9:45am-10:30am
31 Jessica K. Granger	A Case Presentation Of Asthma Exacerbation In Pregnancy	9:45am-10:30am
32 M.Eyad Karzoun	Metastatic Angiosarcoma Of The Liver Presenting With Hemoptysis	9:45am-10:30am
33 I. Choudhry	Guillain-Barré Syndrome And A Case Of Resistant Atrial Fibrillation With Review Of Literature	9:45am-10:30am

## RESEARCH DAY AGENDA

PRESENTER	POSTER PRESENTATIONS SESSION II ATRIUM • PAGE 77	2:30PM-3:15PM
34 Elizabeth R. Brown	Presentation Of A Pregnant Patient With Disseminated Intravascular Coagulation	2:30pm-3:15pm
35 Rahal Kahanda	A Rare Case Of Community Acquired Ralstonia Pickettii Abscess And Bacteremia In An Immunocompetent Patient	2:30pm-3:15pm
36 Khaled Ali	Metaplastic Breast Carcinoma With Squamous Differentiation Vs. Squamous Cell Carcinoma Of The Breast	2:30pm-3:15pm
37 Sreevani Gollamudi	Unusual Presentation Of Basal Cell Carcinoma	2:30pm-3:15pm
38 Dana S Lycans	Subependymal Giant Cell Tumor In Tuberosus Sclerosis: A Case Report And Literature Review	2:30pm-3:15pm
39 Brian Price	Young Men Get “Broken Hearts” Too – Inverted Stress Induced Cardiomyopathy In A Seventeen Year Old Male	2:30pm-3:15pm
40 Saba Faiz	A Mysterious Parathyroid Adenoma	2:30pm-3:15pm
41 Getachew Zeleke	Blindness, Ataxia And Confusion In Waldenstrom’s Macroglobulinemia , Case Report	2:30pm-3:15pm
42 Emily A. Seidler	Demystifying IgG4 Disease: A Case Study Of IgG4 Mediated Interstitial Lung Disease	2:30Ppm-3:15pm
43 Yesha Patel	The Presentation Of Henoch Schonlein Purpura In An Adult Patient	2:30Pm-3:15Pm
44 Lizzy Freeman	Streptococcal Pneumoniae Bacteremia With Pneumonia And Cellulitis	2:30pm-3:15pm
45 Rotem Elitsur	Massive Gastrointestinal Bleeding Secondary To Dieulafoy’s Lesion	2:30pm-3:15pm
46 Mashonna Austin	An Unusual Case Of Sigmoid Colitis	2:30pm-3:15pm
47 Tristan Meador	External Oblique Muscle Spasm Presenting As Acute Abdomen	2:30pm-3:15pm
48 Brittany Venci	Surgical Management Of Pediatric Intracranial Hypertension: A Case Report And Literature Review	2:30pm-3:15pm
49 Kelly F. Cummings	Management Of Pregnancy, Labor And Delivery In A Patient With Congenital Hypofibrinogenemia	2:30pm-3:15pm
50 Emily Groves	Superior Mesenteric Vein Thrombosis, Unusual Cause Of Ascites	2:30pm-3:15pm
51 Rebecca L. Klug	Case Report And Literature Review Of Computer Generated Bio-Implants For Cranioplasty	2:30pm-3:15pm
52 Raj A. Gadhia	Primary Erythromelalgia In A 25 Year Old Female	2:30pm-3:15pm
53 Matcheswalla S	Prevalence Of Noncardiac Findings In Patients Identified With Coronary Artery Disease By Coronary Computed Tomography Angiography	2:30pm-3:15pm
54 Nouredine N	Gender Differences In The Prevalence Of Coronary Artery Disease Using Coronary CTA. Single Center Experience	2:30pm-3:15pm
55 Saba Faiz	Association Of Serum Adiponectin And Post Menopausal Hypertension In Obese And Lean Women	2:30pm-3:15pm
56 Mark Stecker	Quality Of Life Indicators In Epilepsy And General Neurology Clinic	2:30pm-3:15pm

## RESEARCH DAY AGENDA

<b>PRESENTER</b>	<b>POSTER PRESENTATIONS SESSION II</b>	<b>2:30PM-3:15PM</b>
	<b>ATRIUM</b>	
57 Yousef Darrat	Outcomes Of Primary Percutaneous Intervention Of The Unprotected Left Main Coronary Artery Stenosis In High Risk Patients	2:30pm-3:15pm
58 Gill, Rupinder Kaur	Racial Phenotypic Differences Among Children With Eosinophilic Esophagitis – A Report From Two Communities	2:30pm-3:15pm
59 Lucia I. Soltis	Hypertension Education In A Rural Health Center	2:30pm-3:15pm
60 Rezwan Ahmed	Applying Telemedicine To Ophthalmology In McDowell County, West Virginia: Reducing Costs, Improving Access, Standardizing Care	2:30pm-3:15pm
61 Sreevani Gollamudi	Discriminating Ability Of Various Signs And Symptoms Of Hypothyroidism To Predict Biochemical Thyroid Status In Hypothyroid Patients	2:30pm-3:15pm
	On Levothyroxine Replacement	2:30pm-3:15pm
62 Misty Shoemaker	Feasibility Of Telemedicine Fetal Echocardiography In The Perinatal Center In Appalachia	2:30pm -3:15pm

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### RESEARCH DAY AWARDS PRESENTATION

**HARLESS AUDITORIUM**

**ACADEMY OF MEDICAL EDUCATORS**

**SCHOLAR RECOGNITION**

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**4:00PM**



**ORAL SESSION I • 8:30 AM – 9:30 AM**

# **23RD ANNUAL RESEARCH DAY ORAL SESSION**

## **PREPAREDNESS OF THIRD YEAR MEDICAL STUDENTS FOR CLERKSHIPS AFTER EXPOSURE TO A SYSTEMS BASED CURRICULUM**

Aaron M. McGuffin Office of Medical Education Joan C. Edwards  
School of Medicine; Kelli J. Williams and Mary Kathryn Gould  
Department of Dietetics Marshall University  
Marshall University

Research indicates a systems-based model for medical education may improve students' performance in clerkships. This pedagogical method was recently introduced at Marshall University School of Medicine (MUSOM). This study assessed medical students' and clerkship directors' perceptions of preparedness for third year clerkships after the transition from traditional to systems-based medical education curriculum.

To accomplish this, a mixed method approach was utilized. Students who had just completed their third year clerkship were surveyed, via Survey Monkey, regarding preparedness collectively and in specific content areas. In addition, clerkship directors (CD) were interviewed.

Student surveys revealed they were most prepared to behave ethically and deal with ethical dilemmas and least prepared with the electronic health record and radiologic interpretation. Students perceived themselves most prepared for their family medicine, pediatric and internal medicine rotations and least prepared for their surgery and obstetrics and gynecology rotations. Clerkship mini-board scores were highest for the pediatric and lowest for the surgery clerkships, accurately reflecting their perceived preparedness. Interviews with CDs noted the most improvement in history taking and physical examination skills while some CDs perceived no improvement in any areas.

Overall, there was minimal agreement between the students' perceptions of their preparedness for clerkships with that of the CDs. CDs indicated it is difficult to assess changes in students' abilities because of many variables that may contribute to improvements. The recent addition of a clinical skills lab and changes in teaching personnel may have contributed as well. Students' perceptions of their preparedness for a particular clerkship seemed to parallel their performance on their mini-board examinations. However, this data are based on only one student class. Further class analysis, longitudinal follow-up of the students' USMLE performances, and information from the AAMC Graduation Questionnaire may provide stronger evidence for the impact of the systems-based curriculum change.

## IMPROVING THE FEEDBACK PROCESS AND MEDICAL STUDENT PERFORMANCE

Nesreen BenHamed, Joan C. Viksjo, Kelly Schrapp, and Wesam Bolkhair  
Marshall University, Joan C. Edwards School of Medicine

**Introduction:** One salient conceptual issue with far-reaching patient care consequences concerns the feedback process between clerkship directors and third year medical students. Despite its huge importance in empowering student learning and in developing physician competencies, the feedback system remains one of the most understudied areas of medical education and underutilized tools by attending physicians.

**Objectives:** To report our experience with enhancing the quality of feedback given by faculty to medical students in order to improve students' performance.

**Methods:** This is an initial investigation comparing current feedback encounter cards with a newly designed feedback card containing more specific evaluation requirements. An anonymous and voluntary survey was administered to third year medical students at the midpoint and at the end of their first rotation, asking students to evaluate both feedback systems. **Results:** Preliminary analysis shows that with the use of the new cards, there are slight increases (2%) in the accuracy of evaluation performance, and an increase (2%) in adding specific comments about students' performance. Also, it was found that there is an increase (1%) in students' performance as per student self-evaluation. As expected, positive comments increased by 2% with the current cards system. Overall satisfaction from both systems were equal.

**Conclusion:** The current encounter cards are efficient and can be further improved by using the new feedback cards. Research will continue into the next three clinical rotations in order to assess any further improvements in this important learning and training tool.

**DEPARTMENT OF SURGERY INTERN HANDBOOK**

Stephen R. Eaton and David A. Denning

Department of Surgery, Joan C. Edwards School of Medicine,  
Huntington, WV

New residents starting in July have quite a bit of anxiety about beginning residency. There are many common everyday problems that as more upper level residents we take for granted. As a part of many residency programs, interns are given a variety of handouts and written information. It was my plan to develop a new resident handbook to compile information for incoming interns that would make their transition from medical student to resident much easier. It was also my goal to have something that the new interns would be able to carry in their pocket to reference for common things they encounter.

This handbook was developed by talking to 3rd and 4th year medical students regarding information that they think would be important to them in starting residency. Also, I spoke with surgical residents at all levels (PGY1-PGY5) and asked them what information they believed would be important in starting residency.

A handbook has been developed and I plan to ask the new incoming residents in 2011 a series of questions after using this handbook and inquire if it was helpful. They will be asked about the ease of use and the average amount of times per day they refer to the handbook as a new resident. I believe that one of the most difficult times in training of young surgeons is the transition from medical student to intern. I believe that a resident handbook with the information that I have compiled will be very helpful in making interns in surgery and other residencies more comfortable with this very difficult time. Also, I believe this will be a valuable reference tool for upper level residents as well.

## **PERCEPTIONS OF CARDIOVASCULAR FELLOWS OF EFFECTIVE METHODS OF LEARNING TO READ COMPLETED ECHOCARDIOGRAMS**

Tina M. Sias and Darshana Shah

Marshall University Joan C. Edwards School of Medicine

Learning to read echocardiograms as part of an Adult Cardiovascular (CV) Fellowship program (ACFP) is a program requirement. As cardiologists use many different methods of teaching echocardiography reading, the purpose of this survey was to evaluate the cardiovascular fellows' perspectives on the best way to learn to read completed echocardiograms.

This study involved completion of confidential survey(s) by cardiovascular fellows. A signed consent was required to participate. No fellow was required to participate nor penalized for lack of participation. Participating fellows completed a survey, regarding perceptions of the most effective method of learning to read completed echocardiograms.

Eleven cardiovascular fellows, from different levels of training, completed the survey. 70% of the participants perceived the most effective method for learning to read completed echocardiograms was that the fellow should read the echo prior to reading with the attending and then review the study with the attending. However, 30% of the participants perceived the most effective method was that the cardiovascular fellow and attending should independently read the echocardiogram study and then discuss findings together.

Recently the National Board of Echocardiography (NBE) has stated fellows receive "credit" for reading an echocardiogram, for purposes of exam certification, by "pre-reading" the echo prior to the attending's review. This survey demonstrated that the perception of the best way to learn completed echocardiograms agreed with this requirement.

Other methods of learning to read echos, were also listed as somewhat effective.

One limitation of this study is that it did not consider other methods of learning, which are a contributing factor to the overall learning process. Another limitation of this study, due to size of the ACFP, is the small number of participants.

Future surveys of fellows, may be warranted to further assess the best way for learning to read echocardiograms.

## **COMPARISON OF OUTCOMES OF RURAL AND TRADITIONAL TRACKS AT THE MARSHALL UNIVERSITY FAMILY MEDICINE RESIDENCY PROGRAM**

Stephen M. Petrany

Marshall University Joan C. Edwards School of Medicine

The Marshall University Family Medicine Residency (MUFMR) developed West Virginia's (WV) first "Rural Residency Program" in 1994. A new curriculum was established with the learning experiences of the novel rural track and the traditional track being distinguished by one variable, the location of the ambulatory continuity practice site for resident participants. This paper will assess the impact of the rural track curriculum on the family medicine residency and compare rural track graduates with those of the traditional track.

Various characteristics and potential outcome measures have been retrospectively collected for all residency graduates entering the program from 1984 through 2006.

From 1994 through 2006, a total of 12 residents entered the special track while 95 residents entered the traditional curriculum. Practicing in a rural area upon graduation was seen in a substantially higher percentage of the rural track residents (83%) compared to the traditional residents (41%). A WV location for practice upon graduation was observed in 75% of the rural track residents and 60% of their traditional counterparts. The average increase in in-training exam scores during training was higher for rural track residents. Board certification rates were high for both groups (rural 100% and traditional 98%). Comparison to the group of 68 family medicine residents for the period 10 years prior to the rural track curriculum showed WV practice rates to be higher for program graduates since the start of the rural residency track (70% versus 50%).

Development of the MUFMR rural residency track has been associated with a substantial increase in graduates practicing in the state of WV. Rural track participants were more likely to practice in rural areas and the state of WV upon graduation. Rural track residents appear to advance academically at least as well as their traditional counterparts.



**ORAL SESSION II • 10:30 AM – 11:42 AM**

# **23RD ANNUAL RESEARCH DAY ORAL SESSION**

**ANTI-ARRHYTHMIC EFFECT OF CHRONIC ACETAMINOPHEN TREATMENT IN THE AGING FISCHER BROWN NORWAY RAT INVOLVES GAP JUNCTION PROTEIN CONNEXION 43**

Feras El-Bash, Sunil Kakarla, Paulette Wehner, and Eric R. Blough.  
Joan C. Edwards School of Medicine

There is a growing need for pharmacological agents to manage cardiovascular disease in the rapidly increasing elderly population. Acetaminophen has been shown to have cardio protective effect against ischemia-reperfusion injury by acting as an antioxidant. Recent studies suggest that age associated increase in the dysregulation of gap junction protein connexin43 (Cx43) may contribute to the etiology of fatal arrhythmias.

We examined the effect of chronic acetaminophen on arrhythmias and Cx43 expression in the aging Fischer 344X Brown Norway (F344XBN) rat hearts. Aging male F344XBN rats (27-mo:n+8) were treated with acetaminophen in water (30 mg/kg/day po) for six months. Age-matched control rats and young (6 month) rats did not receive treatment. Serial electrocardiography was performed during the study. Expression and localization of Cx43 in hearts was determined by immunoblotting and immunohistochemical analysis, respectively.

There was an increase in the incidence of premature atrial and ventricular arrhythmias with age, which were attenuated by acetaminophen treatment. The expression of Cx43 in 33 month control hearts was 25% lower than 6 month controls, while in acetaminophen treated hearts it was 17% higher than 33 month controls. Immunohistochemical analysis revealed improper localization of Cx43 in 33 month control rats, while acetaminophen treatment seems to improve targeting of Cx43 to cardiomyocyte sarcolemma.

These results indicate that acetaminophen may prevent the incidence of age associated arrhythmias and that this alteration is associated with increased Cx43 expression and proper targeting to sarcolemma.

## **INCREASING DOCETAXEL SENSITIVITY OF PROSTATE CANCER CELLS BY OMEGA-3 FATTY ACIDS**

Christopher H. Fine, Gabriela Ion, and W. Elaine Hardman  
Department of Biochemistry and Microbiology, Joan C. Edwards  
School of Medicine, Huntington, WV

Prostate cancer is a diagnosis that 1 in 6 men will experience during their lifetime. The usual course of the disease is that at first the cancer requires androgens (steroid hormones including testosterone) for growth and androgen ablation (blocking the action of the hormone with a drug) is a useful therapy to slow or stop tumor growth. Eventually, the cancer becomes androgen independent (blocking androgen action no longer slows tumor growth) then another therapy must be done. Chemotherapy with Docetaxel is the usual next treatment, however only about 50% of patients respond to this treatment. We hypothesize that supplementation with omega-3 fatty acids will increase the sensitivity of the androgen independent cancer to Docetaxel, resulting in better therapy. We are comparing the Docetaxel sensitivity of androgen-independent prostate cancer cells before and after treatment with omega-3 fatty acids.

Cells are grown and sustained in cell culture. Sensitivity to chemotherapy is determined by cell cycle analysis, live and dead cell counts and determining apoptotic indices (fraction of cells that die) of the treated cells.

Preliminary data indicate that pretreatment with omega-3 fatty acids increases cancer cell death of prostate cancer cells due to Docetaxel treatment from 20 to 50%.

The great importance of this work can be attributed to the lack of treatment options that androgen-independent prostate cancer allows and the potential of omega fatty acids to increase cancer cell sensitivity to chemotherapy. This combination therapy has the potential to increase chemotherapeutic efficacy without an increase in chemotherapy dosages. This would accelerate patient recovery time and improve quality of life.

**THE ALPHA7-NICOTINIC ACETYLCHOLINE RECEPTOR and MMP-2/9 PATHWAY MEDIATE THE PRO-ANGIOGENIC EFFECT OF NICOTINE IN HUMAN RETINAL ENDOTHELIAL CELLS**

Aaron M. Dom, Adam W. Buckley, Kathleen C. Brown, Richard D. Egleton, Aileen J. Marcelo, Nancy A. Proper, Donald E. Weller, Yashoni H. Shah, Jamie K. Lau and Piyali Dasgupta  
Marshall University, Joan C. Edwards School of Medicine

Nicotine, the active component of cigarette smoke, has been found to stimulate angiogenesis in several experimental systems. Our paper explores the molecular mechanisms underlying the pro-angiogenic effects of nicotine in retinal endothelial cells using the “Matrigel duplex assay” and the rat retinal explant assay.

Western blotting was performed to determine the nicotinic acetylcholine receptor (nAChR) subtypes expressed on primary human retinal microvascular endothelial cells (HRMECs). The angiogenic effect of nicotine in the retina was evaluated by the Matrigel duplex assay. The results obtained from the duplex assay were confirmed using the rat retinal explant angiogenesis assay. ELISA assays were used to measure MMP-2, MMP-9 and MMP-13 levels in HRMEC culture supernatants. The role of alpha7-nAChRs in nicotine-induced angiogenesis was examined by siRNA techniques.

Nicotine-induced angiogenesis required nAChR function and was associated with the upregulation of MMP-2 and MMP-9 in HRMECs. Specifically, alpha7-nAChRs mediated the stimulatory effects of nicotine on retinal angiogenesis and MMP levels. Treatment of HRMECs with alpha7-nAChR antagonists ablated nicotine-induced angiogenesis. The inhibitory actions of alpha7-nAChR antagonists correlated with the suppression of MMP-2 and MMP-9 levels in HRMECs.

The alpha7-nAChR is vital for the proangiogenic activity of nicotine. The alpha7 nAChRs expressed on HRMECs upregulate levels of MMP-2 and MMP-9, which stimulate retinal angiogenesis. Our data also seem to suggest that alpha7-nAChR antagonists could be useful agents for the therapy of angiogenesis-related retinal diseases.

