



*The Department of Internal Medicine
Brody School of Medicine
East Carolina University*

presents the

**27th Annual
Yash P. Kataria
Internal Medicine
Research Day - 2013**



27th Annual Yash P. Kataria Internal Medicine Research Day 2013

***Wednesday, April 17th, 2013
8:15 AM – 4:00 PM
East Carolina Heart Institute***

***Paul Bolin, Jr., MD
Professor and Chair
Department of Internal Medicine***

***Research Day Advisory Committee
Mark Bowling MD, Co-Chair
Paul McCarthy MD, Co-Chair
Tejas Desai, MD
Hisham Barakat, PhD
Cindy Kukoly
Patricia Cannon
Nancy Leffler***

The scientist is not a person who gives the right answers; he's one who asks the right questions.

~Claude Lévi-Strauss, Le Cru et le cuit, 1964

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Department of Internal Medicine
27th Annual Yash P. Kataria Internal Medicine Research Day

Wednesday, April 17th, 2013



- | | | |
|---------|-----------------------------------------------------|--------------------------------------------------------------------------------|
| 7:45am | Continental Breakfast - ECHI Conference Room | <i>Poster Presentations available for review</i> |
| 8: 20am | Administrative Comments - ECHI Auditorium | <i>Mark Bowling, MD, Co-Chair
Internal Medicine Research Day Committee</i> |
| 8:25am | Welcome - ECHI Auditorium | <i>Paul Bolin, Jr., MD, Chair
Department of Internal Medicine</i> |

8:30am

First Oral Session, ECHI Auditorium
 Moderator: Mark Bowling, MD

- | | | |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 8:30am | OP1 PULMONARY HYPERTENSION IN PATIENTS UNDERGOING KIDNEY TRANSPLANT - A SINGLE CENTER EXPERIENCE. | <u>S Mehra</u> , J Effird , C Christiano, S Sharma |
| 8:45am | OP2 THE CLINICAL BENEFIT OF PENICILLIN SKIN TESTING | <u>RH Rimawi</u> , RM Sarsour, BA Kabchi, M Gooch, MS Ashraf, M Gebregziabher, PP Cook, DS Siraj |
| 9:00am | OP3 THE USE OF STATIC LUNG COMPLIANCE OR ESOPHAGEAL PRESSURE MONITORING DEVICE IN ADJUSTING PEEP TO FACILITATE WEANING FROM MECHANICAL VENTILATION | <u>Z Kassabo</u> , K Saadah, R Shaw, M Mazer, C Bangley, P Rice, W Trainer, K Stephens |
| 9:15am | OP4 GENDER DIFFERENCES IN CHRONIC HEART FAILURE PATIENTS | <u>S Mehra</u> , J Efird, I Osman, J Cahill |
| 9:30am | OP5 IMPACT OF REGULAR COLLABORATION BETWEEN INFECTIOUS DISEASE AND CRITICAL CARE ON ANTIMICROBIAL UTILIZATION AND PATIENT OUTCOME | <u>RH Rimawi</u> , M Mazer, RM Sarsour, BA Kabchi, A Frenkel, DS Slraj, M Gooch, X Fang, PP Cook |
| 9:45am | OP6 RETROSPECTIVE ANALYSIS OF HEPATITIS C TREATMENT IN PATIENTS CO-INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS. | <u>B Kabchi</u> , G Bakaj, R Rimawi, M Elnabitti, D Siraj. |