## **NEUROBLASTOMA DIFFERENTIATION MARKER NEUROFILAMENT-M IS ENHANCED BY SILENCING OF THE MNSOD GENE**

(1) Anne M. Silvis and (2) Kelley K. Kinningham

(1) Department of Biochemistry and Microbiology, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV; (2) Department of Pharmaceutical Sciences, Gordon E. Inman College of Health Sciences and Nursing, Belmont University School of Pharmacy, Nashville, TN

Differentiation therapy with retinoids is a means to treat high-risk neuroblastoma patients because 1) differentiated cells do not multiply and 2) these treatments are less toxic alternatives to currently used chemotherapeutic drugs. A metabolite of Vitamin A, all-trans retinoic acid (ATRA) is the main signaling retinoid in vivo and one of the most potent differentiation inducers for neuroblastoma in vitro. We have reported in SK-N-SH neuroblastoma cells a time-dependent ATRA-mediated increase in activity of manganese superoxide dismutase (MnSOD), a mitochondrial antioxidant enzyme that converts superoxide anion to hydrogen peroxide. Other researchers report the importance of MnSOD in the process of differentiation, but to our knowledge, none have investigated its role in neuroblastoma.

In order to identify potential mediators of ATRA-induced differentiation, a time-course study was performed to investigate the relationship between neuronal differentiation (neurofilamentM), antioxidant status (MnSOD, catalase), and the generation of ROS.

Our data demonstrate an increase in neurofilament-M expression upon ATRA administration that occurs after an up-regulation of MnSOD activity. Interestingly, however, is the enhancement of neurofilament-M expression upon silencing MnSOD. Markers of ROS suggest that MnSOD up-regulation in these cells decreased superoxide and caused a subsequent increase in hydrogen peroxide. It is possible that this early rise in superoxide levels modulates the activity of other proteins prior to stimulating an increase in MnSOD. Consistent with the increase in DCF fluorescence, ATRA decreased catalase expression, suggesting hydrogen peroxide remains in the cytosol to affect differentiation.

Changes in MnSOD may alter the redox status (i.e. through superoxide and hydrogen peroxide) to influence differentiation. If neuroblastoma is diagnosed early clinicians may wait to administer treatment to see if the tumor will spontaneously differentiate. In cases such as this, administration of drugs which generate low levels of ROS could potentially accelerate the differentiation process.

## **CHMP1 PROTEIN CONTROLS WING VEIN DEVELOPMENT IN DROSOPHILA**

Valentine, M., Park, M. and Collier, S.  
Marshall University

Chmp1A is a conserved protein and a component of ESCRT-III, a complex required for recycling and degrading activated receptor proteins. Chmp1A has been linked to pancreatic cancer in humans, as pancreatic tumors have reduced Chmp1A expression. Work in zebrafish and mammalian cell culture has shown that Chmp1A knockdown results in tumor formation and accelerated cell growth, respectively. In light of these studies, Chmp1A has been classified as a tumor suppressor. In *Drosophila*, there is a single Chmp1 protein that is homologous to vertebrate Chmp1A. However, no studies have been published on Chmp1 in *Drosophila*.

We have shown through knockdown and over-expression studies in the wing that Chmp1 may regulate the EGF pathway, Notch-Delta signaling, and the Frizzled Planar Cell Polarity Pathway (PCP). We have shown that Chmp1 interacts with PCP protein Strabismus in *Drosophila*, suggesting that Chmp1 regulates PCP through an interaction with Strabismus. Additionally, Chmp1 knockdown and over-expression result in oversized wing veins and widening of the distal tip of wing veins, respectively. Both phenotypes could be attributed to either NotchDelta or EGFR signaling, as they are interactive in regulating the size of wing veins. It is likely that Chmp1 regulates both pathways via its involvement in ESCRT, since both pathways require ESCRT for proper signaling.

To ascertain if Chmp1 regulates EGF or Notch signaling, we have begun wing disc staining to observe the effects of Chmp1 knockdown and over-expression on components downstream of EGFR and Notch signaling. Using a tagged Chmp1 protein, we are also looking at Chmp1 localization in *Drosophila*. Assuming Chmp1 function is conserved, we expect it to localize to the endosome and condensed chromatin, as it does in vertebrates. We will drive tagged Chmp1 expression in the embryo to look for endosomal localization, and in the salivary gland to look for localization to condensed chromatin.

## EFFECTS OF HIGH $\omega$ -3 FATTY ACID DIET ON PROSTATE TUMORIGENESIS IN C3(1) TAG MICE

Juliana A. Akinsete and W. Elaine Hardman

Department of Biochemistry, Marshall University School of Medicine, Huntington, WV.

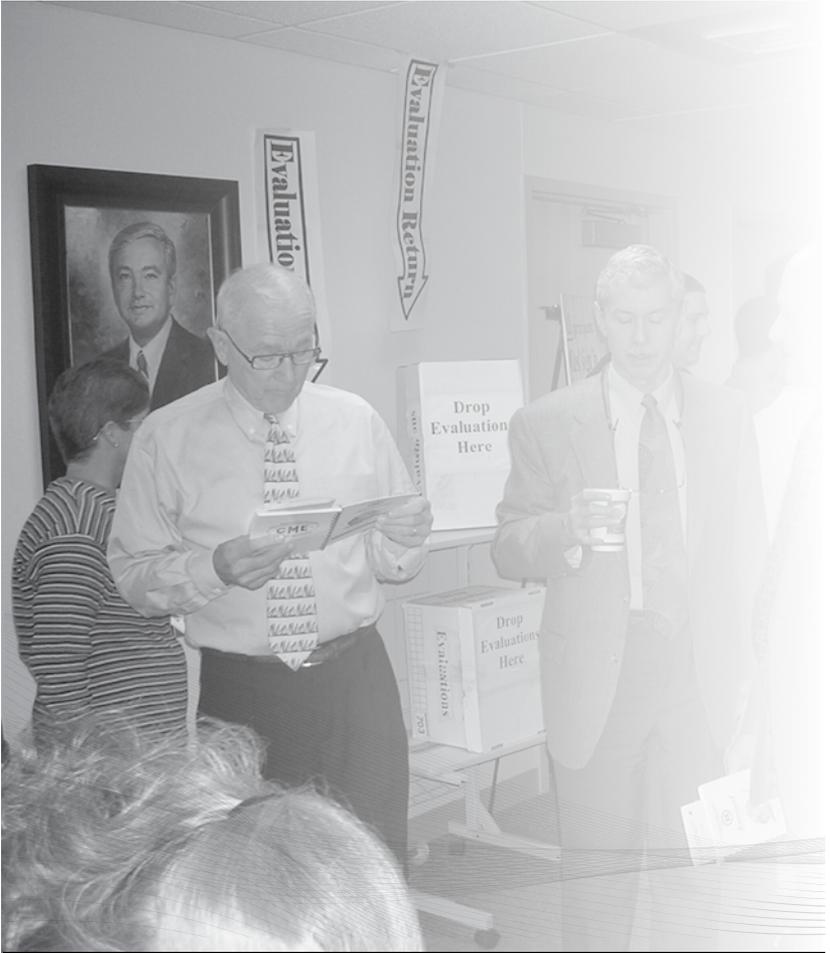
Studies showed that high omega-6 polyunsaturated fatty acid( $\omega$ -6 PUFA) increases the risk of prostate cancer while high omega-3 polyunsaturated fatty acid( $\omega$ -3 PUFA) decreases the risk.High  $\omega$ 6/  $\omega$ 3 PUFA in the Western diet may be a contributing factor to high incidence and mortality of prostate cancer in Western world. This study investigated whether a change from a diet that approximates the  $\omega$ -6 fatty acid content of the Western diet to a high  $\omega$ -3 fatty acid diet at adulthood might reduce prostate cancer risk.

Female SV129 mice that had consumed a high  $\omega$ -6 diet containing 10%w/w corn oil were bred with homozygous C3(1)Tag transgenic male mice. All male offspring were weaned to and consumed the corn oil diet until post puberty. Thereafter half of the male offspring were transferred to a high  $\omega$ 3 diet containing 5%w/w each canola oil and fish oil. The male hemizygous mice were euthanized at age 24 wks and 40 wks. Gas chromatography was used to assess the fatty acid composition in the prostate, liver and fat tissues. Enzymelinked immunoassay was used to assess testosterone and estradiol levels in blood plasma. RT2PCR and WB analyses were used to assess mRNA gene and protein expression respectively in the dorsolateral (DL) prostate.

High  $\omega$ -3 diet increased the ALA, EPA and DHA and decreased the LA and AA in prostate, liver and fat tissues. The average weights of prostate and genitourinary bloc were significantly lower in mice on high  $\omega$ -3 diet at adulthood than in mice on high  $\omega$ -6 diet throughout life. Compared to mice in CO-CO group, CO-FS mice had lower plasma testosterone level and significantly lower estradiol level. Consumption of high  $\omega$ -3 diet altered expression of genes expected to slow proliferation and increase apoptosis in the DL prostate.

Consumption of high  $\omega$ -3 diet by adult may be useful in suppressing and preventing prostate cancer. Further investigation are ongoing.





ORAL SESSION III • 1:40 PM – 2:40 PM

# 23RD ANNUAL RESEARCH DAY ORAL SESSION

## **ANOMALOUS RIGHT CORONARY ARTERY BRANCHING FROM LEFT MAIN CORONARY ARTERY**

Carrie Willis, Feras El-Bash, Paulette Wehner  
Joan C. Edwards School of Medicine

The autopsy incidence of single coronary arteries is 0.29%. The incidence of right coronary artery originating from the left main coronary artery is just 0.65% of these. (2) Whether it predisposes to early development of coronary artery disease is controversial. Diffuse patchy necrosis and fibrosis suggesting repeated episodes of small infarction has been found in the myocardium in many autopsy studies. (7)

We describe a 29 year old man who was admitted to the hospital with new onset congestive heart failure and atypical chest pain. This young man is obese, with hypertension, advanced diabetes, chronic kidney disease stage IV, hypertriglyceridemia, and severe obstructive sleep apnea. He is a life long nonsmoker. He has no family history of heart disease. His echocardiogram demonstrated a left ventricular ejection fraction of 15-20% with global hypokinesis and moderate to severe four-chamber dilatation.

His ECG showed no evidence of prior myocardial infarction.

His coronary angiography revealed a patent left main artery bifurcating into left anterior descending, circumflex and right coronary arteries as independent branches. There was no ostium in the right coronary sinus. The mid portion of the LAD and its second diagonal branch had 90% stenoses. The RCA had 80% stenosis at its mid portion. Its PDA had a proximal narrowing of 60%.

After a viability study demonstrated the relevant myocardium viable, he was referred for coronary artery bypass grafting. There are several options for surgically treating an anomalous RCA. Preferably, but more challenging, a disease-free artery can be reimplanted at the normal point of origin from the aorta. However, his diseased RCA must be bypassed, as well as his LAD, diagonal and PDA lesions. (7)

**ALICE IN WONDERLAND SYNDROME WITH CONCURRENT EBV PSYCHOSIS IN A PREVIOUSLY NORMAL ADOLESCENT**

Andrea Lauffer, April Kilgore, and Joseph Evans

Joan C. Edwards School of Medicine

Mononucleosis is a common illness among the adolescent population. Manifestations such as Alice in Wonderland Syndrome (a neurologic condition comprised of sensory distortions and alterations in body image and visual perceptions) and acute psychosis are rare sequelae to a primary EBV infection. These unusual presentations of the infection can lead clinicians to inappropriately diagnose patients with psychiatric illnesses. We report a case of acute psychosis in a previously healthy adolescent female initially thought to have new onset schizophrenia in which the etiology of her altered mental status was found to be mononucleosis.

A 16 year old female presented with visual hallucinations, paranoia, and increased sensory perception with initial onset 2 weeks prior. Before the onset of her psychosis, she had a positive rapid strep screen and was treated with amoxicillin. At the onset of her psychosis, she was initially evaluated in a FL facility in which new onset schizophrenia was listed as a diagnosis concurrent with a positive monospot test. She presented to Cabell Huntington Hospital in Huntington, West Virginia for further evaluation of her unresolved psychosis. She was admitted and placed on suicide precautions. She underwent an MRI, LP, EEG, HIV testing, and an EBV panel. All tests were negative including CSF parameters, with the exception of her EBV panel. She was discharged with close outpatient follow up. Two weeks after her hospitalization, her psychosis resolved and her mental status normalized.

Clinicians should have a high index of suspicion for an infectious disease process in previously well adolescents who present with acute psychosis and sensory distortions. In addition, the patient should undergo diagnostic procedures to rule out an organic cause before an official psychiatric diagnosis is made. Close monitoring and outpatient follow up are necessary to ensure the resolution of symptoms.

## **COPPER DEFICIENCY AS AN UNUSUAL CAUSE OF PERIPHERAL POLYNEUROPATHY**

Sydnee S. McElroy

Department of Family and Community Health, Joan C. Edwards  
School of Medicine

Peripheral neuropathy is a common clinical entity diagnosed and managed by primary care physicians. While the causes are usually familiar and easily recognized, there are more obscure etiologies that may be uncovered if a thorough history and neurological evaluation are performed. Copper deficiency is rarely encountered and, therefore, may be challenging to diagnose.

A 38 year old female presents to her primary care physician for numbness, tingling and burning pain in her lower extremities. She has also suffered a loss of coordination due to her sensory impairments. The symptoms are progressive and constant. Initial laboratory evaluation for Diabetes Mellitus is negative and subsequent testing for B12 deficiency, folate deficiency and anemia is found to be unrevealing. Her symptoms continue to worsen and she necessitates the use of a cane to function independently. She is referred to a neurologist for further evaluation and exam reveals decreased sensation in her lower extremities with a contradictory finding of hyperreflexia. Results of Electromyography and nerve conduction studies are consistent with an axonal sensory and motor polyneuropathy. Further laboratory studies are obtained which uncover a markedly decreased serum copper level and subsequently a critically elevated zinc level. Upon second review of the patient's medical history she is found to wear dentures and use large amounts of a zinc-containing dental fixative. Copper replacement is begun as well as transition to a dental adhesive free of zinc.

This case highlights the myriad etiologies that may lead to peripheral polyneuropathy as well as the importance of a thorough patient history. In addition, neurological evaluation can be critical in guiding and targeting diagnostic studies. Copper deficiency is a rare cause of peripheral neuropathy, but can result in severe and irreversible impairment in quality of life and independent function.

## DEATHS OF INFANTS; RATES & CAUSES, A FIVE YEAR REPORT FROM WEST VIRGINIA

Awni Al-Subu, MD, Jennifer Biber, MD, Amanda Pennington, MD, Marie Frazier, MD.

Pediatric Intensive Care Department, Department of Pediatrics, Joan C. Edwards School of Medicine, Marshall University, Huntington, WV.

Death in infancy is one of the most important indicators of public health in any nation. A relatively high proportion of deaths occur in the neonatal period and many reports linked mortality to different causes and risk factors. The CDC reports that infant mortality rate (IMR) decreased in the 20th century but not in the last 10 years.

A retrospective review of death certificates of infants in WV State between the years of 2004-2008 was performed. Demographic data, gestational age, maternal age, maternal risk factors, neonatal, post-neonatal total deaths and causes were recorded and compared between different groups. Neonatal death was considered from day 0-28 of life including newborns born at 24 weeks of gestation or older and post-neonatal deaths were considered those babies who died after 28 days of life.

Total of 637 charts were reviewed, neonatal and post-neonatal mortality rates were calculated and compared to national averages. The WV average was 6.076 over the years of 2004-2008. Causes of IMR (neonatal vs. post-neonatal) were sorted and analyzed. We identified 48 causes of death in neonates over the 5 year period and 25 causes were found in post-neonatal group. The top 5 were congenital malformations, infectious, SIDS, RDS, and chromosomal anomalies in neonates. SIDS, congenital anomalies, accidents/trauma/neglect, infectious and respiratory disease in post-neonatal infants. Congenital malformations were found to be the leading cause of death in the neonatal period and SIDS was found to be the leading cause of death in the post-neonatal period.

1. WV IMR was lower than the national average.
2. SIDS was the leading cause of mortality in WV in the infants older than 28 days. This was significantly higher than the national average for SIDS.
3. Congenital malformations were the most reported cause of death in the neonates.
4. 50% of deaths in infancy occur in neonatal period in WV.

## **OBSERVED PATIENT OUTCOMES FOLLOWING VASCULAR BRACHYTHERAPY FOR IN-STENT RESTENOSIS IN DRUG-ELUTING STENTS**

Dhanjal, A; Dimartino, P; Gress, TW; Eilen, D; Studeny, M  
Joan C. Edwards School of Medicine

In-stent restenosis (ISR) is a common complication of percutaneous coronary intervention and usually occurs around 6 to 12 months. Vascular brachytherapy (VBT) is commonly deployed to treat target vessel ISR. Information regarding ISR recurrence following VBT in DES is largely from randomized clinical trials and may underestimate this problem due to selection of patients with a lower risk for ISR.

We evaluated the outcomes of patients with ISR in DES treated with VBT. We retrospectively evaluated all cases of ISR in DES treated with VBT at our regional heart center from January 2003 to December 2008. Demographic, clinical, laboratory, imaging, and operational data were collected and a voluntary telephone survey was conducted.

Over the five year study period, 39 patients with ISR in DES were treated with VBT. 24 patients were male and 17 had diabetes. Most had hypertension (N=36) and hyperlipidemia (N=35), but few reported current smoking (N=9). Current aspirin and clopidogrel use were present in 37 and 31 patients, respectively. Angiography was performed in 24 patients for anginal symptoms, and target vessel ISR was present in 10. ISR occurred in 5 patients within 35 months (range 8 to 35 months) and over 50 months in the other 5 patients (range 50 to 70 months). Comparing ISR patients by 'early' (<36 months) versus 'late' ISR, stent length >23 millimeters was associated with 'early' ISR following VBT ( $p<0.001$ ). There were two cardiac deaths related to myocardial infarction that occurred at six months and four years, respectively.

The recurrence of ISR in DES following VBT was around 25% in our study, which is similar to ISR rates reported previously (approximately 15 to 30%), although most of these studies examined bare metal stents. Original target vessel stent length was associated with earlier occurrence of ISR following VBT.



ORAL SESSION IV • 3:15 PM - 4:00 PM

# 23RD ANNUAL RESEARCH DAY POSTER SESSION

## THE ACCURACY OF ESOPHAGEAL MUCOSAL FEATURES OF EE IN CHILDREN - THE WV EXPERIENCE

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Dept of pediatrics, Section of Gastroenterology, Marshall University  
School of Medicine, Huntington, WV.

Eosinophilic Esophagitis (EE) is a relatively new disease with unique pathological and endoscopic characteristics (Gastroenterol 2007). The specific esophageal mucosal features of EE included longitudinal furrows, “tracheal” ring, white plaques, and strictures. The sensitivity and specificity of these findings have not been well studied in children. We aimed to determine the sensitivity and specificity of the mucosal features in detecting EE in WV children.

A retrospective review of endoscopic charts of patients diagnosed with EE, GERD, and normal children was performed. The diagnosis of EE, GERD, and normal group was defined histologically by the number of eosinophils in the mucosal biopsy (EE: >20 eos/HPF, GERD: <6 eos/HPF, and normal: 0 eos/HPF). Demographic data, symptoms, esophageal mucosal features, and histology recorded and compared between the groups.

A total of 268 charts were reviewed of which 53 had EE, 103 had GERD and 115 were normal. Average age was 9.46+ 5.08, 10.25+ 4.51 and 11.26+ 4.38, respectively. The sensitivity and specificity of esophageal mucosal features for the diagnosis of EE 81 % and 100%, respectively. Most common mucosal features of EE were mucosal Furrows (75%) followed by white plaques (24%) and both had a significantly higher P value if compared with normal & GERD patients ( $p < 0.001$ ). The most common symptom was vomiting (43%) followed by abdominal pain (35.8%), both were significantly higher compared with the other two groups ( $p < 0.001$ ). On the other hand, heart burn rate was similar in EE patients compared to GERD patients (5.6% and 0.97 % respectively;  $p = 0.12$ ).

1. Endoscopic mucosal findings are adequate marker for the diagnosis of EE.
2. The presence of a specific endoscopic feature may provide an early indication to start treatment before histological results are available.

## **SEX DIFFERENCES IN LINKED CHROMOSOME 16Q13 CHEMOKINES IN PATIENTS WITH CORONARY ARTERY DISEASE: WV APPALACHIAN HEART STUDY**

Christopher Adams, Carla Cook, Todd Gress, Ken Cushman, Caitlin Kocher, Nepal Chowdhury, Edward Setser, Paulette Wehner, and Nalini Santanam.

Department of Medicine, Department of Pharmacology, Physiology, & Toxicology, Department of Cardiothoracic Surgery, West Liberty University, Joan C. Edwards School of Medicine, and Marshall University, Huntington, WV.

Higher number of obese population in the Appalachian region of the United States (US), lead to increased number of patients with coronary artery disease (CAD) in this region. Epicardial/pervascular fat derived factors play important pathophysiological role in CAD. We recently demonstrated sex differences in epicardial fat derived adipokine and cytokine profile with aging in Fisher 344xBrown Norway hybrid rats. We investigated if there exists, sex differences in epicardial fat derived factors in patients with CAD.

We recruited twenty men and women (ages 30-80 yrs) with CAD undergoing coronary artery bypass graft (CABG) surgery at St. Mary's Heart Center, Huntington, WV (IRB approved). At the time of surgery, blood, epicardial fat, subcutaneous fat and damaged vessel were obtained after consent. Millipore Human Cytokine/chemokine array panel that profiles 39 cytokines/ chemokines simultaneously from each plasma sample was performed on a Luminex multiplex system.

Bivariate analysis of the cytokine/chemokine array revealed significant sex differences in levels of tumor necrosis factor alpha ( $p=0.02$ ), granulocyte-colony stimulating factor ( $p=0.001$ ), IL-17 ( $p=0.03$ ) and macrophage inflammatory protein -1 beta ( $p=0.052$ ) between male and female patients with CAD. There was significantly higher level of linked chromosome 16q13 chemokines, fractalkine ( $p=0.04$ ) and macrophage derived chemokine ( $p=0.02$ ) in women than in men. Spearman's correlation of these chemokines to other clinical parameters (source: Society of Thoracic surgeon's database) showed strong correlations with age, mean arterial pressure and total hours in ICU. Since, the linked 16q13 chemokines are expressed in higher levels in atherosclerotic lesions; we will correlate the circulating levels of these markers to their tissue levels.

We for the first time, observed sex differences in levels of chromosome 16q13 linked chemokines. The significance of these findings to susceptibility to CAD still needs to be determined.

## **CLINICAL FEATURES OF PATIENTS WITH RECURRENT INVASIVE STREPTOCOCCUS PNEUMONIAE DISEASE**

Jenelle B. Hao, Nancy B. Norton, Ronald J. Stanek and Maurice A. Mufson  
Marshall University, Department of Medicine, Joan C. Edwards  
School of Medicine, Huntington, WV.

Invasive *Streptococcus pneumoniae* (pneumococcal) disease (IPD), including pneumonia and meningitis, carries a high risk of death, about 15% in pneumonia and 40% in meningitis. The occurrence of two or more IPD (recurrent) in the same individual is unusual and raises the key question of whether these individuals possess risk factors that increase their likelihood of recurrent IPD. We investigated the clinical features among a group of individuals with recurrent IPD to examine this question.

Between 1981 and 2010, we identified 27 patients with recurrent IPD during inpatient surveillance of IPD in Huntington. We isolated pneumococci from otherwise sterile sites, serotyped them by capsular swelling and determined their MIC to penicillin by E-strip. Clinical data were abstracted from hospital charts. The Marshall University IRB approved this research.

Of the 27 patients with recurrent IPD, 16 (59%) were 65 years of age and older at the first IPD, males predominated (67%), two-thirds had pneumonia and 21 (78%) had the same clinical diagnosis at both IPD. Four (80%) of 5 patients with the same serotype experienced their second IPD within 12 months ( $p=0.047$ ), unlike patients with different serotypes at each IPD. Seventy-seven percent of serotypes were PPV23 vaccine types, occurring as often in the first IPD as the 2nd IPD, as did penicillin resistant (I/R) serotypes. Three (60%) of 5 patients who died had I/R strains ( $p=0.29$ ). Four (36%) of all 11 patients with multiple myeloma in the entire IPD database acquired a 2nd IPD and one had a 3rd IPD and 8 patients had cancer or lymphoma.

Recurrent IPD, an infrequent event, occurs mainly in persons 65 years of age and older, caused by penicillin sensitive PPV23 vaccine serotypes, mostly as pneumonia, less often as meningitis, with multiple myeloma and cancer/lymphoma representing unique risk factors.

## **DIABETES TYPE 1, CARDIOVASCULAR MORBIDITY, AND MORTALITY: NEW INSIGHTS**

Elke Fahrman\*, Laura Adkins\*\*, Henry Driscoll\*

\* MU Internal Medicine, Joan C. Edwards School of Medicine, Huntington, WV, \*\* MU Mathematics, Huntington, WV.

Although patients with type 1 diabetes are felt to have a greater morbidity and mortality risk than type 2 diabetics, there is a shortage of mortality statistics and risk assessment models for cardiovascular (CV) complications for them.

We conducted a retrospective study using medical and hospital charts of patients with type 1 diabetes who were seen at MU Internal Medicine between 2001 and 2010. We analyzed the data with regard to death rate, life expectancy, and factors that might contribute to CV complications and deaths. Statistical methods employed were one-way ANOVA, ChiSquare test, and logistic regression.

Four hundred twenty type 1 diabetic patients were seen between 2001 and 2010 at MU Internal Medicine. Forty patients (10.5%) died during that time. Their average age at death was 54 years.

A preliminary analysis of 38 patients indicates that renal disease, smoking status, and gender are important contributors to CV events and deaths. Additionally, hypoglycemia (17% of the patients who died) and diabetic ketoacidosis (DKA, 21%) appear to be contributors. DKA may have both immediate and long term effects (4-5 months) on mortality. In contrast, A1C, blood pressure, BMI, and lipid profile did not seem to affect death nor CV complications.

A high percentage of patients was found to be depressed (78% in our sample).

The death rate of type 1 diabetic patients is very high, and the age at death is young. Our results show that renal disease is a major driver of CV disease and death. They also show the deadly combination of smoking and diabetes. More efforts are needed in type 1 diabetics to monitor and treat kidney disease, avoid hypoglycemia and DKA, and stop smoking. Using a team approach involving primary care physicians, specialists, and mental health professionals might improve outcomes.





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### A CASE OF BILATERAL CAROTID ANEURYSMS

Robert C. Criss

Department of Radiology  
Marshall University

COMMON CAROTID ARTERY	1.1 cm
C: DEPTH	1.1 cm
D: DEPTH	1.31 cm



Carotid Ultrasound - Left Internal Carotid Aneurysm



CT of Right and Left Subclavian Aneurysms

Carotid aneurysms are rare but potentially life-threatening conditions. They can lead to stroke or rupture.

We present a case of bilateral carotid aneurysms. The patient presented with a history of stroke. Imaging revealed bilateral carotid aneurysms. The patient underwent surgical resection of the aneurysms. The patient is doing well post-operatively.

POSTER PRESENTATIONS • SESSION I • 9:45 AM – 10:30 AM

# 23RD ANNUAL RESEARCH DAY POSTER SESSION

**AGE-RELATED CARDIAC HYPERTROPHY IS PREDOMINANTLY MEDIATED VIA UPREGULATION OF ERK1/2 AND MTOR SIGNALING IN FISCHER BROWN NORWAY RATS**

Salah El-Bash, Sunil Kakarla, Paulette Wehner, and Eric R. Blough.  
Marshall University Joan C. Edwards School of Medicine

The aging heart undergoes well characterized structural changes associated with functional decline, though the underlying molecular mechanisms remain obscure. Recent studies suggest that age-related increase in oxidative stress causes increase in cardiac apoptosis and to compensate the functional loss, the remaining cardiomyocytes undergo physiologic hypertrophy. Although initially beneficial, prolonged cardiac hypertrophy leads to decompensation, arrhythmias, contractile dysfunction and subsequent heart failure.

We examined the possible molecular mechanisms underlying age-related cardiac hypertrophy in 6, 27, 30,33, and 36 month Fischer Brown Norway rat hearts.

Compared to 6 months, the heart to body weight ratio remain unchanged in 27 and 30 month rats, but significantly increased by 26% and 37% in 33 and 36 month rats respectively( $p < 0.05$ ). Immunohistochemical staining for sarcolemmal protein dystrophin revealed significant increase in cardiomyocyte fiber cross sectional area( $p < 0.05$ ). This age-related increase in cardiomyocyte size was accompanied by hyperphosphorylation of ERK1/2, mTOR(Ser24448), p70S6k(Thr389), rpS6(Ser235/236) and Akt(Ser473 and Thr308) ( $p < 0.05$ ).

Taken together, our data suggest that age associated cardiac hypertrophy in Fischer Norway rats may be predominately mediated via upregulation of ERK1/2 and mTOR-related signaling.

**DETECTION OF LOAD AND MUSCLE FORCE: PHYSIOLOGICAL TESTS OF A FINITE ELEMENT MODEL OF RESPONSES OF COCKROACH TROCHANTERAL CAMPANIFORM SENSILLA**

Sumaiya Chaudhry, David Neff and Sasha Zill

Department of Anatomy and Pathology, Joan C. Edwards School of Medicine, Huntington, WV

Feedback from sense organs in the limbs is essential in the control of posture and locomotion. We have characterized responses of campaniform sensilla, receptors that detect forces in insects via cuticular strains, in the trochanteral segment of the cockroach leg. The trochanteral campaniform sensilla consist of 4 groups of receptors that form the major array of force detecting mechanoreceptors in the leg. Previous studies have suggested that feedback from these receptors is essential for normal leg use in walking. The strains produced at the locations of individual groups of receptors have previously been studied in a 3D reconstruction of the hind leg trochanter by Finite element analysis. Those studies have demonstrated that large strains occur at the location Group 3 campaniform sensilla when forces are applied that mimic external loads and contractions of the leg trochanteral extensor muscle.

We have characterized the structure of the cuticular caps of Group 3 sensilla by confocal and conventional light microscopy and shown that there is a discrete gradient of caps sizes. In physiological experiments, activities of Group 3 receptors were recorded while forces were applied to the femur that mimicked external loads and or contractions of the trochanteral extensor muscle.

These studies have shown: 1) Group 3 sensilla fire vigorously to forces that mimic extensor muscle contractions; 2) increasing force levels produce higher levels of firing and recruitment of units of larger amplitude; 3) sensory discharges can also encode the rate of force application. Simultaneous application of muscle forces and external loads produces increased discharges in units of smaller amplitude and the recruitment of units of large amplitude.

Therefore, these studies strongly suggest that Group 3 receptors provide feedback to increase force levels in adaptive walking, as when walking uphill and climbing over barriers. Supported NSF Grant IBN-0235997 and a NASA Student Fellowship.

## **SHORT-TERM ACTIVITY-DEPENDENT CHANGES IN AXONAL FUNCTION IN HIPPOCAMPAL CA3 PYRAMIDAL NEURONS**

Ben Owen, Larry Grover  
Marshall University

High-frequency neuronal activity (30100Hz) contributes to several normal functions, including filtering input, and encoding and retrieving memory. High-frequency activity also occurs under pathological conditions (e.g. seizures). While the basic mechanisms underlying action potential generation are well known, the consequences of high-frequency activation on action potential generation have received relatively little experimental attention. In this study, we examined how activity at frequencies up to 100Hz affects the function of pyramidal neuron axons in the hippocampus, an area of the brain essential for normal memory function. We focused on the Schaffer collateral axons of hippocampal area CA3 pyramidal neurons, which form the anatomical pathway linking area CA3 to area CA1.

We studied the function of these axons in sections of rat hippocampus in vitro. A stimulating electrode was placed in stratum radiatum at the CA3/CA1 border to activate Schaffer collateral axons. Whole cell patch clamp recordings were obtained from individual CA3 neurons, and antidromic action potentials were recorded in response to low-frequency stimulation (=1Hz) and sustained (1.6s) high-frequency stimulation (HFS) of Schaffer collateral axons. To ensure action potentials were not evoked by synaptic transmission, glutamate and GABA receptors were blocked using a cocktail of receptor antagonists (DNQX, D-AP5, MK801, bicuculline, and CGP-55845).

Action potential amplitude, shape, and latency were stable during low-frequency stimulation, but changed dramatically during sustained HFS. Changes in Schaffer collateral firing during HFS were variable and complex, and included: decreased action potential amplitude, increased conduction latency (decreased conduction velocity), and complete action potential failure.

Our results indicate dramatic and unexpected changes in axon function of mammalian CNS neurons during high-frequency activity. These changes may be caused by conduction failure at axonal branch points, changes in ion concentration gradients during high-frequency activity, and clustering of ion channels into discrete locations along axons.

**TEMPERATURE AND EXERCISE EFFECTS ON BONE MINERAL DENSITY AND GROWTH PLATE MORPHOLOGY IN MICE**

Morgan Efaw, Laura Mader, Alison Williams, and Maria A. Serrat.  
Department of Anatomy and Pathology, Joan C. Edwards School of  
Medicine, Huntington, WV.

Ambient housing temperature and exercise influence growth of long bones. Research by our lab has shown that cold temperature decreases bone length, but exercise mitigates the shortening effect. Evidence suggests that these changes in bone length correlate with changes in bone mineral density (BMD) and morphology of the growth plate, the band of cartilage where lengthening occurs. The purpose of this project is to test the hypothesis that warm housing temperature and exercise improve BMD and increase the size of bone growth plates. Female mice (N=62) were divided into four groups at 23 days of age: 1) warm housing (25C) with a running wheel; 2) warm without a wheel; 3) cold housing (16C) with a wheel; and 4) cold without a wheel. After 11 days of treatment, knee and wrist bones were fixed, demineralized, and embedded in paraffin blocks for histological analysis. Femurs from the opposite limb were cleaned, dried and imaged in a microCT scanner with a 25-micron spatial resolution. We cut paraffin blocks into thin sections using a microtome, stained cartilage with Safranin-O, and measured growth plate height using ImageJ software. We quantified BMD in the cortical (midshaft) and metaphyseal regions of the femur using the Advanced Bone Analysis tool in GE MicroView software. Our microCT analysis shows that both warm housing temperature and exercise increased BMD relative to the non-exercised mice in the cold. Exercise in the cold offset the lowered BMD similar to the effect we saw on bone length. We are currently analyzing histology data to quantify changes in the growth plate. Preliminary results support our hypothesis that warm temperature and exercise increase BMD and alter growth plate morphology. The conclusion of this study may provide a better understanding of how to prevent and treat bone diseases to improve bone health.

**THE OMEGA-3 FATTY ACID EPA DOES NOT INHIBIT PROGESTIN STIMULATION OF IN VITRO INVASIVE PROPERTIES IN T47D HUMAN BREAST CANCER CELLS**

Rebecca A. King and Michael R. Moore. Departments of Chemistry (RAK) and Biochemistry and Microbiology (MRM)

Joan C. Edwards School of Medicine, Marshall University, Huntington, WV

Clinical studies have shown that progestins increase breast cancer risk when included in hormone replacement therapy. We and others have previously reported that progestins also stimulate invasive properties in the progesterone receptor-rich human breast cancer cell line T47D. Invasive properties are required for metastasis, and since metastasis is what causes death from cancer, it is important to find effective ways to prevent metastasis. Other researchers have reported that omega-3 fatty acids inhibit metastatic properties of other human breast cancer cell lines both in vitro and in vivo. We wanted to test the hypothesis that the omega-3 fatty acid EPA would inhibit progestin stimulation of invasive properties, and thus possibly be effective in combating metastasis of progestin-responsive breast cancer.

T47D cells were grown in minimal essential medium, with 10% fetal bovine serum. The medium was then changed to fresh and made 1-200 micromolar in EPA (omega-3) (eicosapentaenoic acid), AA (omega-6) (arachidonic acid), or 0.1% in vehicle (ethanol), so that ethanol concentration in all cultures was 0.1%. The cells were then incubated at 37 degrees for 72 hrs, and made 10 micromolar in ara-C for the last hour of incubation. The cells were then harvested, single cell suspensions made, and incubated for 48 hrs in modified Boyden chambers to measure invasion through extracellular matrix and a porous membrane, with and without the synthetic progestin R5020 (10 nM) in the same medium as above (including ara-C), except without phenol red and serum, for 48 hrs. The invading cells were then counted.

Surprisingly, neither EPA nor AA inhibited progestin stimulation of invasive properties, and, at 200 micromolar, EPA alone stimulated invasion.

The omega-3 fatty acid EPA, at 200 micromolar, does not inhibit progestin stimulation of in vitro invasive properties in T47D human breast cancer cells, but by itself stimulates invasion.

## **SYSTEMIC TOXICOLOGICAL EFFECTS OF NANOCERIA FOLLOWING INTRATRACHEAL INSTILLATION**

Siva K. Nalabotu, Jane Ma, William E. Triest, Madhukar Kolli, Paulette Wehner, and Eric R. Blough Marshall University

Nanotechnology represents a rather broad interdisciplinary field of research and industrial activity involving particles less than 100 nanometers (1/1,000 the width of a human hair) in diameter. Engineered materials made of such small particles exhibit novel properties that are distinctively different from their conventional forms and can affect their physical, chemical, and biological behavior. Interest in the use of nanomaterials for imaging, diagnosis, disease treatment and other biomedical applications has increased tremendously over the last decade. Cerium oxide nanoparticles have been shown to exhibit potential use for the treatment of cardiovascular disease, oxidative neuronal injury, retinal degeneration and radiation-induced damage because of their unique antioxidant properties. Although the implications of developing nanotechnology are remarkable there exists the potential for profound medical, ethical, legal and environmental issues. It is widely accepted that as nanomaterials are increasingly produced and incorporated into products their eventual release to the environment across many stages of their lifecycles and via multiple routes of exposure is inevitable.

Herein we examine the potential systemic toxicity of cerium oxide nanoparticles (20nm) in specific pathogen free Sprague Dawley rats following a single intratracheal instillation. We hypothesized that exposure of the lung to cerium oxide nanoparticles would be characterized by alterations in serum biochemical profile, inflammatory mediators and changes in the histopathology of the various organs after instillation.

Our data demonstrate a dose dependent accumulation of nanoparticles in the lung and liver. Interestingly, this tissue accumulation is accompanied by evidence of lung pathology and liver toxicity. Taken together, these data suggest that exposure of the lung to cerium oxide nanoparticles may be associated with significant systemic toxicity.

Additional experiments to determine the mechanism of liver damage are currently under investigation.

**MODULATION OF THE BLOOD BRAIN BARRIER (BBB)  
BY VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF)  
IN DIABETES**

Aileen J. Marcelo and Richard D. Egleton

Department of Pharmacology, Physiology, and Toxicology, Joan C. Edwards  
School of Medicine, Huntington, WV

Diabetes is a risk factor for stroke. Clinical studies have shown an increase in permeability of the BBB in diabetes (Starr, 2003). In experimental models of diabetes, this permeability is linked with decreased expression of tight junction proteins (Hawkins, 2007). Studies at the blood-retinal barrier showed similar changes in permeability and tight junction protein expression, and have suggested that VEGF may play a role (Antonetti, 1998). The present study investigates the role of VEGF at the BBB in a streptozocin (STZ) model of diabetes.