10:00am

Break and Posters, ECHI Conference Room

Second Oral Session, ECHI Auditorium

Moderator: Robert Tanenberg, MD

- 10:30am **OP7** **MICRO-RNA REGULATION OF MACROPHAGE ACTIVATION** M McPeek, A Malur, B Barna, MJ Thomassen
- 10:45am **OP8** **ACTIVATION OF THE GPR4 RECEPTOR IN B16F10 MELANOMA CELLS DECREASES CELL SPREADING AND ALTERS FOCAL ADHESION DYNAMICS THROUGH THE G_{12/13}/RHO PATHWAY.** CR Justus, LV Yang
- 11:00am **OP9** **COMPARISON OF ENDOBRONCHIAL ULTRASOUND AND TRADITIONAL METHODS OF TRANSBRONCHIAL NEEDLE ASPIRATION FOR THE EVALUATION OF PARABRONCHIAL LYMPH NODES.** BD Putnam, H Mehta, D Belangia, E McNeill, R Talento, K Hewan-Lowe, S Ben-Or, MR Bowling.
- 11:15am **OP10** **MAGNETIC RESONANCE PRESENTATION OF PULMONARY HYPERTENSION: PRELIMINARY FINDINGS.** S George, S Mehra, S Sharma, J Cahill

11:30am

Keynote Address: ECHI Auditorium
“Shades of Grey: Sorting out Idiopathic Interstitial Pneumonias”
Paul W Noble, M.D.
Professor and Chairman, Department of Medicine
Director, Women's Guild Lung Institute
Cedars-Sinai Medical Center, Los Angeles

12:30pm

ECHI Conference Room
Lunch followed by
Poster Session (1:00 - 2:00pm)

Third Oral Session, ECHI Auditorium

Moderator: Tejas Desai, MD

- 2:00pm **OP11** **EMERGING TECHNOLOGY IN DIAGNOSIS OF LUNG CANCER AND ITS UTILITY IN A MULTIDISCIPLINARY TEAM APPROACH.** H Mehta, M Kohan, S Ben-Or, M Bowling
- 2:15pm **OP12** **USING SOCIAL MEDIA TO CREATE A PROFESSIONAL NETWORK BETWEEN PHYSICIAN-TRAINEES AND THE AMERICAN SOCIETY OF NEPHROLOGY** A. Shariff; X. Fang; T. Desai
- 2:30pm **OP13** **THE EFFECTS OF PHENTERMINE AND VITAMIN B12 ON WEIGHT LOSS AMONG OBESE PATIENTS** M Lang, T Sachs, B Brown, A Allsbrook, K Parker, J Powell
- 2:45pm **OP14** **HYPOGLYCEMIA AFTER ROUX-EN-Y GASTRIC BYPASS SURGERY: IS EXCESSIVE INSULIN SENSITIVITY THE CAUSE?** M Dar, W Chapman, J Pender, W Pories, Dohm, A Drake III, J Houmard

- 3:00pm **OP15** **ONE YEAR SURVIVAL AND PHYSICAL FUNCTIONING WITH SURGERY COMPARED TO NO SURGERY IN EARLY STAGE LUNG CANCER** PR Walker, S Cykert, F McGuire, L Edwards, P Dilworth-Anderson
- 3:15pm **OP16** **RENAL TRANSPLANT RECIPIENTS WITH POSITIVE DONOR SPECIFIC ANTIBODIES MAINTAIN STABLE GRAFT FUNCTION WITH MYCOPHENOLIC ACID ESCALATION** L Rebellato, P Bolin, K Parker, A Allsbrook, B Brown, S Kendrick, M Everly, P Terasaki, R Harland
- 3:30pm **OP17** **INCREASED EXPRESSION OF TOLL-LIKE RECEPTORS 7 AND 9 AND OTHER CYTOKINES IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS: ETHNIC DIFFERENCES AND POTENTIAL NEW TARGETS FOR THERAPEUTIC DRUGS.** EL Treadwell, C Xia, J Oates, B Word, K Wiley and BD Lyn-Cook