Sprague Dawley rats were injected with 65 mg/kg STZ or equal volume of 0.9% sterile saline. Rats were sacrificed 14 days post injection for real-time PCR and Western analysis. Blood glucose was analyzed, and rats were grouped based on glucose levels as follows: low (<300 mg/dl), mild (=300 mg/dl), and high (= 400 mg/dl). mRNA and protein expression of VEGF and its receptors, Flt-1 and Flk-1, were analyzed.

Real-time PCR analysis showed 2-3 fold increases of VEGF and its receptors in microvessels of STZ-treated rats compared to control. Western analysis showed no appreciable change in VEGF in rats with mild glucose, but increased in rats with high glucose (~30%). No changes in protein levels of Flt-1 and Flk-1 were seen at low glucose; however both receptors were slightly elevated in animals with mild glucose levels (15% higher than control). In rats with high glucose, the levels of Flt-1 and Flk-1 were reduced compared to control (20 and 30%, respectively).

The present results suggest that increase in permeability may be due to VEGF based on the relative diabetic state. A small glucose elevation increases receptor number, while a larger elevation in glucose concentration decreases receptor numbers. These changes in VEGF signaling may play a role in diabetic-related diseases, and may be an important target for therapeutic intervention.

**METHYLENE BLUE AND ALZHEIMER'S DISEASE**

Jeremiah Jeffers, Charles Barry, and Richard D. Egleton  
Joan C. Edwards School of Medicine, Huntington, WV

Alzheimer's disease (AD) is a neurological disorder characterized by progressive decline and ultimately loss of multiple cognitive functions. Despite the progress in our understanding of Alzheimer's disease, effective treatments against it remain elusive. Current treatments do not address the underlying pathology and only offer short term symptomatic relief. Recent studies have indicated that there are multiple mechanisms involved in the development and progression of Alzheimer's disease. These mechanisms include mitochondrial deficiency, a neurotoxic inflammatory cascade driven by reactive microglia, excessive production of amyloid precursor protein and its derivative  $\beta$ -Amyloid, and ApoE4 allele synthesis leading to toxic fragment formation. These pathways combine to form a toxic cycle of neuronal damage and pathology leading to cognitive decline and the clinical presentation of AD, and ultimately death. To date however most research therapies for AD have concentrated on amyloid as a target with only limited success. Several recent studies have shown that medications used for other indications may be effective in treating some aspects of AD. Methylene blue (MB) a drug used in the treatment of congenital methemoglobinemia has recently been proposed as a potential therapy for AD.

In this project we developed a protocol to measure MB and also carried out preliminary studies on its ability to protect neurons against oxidative stress (a key component of AD).

Using scanning absorbance spectroscopy we found that MB showed a characteristic spectrum with peak absorbance at 670nm and a detection limit of 0.04  $\mu\text{g}/\text{ml}$  of PBS. Addition of albumin did not alter the spectrum shape. It did however lead to an increase in absorbance at all points of the spectrum. Preliminary studies also showed that the MB was partially protective against oxidative stress using the MTT assay.

This project has started the process of characterizing the utility of MB in the treatment of AD.

## **THE VALUE OF IMMEDIATE PREOPERATIVE VASCULAR EXAM IN AN “AT RISK” PATIENT FOR TOTAL KNEE ARTHROPLASTY**

Tigran Garabekyan, Ali Oliashirazi, and Kristie Winters

Department of Orthopaedic Surgery, Marshall University, Joan C. Edwards School of Medicine, Huntington, WV

Arterial complications associated with total knee arthroplasty (TKA), although infrequent, may be associated with devastating sequelae including infection, loss of limb, and rarely death. Furthermore, when revascularization is undertaken in the postoperative setting, additional complications may be encountered including post-ischemic reperfusion injury necessitating prophylactic fasciotomies. The end result is a prolonged postoperative course leading to worse functional outcome. This case report underscores the value of immediate preoperative vascular examination, performed at the time of surgical site marking, in preventing ischemic complications of TKA.

A 70 year old patient with peripheral vascular disease and indwelling superficial femoral artery stent developed stent thrombosis in the two-week period between his last clinic visit and date of surgery, with no change in symptoms. This re-stenosis was detected on routine preoperative physical examination and resulted in cancellation of the TKA, allowing the patient to undergo emergent revascularization.

A preoperative history and physical exam performed by the orthopaedic surgeon can determine if a patient is at increased risk for vascular complications and whether the “at-risk” limb can withstand the stress of the operation. Consideration should be given to obtaining ABI’s in this patient population, noting that arterial calcification can falsely elevate the value. In addition to these measures, we emphasize the importance of an immediate preoperative vascular examination, performed at the time of surgical site marking, to prevent devastating and unacceptable complications in an “at-risk” patient for TKA.

## **PURE ANDROGEN SECRETING ADENOMA IN POSTMENOPAUSAL FEMALE**

Yanal Masannat, MD Reem Kheetan, MD Abid Yaqub, MD, FACE, FACP  
Marshall University

Adrenal tumors are mostly benign, non functioning adenomas that are discovered incidentally on abdominal imaging studies. Functional tumors usually cause Cushing's syndrome, primary aldosteronism and less commonly virilization. We describe here a case of pure androgen secreting adrenal adenoma.

A 48 years old female presented with excessive hair growth over the face, trunk and lower limbs for 3 years. She also had frontal baldness. Her menarche was at age of 15. She had total abdominal hysterectomy with bilateral salpingo-oophorectomy at age of 38. She is married and lives with her husband and reported no loss of libido. Her past medical history was unremarkable. On examination, she was normotensive had frontal balding and hirsutism noted on the face, chest, arms and legs. Her genital and breast exam was unremarkable. Her lab work showed total serum testosterone of 544 ng/dl (normal value 14-76 ng/dl) , DHEA 2325 ng/dl (normal value 110-554 ng/dl) and DHEA Sulfate of 186.5 ng/dl (normal value 35.4 -256.0 ng/dl). She had CT abdomen which showed a left complex adrenal mass measuring 3.9 X 4.9x4.7 cm. 24 hour urine collection for cortisol and metanephrines was normal. Serum cortisol after an overnight dexamethasone suppression test was 0.7 ug/dl (normal <5ug/dl). She was then referred to surgery for laparoscopic left adrenalectomy. Pathology report showed adrenocortical adenoma. Her post operative total testosterone was 27 ng/dl, DHEA 748 ng/dl and DHEA Sulfate 70.5 ng/dl.

Pure androgen-secreting adrenal adenomas are rare. Most of the androgen secreting adrenal tumors are malignant and often cosecrete cortisol and androgens. Our case report discusses a benign androgen secreting adrenal adenoma successfully treated by laparoscopic adrenalectomy. Regular clinical follow-up with interval monitoring of serum androgens is essential as some of the adrenal tumors initially diagnosed as benign have been later found to be malignant on follow-up.

## **HYPERTHYROID INDUCED CHOREA**

Yanal Masannat, Reem Kheetan, Omolola Olajide, Rita Gandhi, Abid Yaqub. Department of Endocrinology and Neurology/ Marshall University, Huntington, WV

Neurologic manifestations such as tremor are common in patients with thyroid disease. However, chorea is an uncommonly reported manifestation of hyperthyroidism. We describe here a case of hyperthyroidism-induced chorea and its response to treatment.

A 23 years old female patient presenting with involuntary movements involving arms, lower limbs, neck and face. Her past medical history was significant for hyperthyroidism diagnosed three years back, for which she was started on PTU , but she had been noncompliant. Neurologic examination showed choreiform movements in both arms and legs. She was noted to have multiple tongue protrusions and frequently biting her cheeks. Laboratory data showed TSH <0.008 (normal 0.370- 4.420 mIU/ml), Free T4 3.32 (normal:0.75-2.00 ng/dl), Free T3 11.83 (normal 2.3- 4.2 pg/dl). Thyroid stimulating Immunoglobulin, Thyroid peroxidase antibodies and anti-thyroglobulin antibodies were all negative. Neurology consultation was obtained and a limited work-up for other secondary causes of chorea including; ceruloplasmin, ASO titers, as well as Sjogren's antibodies was within normal limits. MRI of the head was normal. Thyroid Uptake Scan showed an increase 24 hour uptake. Patient was started on PTU, Atenolol for heart rate control and prednisone for 7 days. Patient was seen 6 months later, there were no abnormal movements. Her TSH was 0.012 mIU/ml , free T3 was 4.5 pg/dl and free T4 was 0.78 ng/dl.

The development of involuntary movements during hyperthyroidism suggests an influence by thyroid hormone on motor neuron excitability. Hyperthyroidism may induce a reversible functional alteration in the dopamine turnover or receptor site response to the dopamine in the corpus striatum. It is also proposed that a pre-existing structural lesion of basal ganglia might be necessary for thyrotoxicosis to induce involuntary movements. The resolution of our patient's chorea with improvement in her hyperthyroidism supports the metabolic rather than structural basis for the neurological features.

## **INFERIOR WALL MYOCARDIAL INFARCTION COMPLICATED WITH A VENTRICULAR SEPTAL DEFECT TREATED PERCUTANEOUSLY**

Firas Almahasneh, Mark Studeny, Silvestre Cansino  
Joan C. Edwards School of Medicine

A 79 year old white man with a history of hypertension, hyperlipidemia and tobacco use presented to the emergency room with chest pain. The patient was hemodynamically stable, physical examination was unremarkable, and his electrocardiogram changes suggested acute inferior ST segment elevation myocardial infarction. The patient was taken emergently for left heart catheterization that revealed acute total occlusion of the right coronary artery and was treated successfully by percutaneous coronary intervention performing thrombectomy and stent placement. The patient was admitted to the intensive care unit for further standard acute myocardial infarction care. Initial course of stay was uneventful. A mild reduction in blood pressure attributed to right ventricular involvement was responsive to fluid support. After the first 36 hours, the patient's status deteriorated gradually becoming more hypotensive requiring aggressive fluid and pharmacological support. Despite optimal supportive measures, the patient continued to deteriorate developing respiratory failure requiring mechanical ventilation support.

Follow-up physical exam revealed a new systolic murmur. An emergent transthoracic echocardiography was performed to rule out post myocardial infarction mechanical complications. The echocardiogram was suggestive of ventricular septal defect, (VSD) measuring 10 mm in diameter that was confirmed by transesophageal echocardiography. The patient was evaluated by cardiothoracic surgery team and was deemed a nonsurgical candidate. The patient was taken urgently to the heart catheterization laboratory and under fluoroscopy and transesophageal echocardiography guidance, a VSD Amplatzer closure device was successfully deployed percutaneously, resulting in resolution of the shunt confirmed by echocardiogram. The patient was transferred to the intensive care unit for further management.

**Conclusion:** Percutaneous closure of acute post myocardial infarction ventricular septal defect is feasible in acute and unstable patients who are not a candidate for surgical intervention.

## **INTERCORONARY COMMUNICATIONS IN ABSENCE OF OBSTRUCTIVE CORONARY ARTERY DISEASE: RARE ENTITY**

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Intercoronary artery continuity or “coronary cascade” is a rare variant of coronary anatomy. Intercoronary arterial connections are thought to be congenital in origin. It is suggested that faulty embryological development allows the existing intercoronary channel to remain prominent and maintain a large caliber. True prevalence of this entity is unknown but very few cases have been reported in the literature.

A 48 yr old male with h/o hypertension, hyperlipidemia and smoking was referred to our clinic for chest pain. Exercise cardiopulmonary stress test was done for the chest pain which showed mild reversible inferior wall defect. Angiography showed 20% distal right coronary artery stenosis with no disease in left anterior descending or circumflex arteries. An intercoronary communication was seen between the distal circumflex artery and the distal part of right coronary artery. Selective injection of the right coronary artery showed retrograde filling of the circumflex artery, whereas left coronary injection did not fill the right coronary artery.

Congenital coronary artery anomalies are rare and have been reported in 1% of cardiac catheterization cases in different series. Most patients are asymptomatic and are discovered as incidental findings during cardiac catheterization or autopsy. A unidirectional intercoronary communication between the circumflex and right coronary arteries, which was leading a coronary steal from right to left, was observed. Intercoronary communication is generally not related with ischemia, ischemic symptoms and reversible inferior defect on stress test seen in this case suggested that unidirectional flow might cause myocardial ischemia via coronary steal.

Intercoronary communication is a very rare coronary artery anomaly. It is probably a benign anomaly and may actually have a protective role if obstructive coronary artery lesions develop in any of the involved vessels, serving as a large collateral to minimize myocardial ischemia on the other hand, it could be a cause of myocardial ischemia.

**RIGHT THIGH PAIN IN A WOMAN WITH OSTEOPOROSIS**

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Bisphosphonates are commonly used for treatment of osteoporosis. Recent literature has suggested that prolonged treatment with bisphosphonates can lead to an atypical femoral diaphyseal fracture, due to over suppression of the bone turnover.

A 66 year old woman presented with non-traumatic right thigh pain. She had bilateral femur shaft fractures 27 years ago in a car accident. She has osteoporosis (base line T score -2.8 at the Hip and -2.5 at the L-spine) for 6 years. She was on alendronate 70 mg/week and esomeprazole . She had a 4th proximal phalanx diaphyseal non traumatic fracture of the foot 2 months ago. Radiograph showed right femoral cortical thickening. Bone scan showed nonspecific increased uptake in the proximal right femoral diaphysis. MRI showed enhanced signal abnormality on T2 weighted image suspicious for acute fracture of proximal femoral diaphysis . Laboratory data showed normal CBC, metabolic profile, calcium, phosphorus, PTH, SPEP, UPEP, 24 hour urinary calcium , serum osteocalcin and elevated bone specific alkaline phosphatase. Repeat DXA showed a T score -2.2 at the hip and – 1.4 at the L-spine. Open biopsy of fracture site didn't reveal infection, malignancy or bone marrow abnormality. Diagnosis of atypical diaphyseal femoral fracture associated with prolonged bisphosphonate therapy was made.

Suspected mechanism for an atypical femoral fracture is over suppression of bone turnover. It is located anywhere between the lesser trochanter and the supracondyle of the femur. Radiological features include diffuse or focal (lateral beaking) femoral diaphyseal cortical thickening. Clinicians should be alert to thigh/groin pain as a presenting symptom of this fracture. If radiograph is equivocal, bone scan or MRI can aid the diagnosis. It can be prevented by either avoiding bisphosphonates in high risk patients or giving a drug holiday after 5 years.

## COCAINE AND HYPERKALEMIA UNMASKED THE ELECTROCARDIOGRAM (EKG) PATTERN OF BRUGADA SYNDROME

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Multiple clinical conditions may exacerbate or unmask the electrocardiogram (EKG) pattern of Brugada Syndrome. Examples are hyperkalemia, hypokalemia, hypercalcemia, alcohol consumption, cocaine intoxication, a febrile state, and the use of sodium channel blockers. Very few case reports have indicated that hyperkalemia can induce a Brugada pattern in the electrocardiogram. On the other hand, rare case reports have indicated that cocaine has precipitated life-threatening arrhythmias associated with development of Brugada syndrome.

We present a 26 year old patient with hyperkalemia secondary to muscle damage and renal insufficiency after a reported large intake of cocaine. The electrocardiogram showed Brugada pattern. These EKG changes disappeared directly after normalization of serum potassium.

The case described here is most likely consistent with Brugada syndrome precipitated by cocaine and hyperkalemia. Unfortunately, the provided data in this case appear to be incomplete; the patient was found unresponsive at home, and we do not know exactly if he developed a cardiac arrest secondary to a malignant arrhythmia before the arrival of the emergency medical services.

Now it is known that cocaine, hyperkalemia, and the usage of certain medications such as sodium channel blocking agents, may increase the risk of developing symptomatic Brugada syndrome. Whether the risk increases when hyperkalemia is combined with cocaine or any of these other agents has not been reported yet; but given the number of patients receiving such combinations, definitely deserves further investigative studies.

**Conclusion:** This case highlights the importance of recognizing cocaine and hyperkalemia, as potential triggers of the acquired Brugada-like electrocardiographic pattern.

**MOYAMOYA DISEASE IN A NON-ASIAN PATIENT:  
CASE REPORT**

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Moyamoya Disease (MMD) is a rare cerebrovascular disease that borrows its name from the Japanese word for “puff of smoke.” The name refers to the appearance of networks of collateral arteries seen on angiography. Collateralization occurs in the leptomeningeal and pial arteries to compensate for stenotic internal carotid arteries. Anterior and middle cerebral vessels may also be affected. MMD has a bimodal age distribution and predominantly affects Asian populations; however, reports of MMD in non-Asian patients have become more common.

Our case describes a 46 year old Caucasian female with no Asian ancestry. Her past medical history includes a 20 pack year history of tobacco use and Multiple Sclerosis. She came to the emergency department complaining of a headache of four days and bilateral lower extremity weakness. She was transferred to the ICU after a non-contrast CT revealed intraventricular hemorrhage. Subsequent angiography revealed bilateral occlusion of the middle and anterior cerebral arteries and mild stenosis of the terminal left and right internal carotid arteries. The patient was diagnosed with MMD and was treated medically. Surgical revascularization was not considered appropriate because of the patient’s reliance on well-developed collateral circulation.

Our case describes symptoms, diagnostic criteria, and treatment for MMD. More patients are being diagnosed with MMD, and we encourage clinicians to list MMD on their differential when assessing patients who present with ischemic or hemorrhagic events.

## **PORTAL VEIN THROMBOSIS IN A NONCIRRHOTIC 43 YEAR OLD MALE WITH A HISTORY OF CHRONIC PANCREATITIS**

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Portal vein thrombosis (PVT) is an uncommon disorder that may cause and contribute to portal hypertension. PVT may result most commonly from cirrhosis or hypercoagulable states, but can also be caused by pancreaticobiliary disease. Combining patient presentation with imaging results, a probable diagnosis of acute vs. chronic PVT can be made. Limited treatment modalities exist for either type, but if identified, can help manage the complications of PVT. We report and discuss a case of PVT in a non-cirrhotic 43 year old man, secondary to chronic pancreatitis.

This is a 43 yr old male, with PMH of chronic pancreatitis and alcohol abuse, who presented with progressive epigastric pain and SOB over 1 week duration associated with nausea, vomiting, fatigue, decreased appetite, and melena. The pt was pale and tachycardic on physical exam. Initial labs showed a Hb of 3.4 and HCT of 10.2. Anticoagulation profiles, lipase, amylase, and liver enzymes were within normal limits. After undergoing multiple esophago-gastro-duodenoscopy (EGDs) and several series of abdominal imaging, the patient was found to have actively bleeding duodenal varices, an enlarged pancreatic head mass, and PVT with collateral formation. The patient was successfully treated with blood transfusions and band ligation.

PVT is a rare and serious disorder caused by hepato-portal factors, pancreaticobiliary disease, and systemic disorders, resulting in severe portal hypertension in some instances. Presentation varies depending on the cause and rapidity, which ultimately determines the approach to treatment and outcome. Diagnosis of PVT is made by a combination of H & P and radiographic imaging, with variceal hemorrhage being the most common clinical manifestation. There is no widely accepted treatment modality for acute or chronic PVT, but few clinical studies have demonstrated that anticoagulation may be initiated in hemodynamically stable patients with acute, not chronic (development of portal vein cavernous transformation), PVT.

## **A CASE OF HISTIOCYTOSIS X DIAGNOSED BY CT-GUIDED LUNG BIOPSY**

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Pulmonary Langerhans'-Cell Histiocytosis (PLCH) is an interstitial lung disease that primarily affects young adults. The diagnosis is usually made based on positive CD-1a antigen and immunohistochemical staining S-100 protein histiocytes on Bronchialveolar lavage or Lung Biopsy. There is a strong association between PLCH and cigarette smoking. PLCH tends to cause relatively isolated pulmonary involvement as compared to the systemic form of Langerhans cell histiocytosis.

A 42 year old lady was admitted with chronic cough and sputum production of 8 months duration. She also reported associated fever and night sweats. Her history was positive for cigarette smoking (20 pack-years) and IV drug abuse. She traveled to the Caribbean two months prior to admission. Chest CT scan showed a right middle lobe cavitory lesion (2.3x2.6 cm), 0.5 cm nodule in the right apex and 1.8x1.5 cm opacity in the left upper lobe. Bronchial washings showed pulmonary histiocytes with leukocytes and no malignant cells. CT guided biopsy was obtained and it showed benign tissue with type II pneumocyte hyperplasia and multiple epithelioid histiocytes that were strongly positive for CD-1a but negative S-100 protein. The patient had no indication of systemic histiocytic involvement so no more work up was needed. She finished a 10 day course of Augmentin and was encouraged to quit smoking and follow up in the clinic.

In our case, differential diagnosis includes septic embolization, pulmonary lymphangioleiomyomatosis and PLCH. Blood cultures were negative and CXR and CT chest didn't show any pleural effusion which made the first two diagnoses less likely. CT guided biopsy and staining confirmed the diagnosis of PLCH. We have no definite way to predict the progression of this disease, so serial imaging and physiologic testing is pivotal in follow up. The smoking cessation counseling may be more important than any other intervention in such cases.

## **FIBRILLARY GLOMERULONEPHRITIS: A RARE CAUSE OF PROTEINURIA**

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Fibrillary glomerulonephritis (FGN) is a rare cause of proteinuria. It usually presents as hematuria, hypertension, proteinuria and renal impairment. It is found in approximately 1% of native kidney biopsies. The diagnosis is based on electron microscopic findings of a widespread deposition of randomly arranged, elongated, and non-branching microfibrils in the glomeruli. Each microfibril has a diameter of 15-30 nm, which is double the diameter of those in amyloidosis. Negative Congo red staining is not only crucial to diagnose FGN but also to exclude amyloidosis.

A 50 year old lady was referred to nephrology clinic for proteinuria and worsening renal function. She had history of hypertension and coronary artery disease. Clinical examination was normal. Urine microscopy revealed normal appearing red blood cells. Proteinuria quantified at 4.5 grams/day. Serum creatinine was 1.7 mg/dL. Electrolytes, liver function tests, and relevant “serologies” were all normal along with serum and urine protein electrophoresis.

Light microscopy of her kidney biopsy showed glomerular capillary wall irregularity and mesangial expansion. Congored stain was negative. Electron microscopy revealed mesangial infiltration by randomly oriented fibrils – highly suggestive of fibrillary glomerulonephritis.

Treatment with cyclophosphamide and lisinopril resulted in partial remission at six months.

Proteinuria is a fairly common diagnosis in primary care practice. Clinicians need to distinguish benign from serious causes of proteinuria. Persistent proteinuria without an obvious cause requires nephrology consultation. All the adults with unexplained proteinuria should have urine sediment examination, serum and urine protein electrophoresis, and a kidney biopsy. Our case was diagnosed with FGN based on the negative Congo red staining and the presence of specific sized micro-fibrils in glomerular and mesangial areas. Differentials include immunotactoid glomerulonephritis – a distinct entity that is classically associated with lymphomas.

FGN leads to end-stage renal disease in half of the patients within 2 years. Immunosuppressant have been tried with variable success.

## **A CASE OF REFRACTORY ADULT ONSET STILL'S DISEASE RESPONDING TO ANAKINRA THERAPY**

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Adult onset Still's Disease was first described in English in 1896. It is characterized by quotidian spiking fevers, an evanescent rash, polyarthralgia, lymphadenopathy, hepatosplenomegaly, leukocytosis; elevated liver enzymes, erythrocyte sedimentation rate and ferritin levels. These symptoms can be preceded by a severe sore throat that is culture negative and unresponsive to antibiotic therapy. This is a diagnosis made after exclusion of infectious agents and neoplasm. There are no diagnostic criteria at this time.

Etiology of this disease is unknown, but there is a popular thought that genetically predisposed individuals can experience onset after an infectious trigger. Viruses such as rubella, human immunodeficiency virus, cytomegalovirus, Epstein-Barr and parvovirus B19 as well as bacteria like mycoplasma pneumonia and some chlamydial infections may be risk factors but no definitive studies have been done.

We report the case of a 23 year old Caucasian female with refractory Adult Onset Still's Disease (AOSD) who could not be induced into remission with treatments including glucocorticoids, Plaquenil, Imuran, Methotrexate, Humira and Remicade. The patient suffered significant joint damage leading to joint surgeries including the replacement of several joints. Her symptoms were successfully controlled with Anakinra, an IL-1 receptor antagonist.

Treatments for this disease include NSAIDS (Non steroidal anti inflammatory drugs), glucocorticoids, disease modifying antirheumatic drugs (DMARDs), antitumor necrosis factor agents and more recently IL-1 (Interleukin-1) and IL-6 (Interleukin-6) receptor antagonists. Very few patients respond to NSAID (Non steroidal anti inflammatory drug) therapy, DMARD therapy and some patients are even resistant to anti-TNF (Tumor necrosis factor alpha) medications.

## HOW OBSCURE CAN AN GI BLEEDING BE?

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Obscure GI bleeding is when the source of bleeding was not identified despite an initial EGD, colonoscopy with or without routine small bowel evaluation.

63 year old Caucasian male with a history of Abdominal Aortic Aneurysm (AAA) repair six year prior, initially presented to a university hospital with hematochezia, syncope and severe anemia. He was admitted on 3 occasions over a two month period, with recurrent rectal bleeding, that required multiple transfusions. . Several work up modalities failed to reveal the bleeding site, including 2 EGDs, 3 colonoscopies, capsule enteroscopy, CT angiography, 2 bleeding scans and a negative abdominal aortography . The patient underwent emergency exploratory laparotomy on his last admission. Intraoperatively, a pseudoaneurysm of the aortic anastomosis, which eroded into the terminal ileum was found. Part of the graft and part of the ileum were removed, and a new graft was sutured from the end of the old graft. The patient did well after the surgery with no recurrent bleeding, and discharged home after a one-week stay.

Aorto-enteric (AE) fistulas are a rare cause of acute GI bleeding but are associated with nearly 100 % mortality if undiagnosed and untreated. It is becoming more common to encounter secondary AE fistulas related to a prosthetic abdominal aortic vascular graft [2, 3], as AAA screening with ultrasound and elective repair are becoming a common practice prior to potential primary fistulas. High index of suspicion is necessary for a prompt diagnosis and treatment of this life-threatening condition. Surgical repair of bleeding AE fistulas is the only therapeutic option regardless of the cause. Every patient with massive or repetitive obscure gastrointestinal bleeding and a past history of aortic aneurysm or prosthetic graft surgery must be considered to have an AE fistula or erosion until proven otherwise.

## **A CASE OF PATENT FORAMEN OVALE DIAGNOSED IN A 72 YEAR OLD FEMALE**

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Hypoxemia is generally defined as decreased partial pressure of oxygen in the blood, usually less than 60 mmHg or causing hemoglobin oxygen saturation of less than 90%. It can be caused by hypoventilation, ventilation-perfusion mismatch, right-to-left shunt, diffusion impairment, or reduced inspired oxygen tension.

A 72 year old female who presented to the emergency department after having two episodes of syncope. She is oxygen dependent at home on 5L per nasal cannula. Review of systems was negative for chest pain, palpitations, cough or any worsening of her chronic shortness of breath from COPD. In the emergency department the patient was found to have hypoxemia. She was started on a 100% nonrebreather mask, which improved her oxygen saturations to 92%. Because the patient's chest X ray showed no acute cardiopulmonary findings, pulmonary embolism was high in the differential diagnosis and the patient underwent a CT angiogram of the chest. However, the study came back negative for pulmonary embolism and again did not show any active pulmonary diseases to explain the patient's severe Hypoxemia. In the face of normal CT angiogram of the chest a right-to-left shunt was suspected and the patient had a transthoracic echocardiogram with bubble study that revealed a right-to-left shunt with a large PFO as well as severe pulmonary hypertension.

Patent foramen ovale is a congenital anatomical interatrial communication that persists after the age of 1 year. Although Most patients with a PFO are asymptomatic and frequently go undiagnosed, a variety of clinical manifestations may be associated with a PFO such as stroke, migraine, or paradoxical embolism. PFO has a potential for right-to-left shunt which occurs when the right atrial pressure is higher than the left atrial pressure and when this happens it results in hypoxemia.

## **FOREIGN BODY GRANULOMATOSIS IN INJECTION DRUG USERS**

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Foreign body granulomatous lung disease due to injection of talc or cellulose is an unusual condition resulting from the intravenous administration of medications intended for oral use. Patients usually present with nonspecific complaints such as cough, dyspnea, and an increase in sputum production.

A 57 year old male, with past medical history significant for chronic dyspnea and cough presented to the emergency room with transient altered mental status. A chest x-ray which revealed a large mass-like consolidation in the right upper lobe and this was confirmed on a CT scan of the chest. Social History was positive for a 40 pack-year history of smoking and the patient reported using marijuana currently and the use of “everything else in the past” including needles. Old hospital records revealed that the patient had been admitted to the hospital three months prior to the current admission with dyspnea. He was treated with antibiotics for pneumonia. At that time his CT scan of the chest showed the same mass-like consolidation in the right upper lobe Both bronchoscopy with transbronchial biopsy and CT-guided needle biopsy of the lung mass were inconclusive. Aerobic/ anaerobic, fungal and mycobacterial cultures were negative. As the lung mass was persistent and highly suspicious for malignancy, the patient had an open lung biopsy which revealed interstitial fibrosis, granuloma formation and scattered birefringent material associated with foreign body giant cell reaction. Based on the lung biopsy findings the diagnosis of foreign body granulomatous was made.

Foreign body granulomatous lung disease is usually seen in patients injecting crushed pills containing talc and cellulose. The diagnosis is a challenge as biopsies obtained by bronchoscopy and CT guidance are usually not sufficient to make the diagnosis and in most cases open lung biopsy is essential to make the diagnosis.

## TREATMENT OF CRYPTOCOCCAL MENINGITIS IN AN IMMUNOCOMPETENT PATIENT

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The dimorphic mold, *Cryptococcus neoformans*, is commonly associated as an opportunistic infection in immunocompromised/immunosuppressed patients. In the pre-HIV era, it was found to cause meningitis in patients who did not have a known underlying immunodeficiency. We describe an immunocompetent patient, who developed this infection and his complicated course and treatment.

A 45 year old male came to our facility with the diagnosis of Cryptococcal meningitis. He presented with headache, nausea, blurred vision, and fatigue for three weeks duration without typical signs of meningism on physical examination. The cerebrospinal fluid (CSF) analysis was positive for cryptococcal antigen, India ink stain, and the culture grew *Cryptococcus neoformans*. The infection did not resolve when the patient was only taking lipid complex amphotericin B and flucytosine. An MRI showed no acute findings despite a continual increase in intracranial pressure. The patient's symptoms and infection finally started to clear once a lumbar drain was placed, followed by the placement of a ventriculoperitoneal shunt while maintaining lipid complex amphotericin B and flucytosine throughout the course of treatment.

When found in an immunocompetent patient, *Cryptococcus neoformans* usually has a typical meningitis presentation<sup>2,3,4</sup>. Most cases have ring enhancing lesions visible on MRI or CT of the brain<sup>1,2,4</sup>. The patient in this case presented without meningism and did not have any MRI abnormalities. CSF analysis with acquisition of the opening pressure thus became a critical component for diagnosis<sup>3</sup>. An opening pressure greater than or equal to 25 cm in an immunocompetent patient with an atypical presentation of Cryptococcal meningitis should guide treatment to include a lumbar drain with antifungal medication<sup>3</sup>. The need for a ventriculoperitoneal shunt is indicated when symptoms and increased intracranial pressure do not resolve after the use of serial lumbar drains with antifungal treatment, as was the case in this patient<sup>3</sup>.

## **ERUPTIVE XANTHOMAS IN A PATIENT WITH DIABETES MELLITUS AND HYPERTRIGLYCERIDEMIA**

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Hypertriglyceridemia is common disorder associated with uncontrolled diabetes mellitus, obesity, and sedentary habits. There are certain familial disorders of lipid metabolism in which triglyceride levels can be very high. Eruptive Xanthomas can be seen in patients with very high triglyceride levels and are lesions characterized by accumulations of lipid-laden macrophages.

A 34 yrs old female presented to Marshall Endocrine Clinic for the management of Type 2 DM. Her DM was Uncontrolled with most recent A1C of 11.6 %. She also had history of hypertriglyceridemia with TGD levels above 4028 mg/dl. She was found to have eruptive xanthomas on her elbows, knees and lower back. She was started on glucophage and glimepiride for DM and given fenofibrate and fish oil for high triglycerides. She was also put on very low fat diet. After 3 months, patient presented with an A1C of 6.0, TGD level of 145 mg/dl. Her Xanthomas had resolved

Eruptive xanthomas are yellow-orange to red papules that are often surrounded by an erythematous halo. They appear in crops on the buttocks, extensor surfaces of the extremities, and flexural creases. Pruritus is common, and the lesions may be tender. Eruptive xanthomas are associated with hypertriglyceridemia, particularly that associated with types I, IV, and V (high concentrations of VLDL and chylomicrons). They may also appear in secondary hyperlipidemias, particularly in diabetes.

Nonpharmacologic interventions include weight loss in obese patients, aerobic exercise, and very low fat diet. Options for pharmacologic therapy directed at reducing triglycerides include fibrates, nicotinic acid, and fish oil.

### **Conclusion**

- Eruptive xanthomas should be identified on physical examination as they may point towards an underlying metabolic disorder.
- Effective treatment of elevated triglyceride can lead to successful resolution of xanthomas as in our patient.

**SURGICAL MANAGEMENT OF TRIGEMINAL NEURALGIA:  
A CASE REPORT AND LITERATURE REVIEW**

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We will present a case of trigeminal neuralgia (TN) and review current surgical management strategies, indications, and the benefits of each of the procedures. A 55 year old male with intractable tic doloreaux presented to clinic. Surgery was decided and PRGR performed. Pain was well controlled postoperatively. Multiple surgical options exist to treat TN. The most recent data on these methods will be discussed.

**LAMBERT-EATON MYASTHENIA SYNDROME (LEMS)  
PRESENTING AS RECURRENT RESPIRATORY FAILURE  
AND VENTILATOR DEPENDENCY**

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Lambert-Eaton myasthenia syndrome is a rare autoimmune disorder of neuromuscular junction transmission, in which antibodies develop to the VGCCs and impair the acetylcholine (ACh) release from the presynaptic nerve terminals, causing muscle weakness. Most secondary to Small Cell Lung Cancer.

Patient is a 56 year old white male ,presented with a two week history of ataxia. The day of his admission he had acute respiratory failure requiring mechanical ventilation. Workup included CT scan of the head and MRI which were suggestive of chronic small vessel disease . RPR, HIV, B12 ,TSH, ANA, RF, Lyme titer, ESR, homocysteine and B6 levels were negative. Lumbar puncture showed normal opening pressure, no evidence of infection. Chest x-ray showed widened mediastinum on the right, CT angiogram of the chest was negative for PE but showing a large paratracheal mass on the right. Bronchoscopy with EBUS was done ,biopsies were positive for small cell lung cancer .Tracheotomy was performed due to prolonged mechanical ventilation. Auto antibodies to P/Qtype voltagegated calcium channels were positive. Presumptive diagnosis of paraneoplastic Lambert-Eaton myasthenia syndrome due to Small Cell lung Cancer was made causing the acute respiratory failure . Chemotherapy was started, patient extubated, however chemotherapy held due to severe pneumonia. Despite management, patient's condition continued to deteriorate and he died 3 weeks after diagnosis.

Lambert-Eaton Myesthenia Syndrome mostly presents with slowly progressive proximal muscle weakness, autonomic dysfunction ,depressed or absent deep tendon reflexes that can reappear after strong repetitive muscle contraction, to differentiate it from Myasthenia Gravis. Respiratory muscle weakness is rare, but may occur late or as a presenting feature. Diagnosis usually clinical, confirmed by antibodies against (Voltage Gated Calcium Channels) and by electro diagnostic studies. Management includes supportive therapy, tumor removal and medications such as: guanidine,3,4diaminopyridine, pyridostigmine, plasma exchange, IV immunoglobulin and prednisone +/- azathioprine.

## **CARDIOMYOPATHY AND MULTIPLE ORGAN FAILURE IN A PATIENT WITH NEUROFIBROMATOSIS**

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Pheochromocytomas are rare, catecholamine secreting tumors derived from chromaffin cells that occur in 0.05-0.2% of hypertensive individuals. The incidence of pheochromocytoma in neurofibromatosis type 1 is 0.1-5.7%. A massive catecholamine secretion due to a pheochromocytoma can lead to a cardiogenic shock and multiple organ failure, which are rare but life threatening events that are potentially treatable if recognized early.

A 49 year old Caucasian female with a previous medical history significant for neurofibromatosis type 1, hypertension and non-compliance with medication use presented to the ER with acute onset of severe left sided chest pain and dyspnea. She appeared agitated, anxious and in discomfort. Her initial BP reading was 220/110 mmHg; regular HR of 133 bpm; RR of 36 per minute and O<sub>2</sub> saturation was 98% on RA. Her laboratory analyses demonstrated elevated serum creatinine, lactic acidosis, elevated pancreatic, liver and cardiac enzymes. An emergent bedside echocardiogram revealed severe global hypokinesia and severe left ventricular function with EF of 10%. During the hospital, her BP and HR fluctuated and a suspected diagnosis of pheochromocytoma was confirmed by elevated catecholamine levels in the urine and CT scanning of the abdomen revealing a right suprarenal mass measuring 4.7 x 3.8 cm with a central area of necrosis. The patient was stabilized by  $\alpha$ -blockers and her laboratory values returned to normal.

This case demonstrates an unusual presentation of pheochromocytoma as acute cardiogenic shock with multiple organ failure. Pheochromocytoma should be considered in patients with rapid fluctuation of the arterial blood pressure and severe cardiogenic shock without evidence for CAD. Therefore, a high index of suspicion is essential to reduce morbidity and mortality in these patients through early diagnosis and aggressive management.

**BILATERAL CHYLOTHORAX AS THE INITIAL  
MANIFESTATION OF SYSTEMIC AMYLOIDOSIS**

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Large, recurrent pleural effusions in systemic amyloidoses are rare but clinically challenging events predominantly affecting patients with primary systemic amyloidosis. Examining the mechanisms by which these effusions form and persist offers perspective on the pathophysiology and basis for therapeutic interventions. Chylous pleural effusions are exudative lymphocytic effusions defined by the presence of chyle in the pleural space as determined by Triglyceride level of >110 mg/dL and usually results from disruption or obstruction of the thoracic duct. Identifying chylothorax is crucial since it narrows differential diagnosis often dictating change in diagnostic approach and management.

We are presenting a 70 year old Caucasian male who complained of exertional dyspnea and abdominal fullness for several months. Dyspnea was initially exertional but progressed to dyspnea at rest. Patient denied any other respiratory symptoms or gastrointestinal symptoms. Past history was significant for hypertension, hyperlipidemia and diabetes. Patient had a 20 pack year smoking history but quit 25 years ago. Physical examination showed mild distress with stable vital signs. No adenopathy or clubbing. Dullness and diminished breath sound were noted over the lower lung fields posteriorly. Abdomen was distended without organomegaly. Skin examination was normal. CXR showed large right pleural effusion and moderate sized effusion on the left. CT chest confirmed the presence of pleural effusions with compression atelectasis in the right lower lobe. CBC, Chem. profile, Echo studies were normal.

This is an unusual case of bilateral chylothorax as one of the presenting features of Primary Amyloidosis. Recognition of amyloidosis as a possible cause of chylothorax is important in the absence of other obvious systemic features. Amyloidosis should be considered in the differential diagnosis of chylothorax when other more common causes are not found.

**ARACHNOID CYSTS: A CASE REPORT AND  
LITERATURE REVIEW**

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The purpose of this study is to present a case report of a symptomatic intracranial arachnoid cyst. In addition, we will outline the possible etiologies, diagnostic methods and treatment outcomes of arachnoid cysts. A 41 year old female presented to clinic with a headache. Noncontrast CT revealed well-circumscribed hypodense lesion with minimal mass effect. Surgery was performed, and a cystoperitoneal shunt was inserted. The patient's headache ceased after the operation. The current management and diagnosis of intracranial arachnoid cysts will be discussed.

## A CASE PRESENTATION OF ASTHMA EXACERBATION IN PREGNANCY

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Asthma is defined as chronic airway inflammation, with increased responsiveness to a variety of stimuli that results in partial or complete reversible airway obstruction. Asthma complicates 4-8% of pregnancies and can increase the rate of need for cesarean delivery, preeclampsia, fetal growth restriction, and maternal morbidity/mortality. These complications are due to the fact that maternal hypoxemia directly reduces oxygen supply to the fetus. Asthma during pregnancy is likely to be similar in severity to the patients asthma in the year prior to pregnancy, therefore it is important to establish and continue treatment throughout pregnancy in order to prevent acute exacerbation.

A 34 year old pregnancy female with known asthma presents with progressively worsening symptoms of cough, shortness of breath, and chest tightness at 19 weeks gestation. The patient was admitted for acute asthma exacerbation with simultaneous right upper lobe pneumonia. She was treated aggressively, including eventual intubation, and discharged home with close follow up.

Approximately 23% of patients with asthma will experience improvement of symptoms while pregnant, while 30% will have an increase in severity. The diagnosis, classification and management of a pregnant patient with asthma is the same as for a non-pregnant patient. It is important to address with patients the need and importance for adherence to both nonpharmacological and pharmacologic treatments. While many medications are not ideal to be used during pregnancy, the benefit of preventing asthma symptoms and exacerbations outweighs the risks of the medications.

## **METASTATIC ANGIOSARCOMA OF THE LIVER PRESENTING WITH HEMOPTYSIS**

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Joan C. Edwards School of Medicine at Marshall University and the  
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Angiosarcomas are rare malignant tumors of vascular endothelial cell origin which account for 1-2% of all sarcomas. Angiosarcomas may occur in any region but most commonly are located in the skin, breast, liver and deep tissues. Approximately 60% of all angiosarcomas are cutaneous.

A 60 year old gentleman presented with hemoptysis for 5 weeks, left chest pain and dyspnea. He had been treated with oral antibiotics 3 weeks earlier for similar symptoms but failed to improve. On admission, the CXR showed new multifocal ill-defined infiltrates when compared to a CXR done two months prior. Liver hypodensities and lucent areas in the spine were also noted. Chest CT showed bilateral nodules, some with cavitation. Bronchoscopy was nondiagnostic and CT scan showed worsening. Thoracentesis demonstrated a hemorrhagic exudative fluid. CTguided biopsy of the liver showed angiosarcoma.

Angiosarcomas have been associated with prior radiation exposure, exposure to chemical agents (vinyl chloride, arsenic, thorium dioxide) and in areas with chronic lymphedema. Rarely these can be familial.

The manner of presentation is variable depending on the origin site. This may include bruising, soft tissue mass, appearance suggestive of infection or a blood vessel-like lesion. Diagnosis requires histologic tissue. Surgical resection is the mainstay of treatment and may also be of benefit for control of the primary site when metastatic. Angiosarcomas are also sensitive to radiation. Other options include antiangiogenic agents or immunotherapy. In general, the prognosis is poor. Our case is unusual because angiosarcomas are mainly cutaneous tumors. The breast is the second most common site for primary angiosarcomas. Visceral angiosarcomas are rare, the liver is the most common site for visceral angiosarcoma. The lungs are uncommon site for primary or secondary angiosarcomas. In addition, the patient presented with hemoptysis due to lung metastasis rather than symptoms related to the primary tumor.

## **GUILLAIN-BARRÉ SYNDROME AND A CASE OF RESISTANT ATRIAL FIBRILLATION WITH REVIEW OF LITERATURE**

I. Choudhry MD, R. Sayyed MD, P. Wehner MD, T. Sias MD.

Joan C. Edwards School of Medicine

Guillain-Barre' syndrome (GBS) can present with dysautonomia which occurs in 70% of patients and the cardiovascular manifestations include tachycardia, hypertension alternating with hypotension, orthostatic hypotension, bradycardia and other arrhythmias. Severe autonomic dysfunction is important to recognize as it can also cause sudden death due to arrhythmias.

We present a 60 year old white female with severe back pain, developed new onset ascending muscle weakness and atrial fibrillation. Primary team tried intravenous (IV) cardizem and IV digoxin. Later on diagnosis of GBS was made. Patient was started on IV immunoglobulin (IG) and it seemed as patient's treatment with IV IG progressed it was easier to control patient's heart rate and maintaining a normal sinus rhythm.

Review of literature shows clinical manifestations of dysautonomia in GBS can range from seemingly innocuous profuse perspiration to life threatening arrhythmias. Autonomic dysfunction usually presents as sinus tachycardia, labile hypertension and postural hypotension. Sinus bradycardia, asystole, supraventricular tachycardia, junctional tachycardia and ventricular tachycardia have also been reported. The risk of dysautonomia is higher in patients with quadriplegia, respiratory failure or bulbar involvement (not present in our patient). No data is available regarding linear relationship between IV IG treatment and clinical improvement in GBS induced dysautonomic cardiac arrhythmias. About 20% of patients with GBS may have serious cardiac arrhythmias. These do not always need treatment but are a reason for continuous cardiac monitoring. Some patients with junctional tachycardia, supraventricular tachycardia and ventricular tachycardia may require different medications to stabilize the cardiac rhythm. Others with bradycardia and long pauses, pacemakers might be required. Seemingly a relationship exists between IV IG treatment in GBS and improvement in dysautonomia induced cardiac arrhythmias. This observation warrants an early diagnosis of GBS be made and prompt IV IG therapy instituted so that mortality and morbidity associated with cardiac arrhythmias can be reduced.



**POSTER PRESENTATIONS • SESSION II • 2:30 PM – 3:15 PM**

# 23RD ANNUAL RESEARCH DAY POSTER SESSION

## **PRESENTATION OF A PREGNANT PATIENT WITH DISSEMINATED INTRAVASCULAR COAGULATION**

Elizabeth R. Brown

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Disseminated intravascular coagulation is a syndrome characterized by an imbalance between procoagulant and endogenous anticoagulant forces. It is activation of the coagulation system, leading to fibrin deposition with vascular obstruction in addition to depletion of coagulation factors, protease inhibitors and platelets consumption leading to bleeding from multiple various sites throughout the body. Many obstetric conditions predispose and trigger disseminated intravascular coagulation.

A 31 year old primagravida at 29 wks pregnant female with history of chronic hypertension who presented to outside clinic with severe abdominal pain and stillbirth. The patient had recently been started on Metoprolol XL 100mg QD one week prior to admission for chronic hypertension. Patient was transferred from outside facility for severely elevated blood pressures, LDH 2774, platelets 96,000, vaginal bleeding, and large amounts of blood in uterus. She had a stillbirth fetus, placenta abruption and HELLP syndrome which appeared to be evolving into disseminated intravascular coagulation. Once here, patient was aggressively transfused and labor induced. Stillbirth fetus was delivered. Once delivered, patient stabilized. A couple of days later she discharged home.

This patient had multiple etiologies to trigger disseminated intravascular coagulation. She had placental abruption, preeclampsia evolving into HELLP syndrome, and intrauterine stillbirth with retained fetus. The placental abruption causes decidual hypoxia and the massive hemorrhage into the uterine cavity. Preeclampsia causes uncontrolled and massive release of systemic pro-inflammatory substances and placental procoagulant material. Retained stillbirth causes release of thromboplastin like material from the stillbirth fetus and maternal platelet activation. The combination of all these conditions resulted in widespread activation of clotting cascade and ultimately disseminated intravascular coagulation. The management of disseminated intravascular coagulation is specific to the underlying triggering disorder. In this case, treatment was delivery of the stillbirth fetus and supportive management with transfusions of blood products.

## **A RARE CASE OF COMMUNITY-ACQUIRED RALSTONIA PICKETTII ABSCESS AND BACTEREMIA IN AN IMMUNOCOMPETENT PATIENT**

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and Thomas Rushton, MD

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Once regarded as clinically insignificant, *Ralstonia pickettii* (formerly *Burkholderia pickettii*), has been increasingly isolated in nosocomial infections, and to a lesser extent, in community acquired infections. We describe an infection due to *R. pickettii* in an immunocompetent patient who developed an abscess and bacteremia after innocuous trauma and his subsequent treatment.

A 61 year old male with no known past medical history presented to an outpatient clinic with a minor left leg trauma. He underwent an unsuccessful course of outpatient antibiotic treatment, complicated with abscess formation and subsequent bacteremia requiring inpatient treatment. The blood culture grew *Ralstonia pickettii*. The abscess was managed with incision and drainage and the bacteremia was successfully treated with trimethoprim-sulfamethoxazole.

The ability of non-fermenting Gram-negative bacilli to cause nosocomial infections in immunocompromised patients is well documented in the literature. Major opportunistic pathogens of this class (*Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Stenotrophomonas maltophilia*, and *Burkholderia cepacia*) are known to cause bacteremia/septicemia associated with contaminated intravenous solutions. This case exemplifies the importance of increasing the healthcare worker's index of suspicion for the emergence of *R. pickettii* as a source of clinically significant infection in patients of all immune statuses.

The increasing identification of *Ralstonia pickettii* as the causative agent in nosocomial and community acquired infections has heightened awareness to its pathogenicity. Successful treatment is reliant upon accurate diagnosis, appropriate choice of antibiotics, and timeliness of care.

## **METAPLASTIC BREAST CARCINOMA WITH SQUAMOUS DIFFERENTIATION VS. SQUAMOUS CELL CARCINOMA OF THE BREAST**

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### **Introduction:**

Metaplastic breast carcinoma (MBC) with squamous differentiation is an uncommon invasive breast carcinoma with a variable proportion of carcinoma cells mixed with cells of squamous differentiation forming a mature keratinizing tissue. We report such a case along with its histopathologic findings, approach of treatment and outcome.

### **Case presentation:**

A 72 year old Caucasian female presented with right breast exophytic cauliflower-like mass measuring (8-10cm) growing straight through the skin of the chest wall with central tethering. No axillary lymphadenopathy was noted. The histopathological examination showed metaplastic squamous cell carcinoma, with immunohistochemical staining positive for ER expression and negative for PR expression. Patient treated as stage four metaplastic carcinoma with chemotherapy, hormonal therapy and radiotherapy with minimal initial response. Patient's condition deteriorated and deceased after two years from diagnosis.

### **Discussion:**

Primary squamous cell carcinoma of the Breast is rare, primarily affecting elderly population and comprises less than 0.1% of invasive cancers, with debatable ways of classification, Estrogen and progesterone receptors are usually negative or very low, Prognosis and treatment of this disease is controversial if the tumor is receptor positive. Tamoxifen should be the adjuvant therapy of choice.

### **Conclusion:**

The prognosis and clinical behavior of this type of breast cancer remain generally indefinite and the proper approach for management is still debated due to rarity of cases.

## UNUSUAL PRESENTATION OF BASAL CELL CARCINOMA

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Marshall University

Basal cell carcinoma is indolent, locally invasive, aggressive, and destructive of skin and the surrounding structures including bone, occurs on areas that are regularly exposed to sunlight or other ultraviolet radiation.

We report a case of 71 year old female with history of psoriasis for 30 years who presented to her primary physician with the complaints of a brown mass extending on her head with a foul smelling discharge. Exam demonstrated large defect in the calvarium, and exposed Dura mater that was covered in frank pus. A CT scan demonstrated extensive abnormality involving the superficial soft tissue and the bony calvaria of the left frontoparietal region. She received vancomycin and piperacilin-tazobactam, followed by left frontal bur hole and catheter drainage of the intracranial abscess. Biopsy of the scalp tumor revealed highly locally invasive basal cell carcinoma, necrosis, psoriasis and chronic inflammation. Because of invasion of the cancer to Dura and extensive destruction of the calvarium flap reconstruction of the scalp and radiation were not recommended. The patient was discharged home with hospice.

Basal cell carcinoma of the scalp is a rare entity and very little is known about its management and mortality and morbidity, this has be explored in the future. Also, questions arise as to why this patient did not seek medical attention earlier in the course of the disease, and it is important to consider whether this neglect of progressive disease is an age-related phenomenon.

**SUBPENDYMAL GIANT CELL TUMOR IN TUBEROUS SCLEROSIS: A CASE REPORT AND LITERATURE REVIEW**

Dana S Lycans and Richard Coulon

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This study presents a case of a subependymal giant cell tumor (SGCT) associated with tuberous sclerosis. In this case, an 11 year old female with known tuberous sclerosis presented with new onset, progressively worsening headaches and unilateral vision loss. Physical exam revealed a Marcus Gunn pupil response in left eye, and bilateral papilledema. Visual acuity was decreased in both eyes with the left being decreased more than the right. Imaging revealed multiple tubers as well as multiple areas of subependymal calcification with one large calcified lesion obstructing the foramen of Monro associated with a cystic mass and hydrocephalus. Surgery was performed to remove the perimonro lesion, and the patient responded well postoperatively; however, her vision failed to improve and a shunt was still required to help relieve the increased intracranial pressure. Pathology revealed subependymal giant cell tumor. SGCTs are slowly growing, benign tumors that can cause life-threatening hydrocephalus if not treated. A review of the current management strategies will be discussed as well.

## **YOUNG MEN GET “BROKEN HEARTS” TOO – INVERTED STRESS-INDUCED CARDIOMYOPATHY IN A SEVENTEEN YEAR OLD MALE**

Brian Price MD, Rameez Sayyed MD.  
Joan C. Edwards School of Medicine

Stress-induced cardiomyopathy is a well-described, reversible cardiomyopathy triggered by profound psychological or emotional stress with a high female preponderance. Cases of young males presenting with this condition are not unknown, but remain quite rare. Although data remain limited, patients with apical-sparing variants tend to be younger and more likely premenopausal. We present a case of inverted stress-induced cardiomyopathy in a young man.

A 17 year old white male with no past medical history presented to the ED after awakening with chest pain. He had no previous history of chest pain and denied any cocaine use. The patient reported that the pain was continuous for 6 hours and with significant dyspnea. EKG revealed acute ST elevation. CXR showed mild pulmonary vascular congestion. A stat echocardiogram was obtained and revealed moderate LV dysfunction and akinesis of the basal inferolateral and basal inferior walls. Initial Troponin level was elevated at 1.46 and peaked at 26.6. The patient was taken to the cath lab emergently and left heart catheterization showed normal coronary arteries. Left ventriculography demonstrated moderate LV dysfunction with multiple wall motion abnormalities, including severe posterior basal wall and inferolateral wall hypokinesis. LVEDP was significantly elevated. The patient revealed he'd been under significant emotional and physical stressors within the past five days. The patient was admitted for observation and started on Carvedilol and an ACE inhibitor and his symptoms rapidly resolved. Follow-up echocardiogram demonstrated normal LV systolic function and normal wall motion. The diagnosis of inverted stress-induced cardiomyopathy was confirmed.

This case demonstrates an unusual case of inverted stress-induced cardiomyopathy. His case illustrates how stress-induced cardiomyopathy will mimic acute ST-elevation MI triggered by emotional or physical stress (or both). Future investigations will more appropriately define the optimal treatment regimen. For most patients, the overall prognosis from this unique cardiovascular disorder remains excellent.

## A MYSTERIOUS PARATHYROID ADENOMA

Saba Faiz, John W. Leidy, Tipu FM Saleem

Huntington VAMC, Huntington, WV; Joan C. Edwards School of Medicine, Huntington, WV.

Ectopic parathyroid adenomas have been found in the retroesophageal and retropharyngeal spaces, tracheoesophageal groove, mediastinum, aortic arch, and cervical carotid sheath.

A 61 year old man was evaluated for chronic mild hypercalcemia, osteopenia, chronic kidney disease stage 3 and declining higher mental function. Laboratory values showed calcium 11.2 mg/dl (8.4-10.7), phosphorus 1.8 mg/dl (2.2-4.7), intact PTH 153 pg/ml (15-63), creatinine 2.4 mg/dl (0.5-1.3), GFR 34 and calcium to creatinine clearance ratio 0.01.

He was diagnosed with primary hyperparathyroidism. Dual phase Tc99m sestamibi scintigraphic planar images showed increased uptake, inferior to left thyroid lobe. Hypercalcemia and hyperparathyroidism persisted despite surgical exploration of the neck and thorax on two separate occasions including left thyroidectomy by the local surgeon.

The diagnosis of primary hyperparathyroidism was reconsidered. Further evaluation showed normal PTHRP, SPEP, UPEP, PSA and TSH. CT scan and MRI of neck did not show a parathyroid adenoma. Repeat nuclear scan demonstrated increased left inferior uptake. During the third exploration at a tertiary care center, thymectomy was performed but neither a parathyroid adenoma was found nor the intraoperative PTH level declined.

The surgeon started looking at rare ectopic locations. Finally, he found and resected a parathyroid adenoma (1.7 gram and 2.5 x 1.7 x 0.7 cm) in the thoracic part of carotid sheath just below clavicle. Intra-operative PTH dropped from 272 pg/ml to 30 pg/ml.

Ectopic location is a common reason for unsuccessful neck exploration for a parathyroid adenoma. The finding of a parathyroid adenoma in the infraclavicular portion of the carotid sheath is rare and has not been reported previously to our knowledge. Subsequent review of the previous MRI revealed the adenoma in its unusual location. Localization by an experienced parathyroid surgeon is very important for successful parathyroid surgery even in the modern era of pre-and intra-operative aids.

## **BLINDNESS, ATAXIA AND CONFUSION IN WALDENSTORM'S MACROGLOBULINEMIA, CASE REPORT**

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Waldenström macroglobulinemia (WM), lymphoplasmacytic lymphoma, is one of the malignant monoclonal gammopathies, a rare condition characterized by the presence of a high level of a macroglobulin (immunoglobulin M [IgM]), elevated serum viscosity, and the presence of a lymphoplasmacytic infiltrate in the bone marrow. We are presenting a case of Waldentorm's Macroglobulinemia with blindness, ataxia and confusion, highlighting the diagnosis and treatment approach.

A 78 year old Caucasian man admitted to the hospital for concern of confusion, with report of the patient been feeling fatigue and weak for the last 1-2 months. Upon evaluation the patient was noted to have decrease vision, ataxic gait and bilateral retinal vein thrombosis. On laboratory workup the patient was pancytopenic, further testing including Bone marrow studies and Serum protein electrophoresis, were strongly suggestive of Waldenstrom's macroglobulinemia. The patient is being treated with Chemotherapy, and symptoms improved.

According to current World Health Organization (WHO) consensus, Waldenstrom's macroglobulinemia (WM) is defined as a lymphoplasmacytic lymphoma (LPL) with bone marrow involvement and an IgM of any concentration. WM is a rare disorder, with unknown etiology. During the course of the disease, patients with WM can develop symptoms related to infiltration of hematopoietic tissues and hyperviscosity in their blood. Most common symptoms of the disease at diagnosis are anaemia (38%), hyperviscosity (31%), B symptoms (23%), bleeding (23%) and neurological symptoms (22%).

As the disease is very rare, high index of suspicion is required to make the diagnosis, in patients presenting with pancytopenia, neurologic symptoms and elevated serum protein level with hypoalbuminemia. Immunoelectrophoresis and immunofixation studies help identifying the monoclonal IgM paraprotein, bone marrow biopsy is required for the diagnosis, symptomatic patient may benefit from plasmapheresis and chemotherapy.

## DEMYSTIFYING IGG4 DISEASE: A CASE STUDY OF IGG4-MEDIATED INTERSTITIAL LUNG DISEASE

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The evolution of biomedical sciences has contributed to a better understanding of the pathogenesis of human disease and the description of new clinical entities. IgG4 disease has been recently recognized to have multiple organ involvement. We describe a case of IgG4-mediated pulmonary fibrosis and discuss the diagnosis and management of this rare disease.

A 47 year old man presented to the outpatient pulmonary clinic with recent onset of rapidly progressing dyspnea and wheezing. A clinical diagnosis of restrictive lung disease was made and initial treatment with inhaled fluticasone and salmeterol was started. On follow-up 2 weeks later, the patient was still quite dyspnic and CT scan of the chest showed interstitial fibrosis. The patient was also found to have significantly high titers of rheumatoid factor and anticcp (anti-cyclic citrullinated peptide) antibodies. Upon follow-up with rheumatology, the patient was diagnosed with rheumatoid arthritis, for which mycophenolate therapy was initiated.

Pulmonary function tests were consistent with restrictive lung disease with diffuse infiltrative parenchymal lung disease. Bronchoscopy and fine needle biopsy were nondiagnostic. The patient was then referred to cardiothoracic surgery for VATS and open lung biopsy. Pathology report of the lung biopsy showed increased number of IgG4-positive plasma cells consistent with IgG4 disease. The patient was started on daily oral corticosteroids, with good response.

IgG4 disease is growing clinical entity characterized by abundant IgG4-positive plasma cells occurring throughout the body. Although little is known about this disease, it is thought that interstitial lung disease secondary to IgG4 disease responds well to long-term steroid therapy. Furthermore, we propose there may be an association between rheumatoid arthritis and IgG4 disease, which has not been previously described.

## THE PRESENTATION OF HENOCCH SCHONLEIN PURPURA IN AN ADULT PATIENT

Yesha Patel, Rezwan Ahmed, William Skeens, Nancy Munn, Wesam Bolkhair, Sarmad Chaudhry, and Essam Mekhaieel.  
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Henoch Schonlein purpura (HSP) is the most common form of systemic vasculitis in the pediatric population. Only 10% of cases occur in adults. Studies show that 20-54% of adult patients with HSP have renal involvement ranging from isolated hematuria and/or proteinuria without any other abnormalities to complete renal insufficiency.

This is a case of a 69 year old Caucasian male with a past medical history significant for COPD, HTN, DMII, and GERD who presented with a rapidly progressive renal failure. ROS were positive for low grade fever, bloody urine and skin rash involving the bilateral lower extremities. He denied any diarrhea, bloody bowel movements, abdominal pain, nausea or vomiting. On PE, a bilateral extremity rash and bilateral LE non-pitting edema were recognized. Patient reported the rash had been present for six months. Lab work showed that the patient's creatinine level increased from 1.2 to 4mg/dl over the past 6 month. His U/A showed 3+ proteinuria and microscopic hematuria.

The patient underwent a left percutaneous renal biopsy that showed a crescentic form of glomerulonephritis consistent with HSP. Serologic tests were ordered and reported polyclonal IgA gammopathy and ESR > 140 mm/h; cANCA, pANCA, ANA, anti-GBM, cryoglobulins, PPD test, HBsAg, and HCAb were all negative. Complement C3 and C4 were in normal range. Blood cultures were negative on admission. Cyclophosphamide and high dose corticosteroids were started at that time.

In summary, Henoch Schonlein purpura should be considered in the differential diagnosis in adult patients who present with rapidly progressing renal failure with hematuria and a skin rash. Due to the rapid progression of this disease early diagnosis and aggressive treatment are essential to reduce morbidity and mortality.

## **STREPTOCOCCAL PNEUMONIAE BACTEREMIA WITH PNEUMONIA AND CELLULITIS**

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*Streptococcus pneumoniae* is a well recognized cause of community acquired pneumonia, otitis media, and meningitis. While uncommon, skin infections can occur and produce severe disease in immunocompromised and substance abuse patients. We report a case of *Streptococcus pneumoniae* bacteremia with pneumonia and cellulitis and discuss the course and management of this uncommon infection.

A 35 year old male with past medical history of type II diabetes mellitus, coronary artery disease, seizures, depression, anxiety, and substance abuse presented to the hospital with right lower extremity pain and erythema for seven days that was complicated with bullae formation.

Upon admission the patient presented with signs of SIRS including hyponatremia, acute renal failure, and leucopenia. He had decreased sodium of 128, increased creatinine of 1.8, decreased WBC of 3.1, and metabolic acidosis. The patient was started on antibiotics, while subsequent blood cultures showed growth of *Streptococcus pneumoniae* after 13 hours. Chest X ray revealed a right lower lobe pneumonia. The patient had a complicated course of hospitalization that required admission to the Intensive Care Unit.

While uncommon, skin infections due to *Streptococcus pneumoniae* can have a complicated course. Septic shock is a frequent presentation. Risk factors include extremes of age (<2 or >64), immunosuppression, alcohol, smoking, drug use, and chronic cardiovascular, pulmonary, renal or liver disease.

Pneumococcal skin infections are extremely rare. Mortality ranges from 10-23%. Early antibiotic treatment is imperative to reduce morbidity and mortality. If there is inadequate response to therapy, debridement or even amputation may be necessary.

## **MASSIVE GASTROINTESTINAL BLEEDING SECONDARY TO DIEULAFOY'S LESION**

Rotem Elitsur, Emily Seidler, Wesam Bolckhir , Abdrhaman Hamo, and Waseem Shora, Department of Internal Medicine  
Marshall University Joan C. Edwards School of Medicine, Huntington , WV

Dieulafoy's lesion is an uncommon but important cause of recurrent upper gastrointestinal bleeding. Hemorrhage occurs due to erosion of a submucosal arteriolar defect. We report a case of gastric arteriolar bleeding, the most common type of Dieulafoy's lesion, and discuss the diagnosis and management.

A 47 year old female was transferred from another facility after she was successfully resuscitated for sudden cardiac arrest. Her hemoglobin was found to be 3.6 mg/dl and she required 6 units of packed red blood cells at the outlying hospital. The patient had a history of gastrointestinal bleeding with no apparent source found on recent esophagogastroduodenoscopy and colonoscopy. There was no history of chronic liver disease, but she was taking aspirin for secondary stroke prophylaxis, as well as warfarin for previous deep venous thrombosis. There were no significant findings on clinical examination apart from severe pallor and tachycardia. Laboratory studies revealed hemoglobin of 3.6 gm/dL, and a supratherapeutic INR. Upper gastrointestinal endoscopy showed fresh blood and persistent oozing from a punctate area in the larger curvature. The surrounding gastric mucosa, esophagus, and duodenum were found to be normal. A diagnosis of Dieulafoy's lesion of the stomach was made. The lesion was injected with 1:10,000 adrenaline solution and ablated with a heated probe, which stopped the bleeding.

Gastric bleeding due to endoscopic diagnosis of Dieulafoy's lesion is an uncommon but may be life threatening condition to the patient. Early detection and treatment is crucial to improve patient survival and morbidity. The small size of hemorrhage and obscure location of the lesion make it difficult to find. Adrenaline injection and thermal ablation are important endoscopic modalities for bleeding control. The diagnosis of Dieulafoy's lesion should be considered during evaluation of any patient with unexplained, recurrent gastrointestinal bleeding.

## AN UNUSUAL CASE OF SIGMOID COLITIS

Mashonna Austin

Marshall University School of Medicine Department of Surgery

Colitis is a condition encountered frequently among those in the medical and surgical specialties. Diagnoses of diverticulitis and inflammatory conditions are relatively routine; however occasionally a patient will present with colitis of parasitic origin.

This a 38 year old gentleman who presented to our office with 6 months of left lower quadrant abdominal pain, and intermittent diarrhea and constipation, without other associated symptoms. He had no family history of colon cancer at a young age or inflammatory bowel disease. He had underwent a CT scan of the abdomen and pelvis as part of his prior workup, and this demonstrated findings consistent with diverticulitis of the sigmoid colon. On colonoscopy, his sigmoid colon was found to be edematous with appearance of chronic inflammation and ischemic changes, but few diverticula. After colonoscopy, and continued failure of symptom alleviation, he was taken for sigmoidectomy. Final pathology revealed diverticulosis and infestation of *Enterobius Vermicularis*, commonly known as pinworms.

*E. Vermicularis* is a roundworm that is hosted only by humans.

Transmission is fecal-oral, and may occur from person to person or via sefreinfection. Adults and larvae primarily live in the colon, with the female emerging from the anus at night to lay eggs in the perianal folds. This is the most common parasitic infection in the United States, occurring most commonly in children and their housemates.

Colitis associated with *E. Vermicularis* infestation is rarely reported in the literature. Patients usually are asymptomatic or may have intense perianal pruritis as a consequence of nocturnal egg laying by the adult female. The Center for Disease Control recommends treatment with mebendazole, pyrantel pamoate, and albendazole given in one dose at diagnosis followed by a second dose after two weeks to ensure eradication. Our patient was treated with this regimen after surgery and is currently symptom free.

**EXTERNAL OBLIQUE MUSCLE SPASM PRESENTING AS ACUTE ABDOMEN**

Tristan Meador, MSIV and Steve Peterson, MSIV Wesam Bolckhir, MD  
Marshall University, Joan C Edwards School of Medicine,  
Department of Internal Medicine

Acute and severe abdominal pain is almost always a symptom of intra-abdominal disease. It may be the sole indicator of the need for surgery and must be attended to swiftly; though, if common diseases are excluded, other rare causes should be considered. We are reporting our experience with a rare presentation of acute abdomen secondary to abdominal wall muscle spasm.

A 73 year old female with a past medical history significant for hypertension, diverticulosis, pulmonary embolism and atrial fibrillation presented to the emergency department with severe right lower quadrant abdominal pain for one hour. The patient denied constitutional and any related gastrointestinal or genitourinary symptoms. Physical examination revealed a seemingly acute abdomen despite negative laboratory and imaging results. She had an exploratory laparotomy with appendectomy 25 days prior to this presentation for similar symptoms.

The patient underwent further evaluation by Surgery and Gastroenterology with negative detailed imaging studies. Pain Management was then involved and immediate relief with complete resolution of her symptoms was achieved after injection of her right external oblique muscle with lidocaine and steroids.

Abdominal oblique muscle spasm is a diagnosis of exclusion which should be considered in any patient presenting with severe abdominal pain after laboratory, imaging and surgical evaluation reveals no identifiable cause. Injection of steroid and local anesthetic can provide rapid relief of symptoms and cure.

## **SURGICAL MANAGEMENT OF PEDIATRIC INTRACRANIAL HYPERTENSION: A CASE REPORT AND LITERATURE REVIEW**

Brittany Venci

Joan C. Edwards School of Medicine

Malignant intracranial hypertension can be difficult to manage medically and result in significant long term morbidity and mortality. Decompressive craniectomy has been used as an adjunct to medical management of intracranial hypertension.

A 23 month old male with a history of child abuse and head trauma presented to the emergency department unresponsive. Physical examination revealed absent speech, no eye opening, fixed and dilated left pupil, trace reactive right pupil, absent brainstem reflexes, decorticate posturing on the left and absent motor response on the right. CT showed extensive left hemispheric swelling with a minimal subdural clot. The edema was out of proportion to the size of the clot. A left emergency decompressive craniectomy was performed to evacuate the subdural clot and allow for cerebral expansion secondary to edema. Post operatively, the patient showed signs of neurologic improvement.

Medical management alone will not always adequately control malignant intracranial hypertension. Literature review supports the notion that decompressive craniectomy, in conjunction with medical management improves outcome.

## **MANAGEMENT OF PREGNANCY, LABOR AND DELIVERY IN A PATIENT WITH CONGENITAL HYPOFIBRINOGENEMIA**

Kelly F. Cummings, MD

Joan C Edwards School of Medicine

Congenital hypofibrinogenemia is a rare inherited disorder of fibrinogen with only a few hundred reported cases. Disorders of fibrinogen are associated with adverse pregnancy outcomes including: recurrent spontaneous abortions, bleeding, thrombotic complications and placental abruption.

A 26 year old pregnant female with known congenital hypofibrinogenemia presented to Cabell Huntington Hospital at 34 weeks gestation for increased fetal surveillance and management until the planned repeat cesarean delivery at 36 weeks gestation. The patient was given fibrinogen concentrate prior to cesarean section.

Congenital hypofibrinogenemia is a serious disorder complicating pregnancy. These patients require intense fetal and maternal monitoring by both maternal fetal medicine specialists and hematologists. Fibrinogen levels need to be monitored closely with optimal levels prior to delivery above 200 mg/dl.

## **SUPERIOR MESENTERIC VEIN THROMBOSIS, UNUSUAL CAUSE OF ASCITES**

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### **Introduction**

Ascites can be caused by many diseases, of which Mesenteric venous thrombosis is a rare and lethal etiology. These patients benefit from rapid diagnosis and expedient surgical therapy. We describe a case of Ascites with Superior Mesenteric Vein and Splenic Vein occlusion, as well as discuss the diagnosis and treatment approach.

A 66 year old white male with past medical history of periampullary carcinoma, status post Whipple Procedure 2 years ago, presented with a 5 month history of increasing upper abdominal pain accompanied by weight loss. No cause was delineated by exploratory laparoscopy. Apart from the work up, the patient had a computed tomography (CT) scan of the abdomen and pelvis which showed a thickened abdominal wall. A subsequent colonoscopy showed pancolitis, and the patient was referred for hospitalization. Upon admission, the patient was noted to be anemic and to have ascites. A CT scan of the abdomen showed a 2.4 cm solid mass in the head of the pancreas and a filling defect in the Superior Mesenteric Vein. The diagnosis of Superior Mesenteric Vein thrombosis and Splenic Vein occlusion was confirmed by Magnetic Resonance Imaging of the abdomen. CT guided biopsy of the pancreatic mass was nondiagnostic for cancer. The patient underwent stent placement in the Superior Mesenteric Vein and in the Splenic Vein; Transjugular Intrahepatic Portosystemic Shunt was also performed.

Mesenteric Vein Occlusion can be a challenging disease for clinicians. While it is an uncommon cause of ascites, it should always be considered because early diagnosis and surgical intervention is critical to improving the outcome.

## **CASE REPORT AND LITERATURE REVIEW OF COMPUTER GENERATED BIO-IMPLANTS FOR CRANIOPLASTY**

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Cranioplasty is the surgical reconstructive repair of a skull defect. Materials used for the repair of these defects can be bone graft or biomaterials. Prior to surgery, 3D imaging is performed and combined with computer aided design to construct a bio-implant. The implant is constructed to the specifications of the patient's skull defect based on imaging, providing a tailored fit.

A case report of a recent cranioplasty using a bio-implant will be presented.

A review of the literature reveals that prefabricated implants are a safe, accurate and efficient method for reconstructive repair of a skull defect. Utilization of a pre-manufactured implant simplifies surgery and decreases operative time. Since the implant more accurately reproduces the actual contours of the patient's skull, cosmetic outcome is improved.

## **PRIMARY ERYTHROMELALGIA IN A 25 YEAR OLD FEMALE**

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Erythromelalgia is a rare condition defined by paroxysmal burning pain and erythema in the distal extremities. Symptoms are typically triggered or exacerbated by heat or activity. The erythema may be severe and skin ulceration and damage have been associated with erythromelalgia. Erythromelalgia may occur as a primary disorder, but can also be associated with a number of conditions, including connective-tissue disorders, vasculitis, myeloproliferative disorders, thromboangitis obliterans, hypertension, diabetes, rheumatoid arthritis, and gout. The primary form is thought to be associated with a mutation affecting the voltage gated sodium channels of peripheral neurons that carry pain sensation.

A 25 year old female presented with a chief complaint of intermittent paresthesias, pain, and edema of bilateral hands and feet, triggered by activity and heat. Her past medical history included psoriasis, GI ulcers, fibromyalgia, anxiety, and depression. On physical examination, both of the hands were normal in appearance and temperature. The patient was asked to submerge one hand in warm water for approximately two minutes. At the end of that time, the patient complained of tingling in the submerged hand. Upon withdrawal, the hand showed significant erythema, supporting a diagnosis of erythromelalgia. Laboratory workup to date has not revealed an underlying cause for this patient's erythromelalgia.

Treatment for erythromelalgia includes treating any underlying cause, and symptomatic management of the pain. Daily aspirin has been reported to reduce or eliminate symptoms for many patients. Trigger avoidance and moderate cooling of the affected area are also helpful. Caution must be used with cooling, as cold-induced injuries have been reported. Patients who do not respond to these measures may require referral to a pain clinic.

**PREVALENCE OF NONCARDIAC FINDINGS IN PATIENTS IDENTIFIED WITH CORONARY ARTERY DISEASE BY CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY**

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Cardiac computed tomography angiography (CCTA) has increasingly become a diagnostic tool in the evaluation of coronary artery disease (CAD) in specifically those with a low to intermediate pretest probability. Many noncardiac findings may also be found on this modality which may warrant further testing and follow-up. The aim of this study is investigate the incidence of noncardiac findings on patients referred for a CCTA at a community hospital.

We retrospectively evaluated the CCTA reports of all patients who underwent CCTA at St. Mary's Medical Center in Huntington, WV from July, 2007 until February, 2010. CCTA imaging was done using a GE 64 slice scanner with a field of view of 25cm. Noncardiac findings were recorded. Noncardiac findings were considered urgent if they required immediate attention. A subanalysis of the noncoronary findings in the patients identified with CAD was performed.

There were 378 studies performed at the center during this time. The study cohort included 178 males (47 %) and 198 females (53 %) with a mean age of 57.4+13.9 years, and a range of 19 to 85 years. A total of 34.5 % patients had noncoronary incidental findings. Of these, 11% were considered urgent, 89% were considered important. Of the 130 noncardiac findings, 84.6% of these patients also had CAD reported on the CTA. The most common noncardiac findings in these patients with CAD were lung findings (70 /114), Lung findings included lung nodules, interstitial lung disease, emphysema, pleural effusion, pneumonia and pulmonary embolism. The most common noncardiopulmonary finding was hiatal hernia occurring in 29% of these patients.

Our study demonstrates the incidence of noncardiac findings in patients referred for CCTA at this community hospital to be similar to that previously reported. In this population, several of the patients who were identified as having CAD, also had noncardiac findings. Further studies may be warranted to evaluate the prognosis of patients with both noncardiac findings and CAD identified at CCTA.

## **GENDER DIFFERENCES IN THE PREVELANCE OF CORONARY ARTERY DISEASE USING CORONARY CTA. SINGLE CENTER EXPERIENCE**

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The incidence of coronary artery disease is less in females compared to males until the age of 75 according to the Framingham study. Angiographic data from the Coronary Artery Surgery Study (CASS) showed 50% of women undergoing left heart catheterization for chest pain had significant coronary artery disease versus 83% in men. Our study highlights gender differences in coronary artery disease diagnosis utilizing coronary computed tomography angiography (CCTA).

We retrospectively evaluated the CCTA reports of all patients who underwent CCTA at St. Mary's Medical Center in Huntington, WV from July, 2007 until February, 2010. CCTA imaging was done using a GE 64 slice scanner with a field of view of 25cm.

The prevalence of coronary artery disease in our female patient using CCTA was 36.4% (72/198), whereas that of males was 32.5 % (58/178). Left main disease prevalence was comparable between females and males 2.0 and 2.2 % respectively. Left anterior descending artery disease was prevalent in 8.1 % in females and 12.9 % in males. Left circumflex disease prevalence was also similar in both groups 3.5 % in females versus 4.5 % in males. Right coronary artery disease had similar findings present in 4.0 % in females and 5.6 % in males.

The Framingham study data showed coronary artery disease is more prevalent in males compared to females according to coronary angiography utilizing left heart catheterization up to the age of 75. Also the CASS study coronary artery disease present in 50% in women versus 80% in men undergoing coronary artery angiography for chest pain. Our data showed similar prevalence of coronary artery disease in both females and males using CCTA data retrospectively collected from our center. Also the geographic location of coronary artery disease was similar in both groups.

## **ASSOCIATION OF SERUM ADIPONECTIN AND POST MENOPAUSAL HYPERTENSION IN OBESE AND LEAN WOMEN**

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Low circulating levels of Adiponectin have been associated with metabolic syndrome, diabetes, and cardiovascular disease. Incidence of hypertension in women increases following menopause. Relationship between serum Adiponectin and post-menopausal hypertension has not been fully explored.

Hypothesis: We intended to study the association between hypertension, menopausal status and serum Adiponectin. We hypothesized that, after adjustment of BMI, postmenopausal women with hypertension will have lower Adiponectin levels than their normotensive pre-menopausal and post-menopausal counterparts.

We recruited 43 women in this cross sectional study conducted at Marshall University endocrinology clinic. Patients were stratified into 8 groups based on their menopausal status, BMI and presence of hypertension. Women with known diabetes, renal failure and cardiovascular disease were excluded. Serum total and high molecular weight (HMW) Adiponectin were measured by ELISA (ALPCO diagnostics, Salem, NH) and HMW-to-total Adiponectin ratio (HMWR) was calculated.

Serum Adiponectin was significantly lower in obese as compared to lean women (pvalue was  $<0.02$  for total Adiponectin,  $<0.0017$  for HMW Adiponectin and  $<0.002$  for HMWR). Women with higher Waist-to-hip ratio (WHR) had significant trend towards lower total and HMW adiponectin levels as compared to those with lower WHR (p 0.014 for total Adiponectin & 0.04 for HMW). There was no significant difference in total or HMW Adiponectin levels among various patient groups. The difference in HMWR among various groups could be explained by obesity, being lower in obese groups as compared to non-obese groups.

We found that total, HMW Adiponectin and HMWR were significantly lower in obese women as compared to their non-obese counterparts. We also found that both total and HMW Adiponectin decreased with increasing WHR. We were unable to find any association between hypertension, menopausal status and serum Adiponectin.

## QUALITY OF LIFE INDICATORS IN EPILEPSY AND GENERAL NEUROLOGY CLINIC

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Quality of life measures are critical to managing patients with neurologic illness. For neurologic illnesses such as epilepsy, we have effective treatments but no cure. In these cases it is important to not only manage the objective manifestations of the disease, such as seizure frequency, but also to optimize the patient's quality of life. In recognition of this fact, the Department of Neurology of Cabell Huntington Hospital asks patients to provide information about their quality of life at each visit, so that the patient's provider can review this important data. This study will use the information in these quality of life surveys to retrospectively determine how various treatments influence quality of life in patients with neurologic disorders, particularly epilepsy.

The initial projects to be studied using this data will be focused on whether the anti-epileptic drug taken by a patient with epilepsy influences their perceived quality of life and whether visits to an epilepsy clinic result in improvements in their quality of life. Future projects will involve comparisons between quality of life scores in patients with epilepsy and other neurologic disorders and studies of how those other disorders respond to medication therapy.

Since the data used in this project are currently being collected and maintained in a secure database that is reviewed regularly for the purposes of quality analysis and quality improvement, the risk of this project is only potential of inadvertent disclosure of confidential information as a result of the research activity. This risk will be minimized by restricting access to the data and making sure that data abstracted for research purposes does not contain the HIPAA identifiers. Codes linking each data entry to a particular patient will be kept in a separate file in a separate location accessible only to the PI and co-PI.

**OUTCOMES OF PRIMARY PERCUTANEOUS INTERVENTION OF THE UNPROTECTED LEFT MAIN CORONARY ARTERY STENOSIS IN HIGH RISK PATIENTS**

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Joan C. Edwards School of Medicine

Some patients with left main coronary artery (LMCA) disease do not receive CABG because of high operative risks. Studies have suggested that percutaneous coronary intervention (PCI) of the unprotected left main coronary artery (ULMCA) lesion is a feasible alternative offering similar results when compared with surgical revascularization.

This is a retrospective single center chart review of 64 patients (36 males, 28 females) undergoing PCI of ULMCA at a regional heart institute between the years 2000 and 2008. The aim is to evaluate the in-hospital, 30 day and 12 month clinical outcome of PCI of the ULMCA in terms of mortality in high risk patients who are not candidates for CABG.

Over half of the patients have myocardial infarction upon presentation. Around 30% had an emergent procedure that carries a higher risk for mortality in comparison to a delayed procedure. Twenty two percent of the subjects have cardiogenic shock upon presentation which is noted to be associated with a significantly worse outcome in terms of mortality. Most of deaths in this study have occurred within the first 5 days after the index procedure. Survivors of the initial hospitalization had an outstanding long-term outcome.

This is a real life experience of a high operative risk population who has been declined for CABG and subsequently undergo PCI of the ULMCA. As predicted, Ostial/Mid ULMCA lesions are associated with a better outcome in comparison with Distal/Bifurcation lesions. Meanwhile, diffuse lesions of the ULMCA proved to have the worst survival among the three categories. There is high mortality during hospitalization and within the first 10 days in patients undergoing an emergent procedure or presenting with cardiogenic shock, otherwise survival improves long-term.

## **RACIAL PHENOTYPIC DIFFERENCES AMONG CHILDREN WITH EOSINOPHILIC ESOPHAGITIS – A REPORT FROM TWO COMMUNITIES**

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Eosinophilic esophagitis (EE) has been reported in children but the phenotypic differences among ethnic groups have not been well studied. In our study we aimed to compare the clinical phenotype of EE disease in Caucasian (C) vs. NonCaucasian (NC) pediatric patients.

A cohort of 54 NC children diagnosed with EE from an urban, inner-city population, from New York city, and 53 C pediatric EE patients from rural West Virginia, were retrospectively studied. Eosinophilic esophagitis was histologically defined as 15 Eos/hpf. Demographic, clinical symptoms, allergic symptoms (asthma, environmental/food allergies, eczema), endoscopic/histological findings, and medical therapy were analyzed and compared between the groups.

A total of 107 children participated of whom 53 were caucasian and 54 were non-caucasian. The with Male/Female ratio was similar in both groups (1: 3.2 and 1:3.1, respectively;  $p > 0.05$ ). The NC group was younger at diagnosis and had a higher atopy rate compared to the C group (NC:C= 5:9.5 yr,  $p < 0.001$  ; and 64 % vs. 42 %, respectively,  $p < 0.001$ ). The characteristic endoscopic features were less common in the NC compared to the C group (42 % vs. 83 % , respectively,  $p = 0.0001$ ). Oral steroid was the preferred therapy in the NC patients while a topical steroids (Fluticasone) was the main therapy in C patients (80% vs. 0 % ,  $p = 0.0001$  and 20 % vs 100 %  $p = 0.0001$ , respectively).

1. Significant differences in phenotypic presentation of EE exist between C and NC children.
2. Our results suggest that ethnicity is an influencing factor in the clinical presentation of EE disease in children.
3. Our findings may have significant implications in the treatment and management of this disorder.

## **HYPERTENSION EDUCATION IN A RURAL HEALTH CENTER**

Lucia I. Soltis

MU Family Practice

In the treatment of hypertension, there is more available to physicians and patients than just the standard pharmacologic therapies. Lifestyle modifications such as physical exercise, weight reduction, decreased alcohol consumption, the DASH diet, and low sodium intake have all been found to be helpful in lowering blood pressure.

A chart review was done at a rural health center looking at patient education regarding lifestyle modifications pertaining to hypertension. Categories for this audit included diet, exercise, proper use of medication, home blood pressure monitoring, and the presence of a care manager note.

Of the 50 charts that were reviewed, 9 had documentation of diet education, 1 had documentation of exercise education, 30 had documentation about the proper use of medications, 3 had documentation about encouraging home blood pressure monitoring, 8 had a care manager note, and 11 had no documentation of education.

Documentation on hypertension education should be improved. The researcher intends to create a patient hypertension education handout and encourage the providers at the rural health center to improve documentation by editing the EMR template currently in use. Another chart audit will be done during the Spring, 2011, to assess whether these measures have helped improve patient education on hypertension.

**APPLYING TELEMEDICINE TO OPHTHALMOLOGY IN MCDOWELL COUNTY, WEST VIRGINIA: REDUCING COSTS, IMPROVING ACCESS, STANDARDIZING CARE**

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(Huntington, WV)

**Purpose:** 25% of Americans live in rural areas. Rural citizens face high turnover in physicians and limited access to trained specialists. This contributes to delayed diagnosis and increased morbidity and mortality. Telemedicine provides an opportunity to reduce cost, improve access, and standardize care between rural patients and their urban counterparts. Methods A registered nurse at Gary Community Health Center (GCHC) in McDowell County was trained to use a TRC-NW6S NonMydriatic Retinal Camera to capture high resolution digital images of the retina. Retinal photos were transmitted either electronically via secure HIPPA approved T1 line or stored and mailed to an ophthalmologist for review at Joan C. Edwards School of Medicine at Marshall University in Huntington, West Virginia. Reports from the screenings were returned to the GCHC with instruction for follow-up care or referral specialist referral.

**Findings:** A retrospective chart review was completed by employees at GCHC from October 2003 to December 2009. A total of 659 patients were screened for ocular problems. 43.70% of patients who visited the clinic were identified as having 1 of 34 types of eye pathology.

**Conclusions:** With the advancement of information technology, telemedicine is an affordable option to help prevent, manage, and treat patients who have limited access to specialized healthcare. Isolated rural areas with high rates of chronic disease, such as McDowell County, are good candidates for this technology which may lower the incidence of preventable blindness and cataracts and help detect chronic illnesses such as hypertension and diabetes at earlier stages.

**DISCRIMINATING ABILITY OF VARIOUS SIGNS AND SYMPTOMS OF HYPOTHYROIDISM TO PREDICT BIOCHEMICAL THYROID STATUS IN HYPOTHYROID PATIENTS ON LEVOTHYROXINE REPLACEMENT**

Sreevani Gollamudi MD, Todd Gress MD, MPH  
and Abid Yaqub MD, FACP  
Marshall University

Hypothyroidism is a relatively common disorder encountered in clinical practice. Patients with hypothyroidism on replacement therapy with levothyroxine (LT4) often need adjustment of their therapy based on their clinical features and biochemical thyroid profile including TSH and Free T4. The primary objective of this study was to assess the discriminating ability of various signs and symptoms associated with hypothyroidism to predict the biochemical thyroid status.

This was a retrospective chart review study. Charts of the patients with a diagnosis of hypothyroidism on replacement therapy with LT4 being followed in our Endocrinology clinics were reviewed. Presence and absence of each of the following symptoms was assessed in every patient from their electronic medical records: Fatigue, dry skin, weight gain, hoarseness, constipation, cold intolerance, generalized muscle weakness, hair loss, soft tissue swelling, memory problems, somnolence and subjective depression. Similarly the presence and absence of following signs was assessed: dryness of skin, goiter, swelling, and delayed tendon reflexes.

Over 200 charts were reviewed but only 78 were included in the final analysis, rest being excluded due to a diagnosis of thyroid cancer or incomplete documentation. Mean patient age was 55 years. The prevalence of rest of symptoms and signs was low among our patient cohort. We used a cutoff TSH value of 2.5 to categorize patients into adequate and inadequate biochemical thyroid control. However there was no significant difference in the prevalence of any of the specified signs and symptoms of hypothyroidism among patients assigned to inadequate or adequate biochemical control.

Most of the hypothyroid symptoms and signs are nonspecific and might not be useful in making therapeutic adjustments of LT4 therapy. Our study was limited by its small sample size and studies with larger numbers are needed to conclusively address this issue.

## FEASIBILITY OF TELEMEDICINE FETAL ECHOCARDIOGRAPHY IN THE PERINATAL CENTER IN APPALACHIA

Misty Shoemaker, Eric Michelfelder, David Chaffin, Robin Reeves, Debby Brooks, Shailini Singh

In association with the following institutions: Marshall University Joan C. Edwards School of Medicine, Department of Obstetrics and Gynecology, Huntington, WV1. Children's Hospital of Cincinnati Fetal Heart Center, Cincinnati, Ohio2; Cabell Huntington Hospital, Perinatal Center, Huntington, West Virginia3. New Jersey

**Objective:** The Cabell Huntington Hospital Perinatal Center in Huntington, WV serves approximately 38,000 deliveries thus far/per year (Southern WV, Eastern Kentucky and Southern Ohio.). Many of our patients require fetal echo screening ultrasound. Greater than 50% of our patient population is unable to travel to Cincinnati for a referral of this nature. Thus the Telemedicine Fetal Echo Cardiography by Ultrasound Program was implemented.

**Study design:** The Telemedicine Program established a retrospective observational cohort was conducted from July 2006 - June 30, 2008. Projected volume for adequate research pool required a single telemedicine fetal echocardiography session (24 patients) per month. A total of 125 subjects were scanned in 24 months. Indications for fetal echocardiography included; Intracardiac Echogenic Focus, Insulin Dependent Diabetes Mellitus, Two-Vessel Umbilical Cord, Systemic Lupus Erythematosus, Increase Nuchal translucency (> 95%), or Fetal Arrhythmia. Critical views to the fetal echo cardiography inclusive scan include; Four-Chamber View of Fetal Heart , Aortic Arch , Ductal Arch, Right Ventricular Outflow Tract , Left Ventricular Outflow Tract, Superior Vena Cava, Inferior Vena Cava, Three-Vessel View.

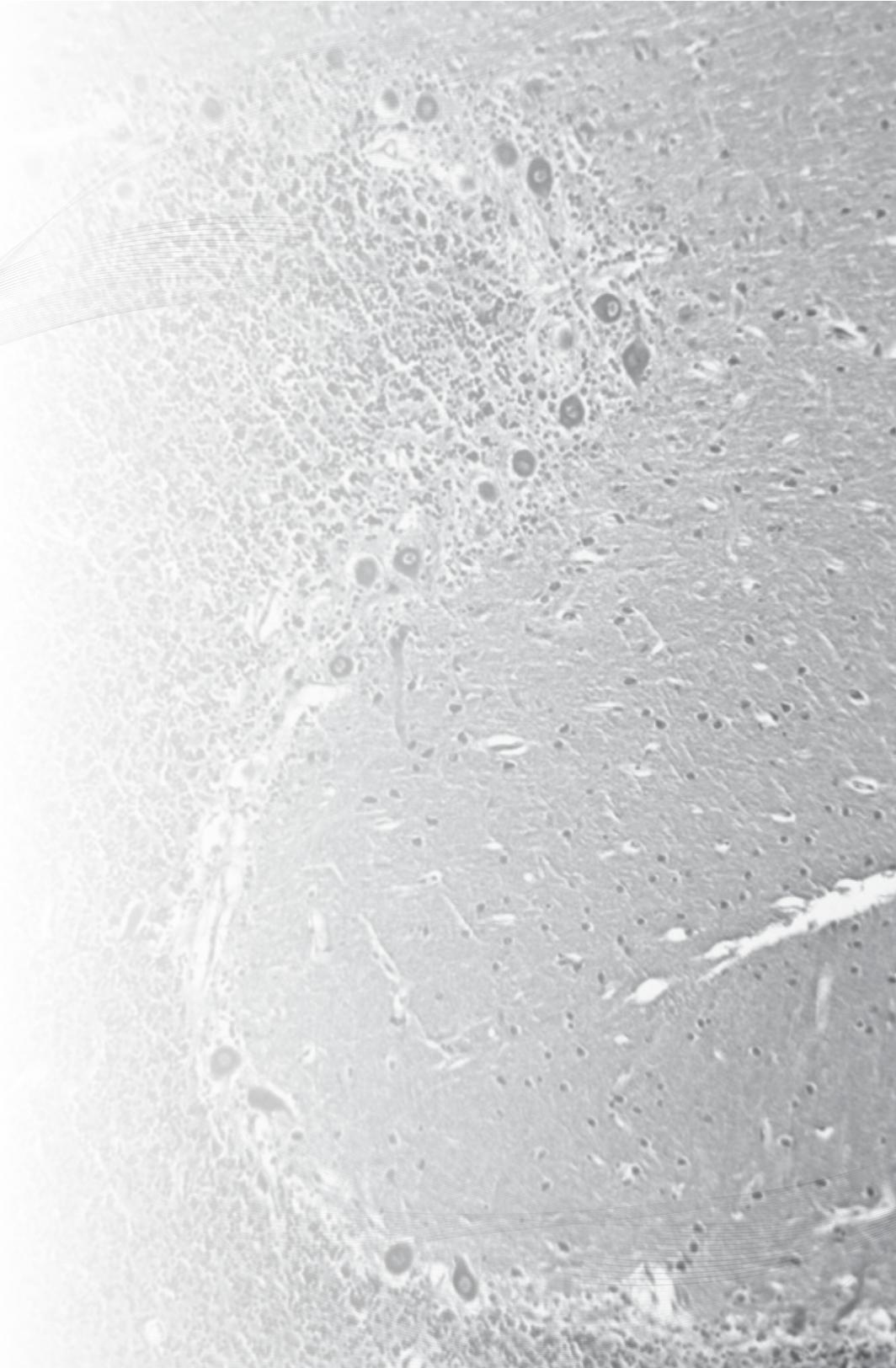
**Results:** 125 patients' fetal echocardiography scans were reviewed. Of these, 108 patients (86.4%) were considered to have a negative fetal echocardiography, while 17 patients (13.6%) were found to have positive findings. Patient follow up is currently pending.

**Conclusion:** Implementation of the Telemedicine Fetal Echo Cardiography by Ultrasound Program was proven successful utilizing trained Sonographers. Once the program was established no patient required referral to Cincinnati for further follow up. Successful implementation of the Telemedicine Fetal Echo Cardiography by Ultrasound Program allowed patients with nearly impossible access specialized medical care exposure to subject-matter-expert opinion without undue hardship.



**SPECIAL THANKS TO:**

MU Publications • Abstract Booklet Publication  
MUMC Maintenance Staff • Facility Preparation  
Kathy Hettlinger & Staff • Cabell Huntington Hospital Food Service  
MU Foundation • Endowment Fund Accounting



# HEMATOLOGY/ONCOLOGY UPDATE for the Primary Care Physician



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