3:45pm

Closing Remarks and Award Presentations

Paul Bolin, Jr., MD, Chair Department of Internal Medicine

**Poster Presentations, ECHI Conference Room
Research**

PR1	POST-BRONCHOSCOPY METHEMOGLOBINEMIA: A CASE SERIES AND REVIEW OF THE LITERATURE	<u>C Brown</u> , M Bowling
PR2	THE ROLE OF PPARγ IN CARBON NANOTUBE-ELICITED GRANULOMAS LUNG INFLAMMATION	<u>J Patel</u> , I Huizar, A Malur, M McPeek, MJ Thomassen
PR3	TRANSMEMBRANE PROTEIN WITH EPIDERMAL GROWTH FACTOR AND TWO FOLLISTATIN MOTIFS AND SARCOSE DEHYDROGENASE COOPERATE TO MODULATE ONE CARBON METABOLISM AND INVASION OF PROSTATE CANCER CELLS	<u>TD Green</u> , AS Asch, MJ Ruiz-Echevarria
PR4	THE TRANSMEMBRANE PROTEIN WITH EPIDERMAL GROWTH FACTOR AND TWO FOLLISTATIN MOTIFS 2 INHIBITS HUMAN PROSTATE CANCER CELL MIGRATION THROUGH ITS G PROTEIN ACTIVATING DOMAIN	<u>X Chen</u> , MJ Ruiz-Echevarria
PR5	MITOCHONDRIAL BIOGENESIS IN HUMAN MESENCHYMAL STEM CELL DIFFERENTIATION	<u>A Ajmera</u> , M.C. Collins, P. V. Pradhan, E. J. Anderson, B.J. Muller-Borer
PR6	DYNAMIC BEHAVIOR OF MESENCHYMAL STEM CELLS IN A CARDIAC MICROENVIRONMENT: A TIME-LAPSE IMAGING STUDY	<u>L Coltrain</u> , M.C. Collins, P Pradhan, B. J. Muller-Borer
PR7	EVALUATION OF THE NUCLISENS EASYQ KPC TEST FOR DETECTION OF THE <i>bla</i>_{KPC} GENE AMONG MULTIDRUG-RESISTANT CLINICAL ISOLATES AT VIDANT MEDICAL CENTER	<u>KL Augustino</u> , J Christie, KM Ramsey
PR8	VITAMIN D DEFICIENCY IN AN ADULT POPULATION WITH SICKLE CELL DISEASE	<u>PC Boettger</u>
PR9	A NEW MULTIDISCIPLINARY LEARNING TECHNIQUE.	W. Ayscue, P. Ouellette, W. Robey, <u>R. Shaw</u> A. Sorrell
PR10	SUBTYPES OF SKIN CANCERS SEEN IN DERMATOLOGY CLINIC: A 10 YEAR REVIEW	<u>N Davies</u> , J Defazio, CM Phillips, & P Vos,
PR11	CHANGING FREQUENCY OF SKIN CANCER IN DERMATOLOGY CLINIC OVER A 10 YEAR PERIOD	<u>CM Phillips</u> , P Vos
PR12	A SINGLE CENTER EXPERIENCE WITH INTERMITTENT HIGH DOSE INTRAVENOUS IMMUNOGLOBULIN AS TREATMENT FOR DONOR SPECIFIC ANTIBODIES IN RENAL TRANSPLANT RECIPIENTS	<u>P Bolin</u> , L Rebellato, K Parker, B Brown, A Allsbrook, S Kendrick, W Kendrick, C Haisch, M Everly, G Hildalgo, P Terasaki, R Harland

- PR13 UTILIZATION OF INTRAVENOUS IMMUNOGLOBULIN IN THE TREATMENT OF DONOR SPECIFIC ANTIBODIES AND THE ASSOCIATION WITH ANEMIA** B Brown, K Parker, R Harland, P Bolin
- PR14 HIGHER INCIDENCE OF NON-HLA ANTIBODIES IN KIDNEY TRANSPLANT PATIENTS WITH BIOPSY-PROVEN REJECTION OR LESIONS** M. Taniguchi, L Rebellato, C Junchao, J Hopfield, K Briley, C Haisch, P Catrou, P Bolin, K Parker, W Kendrick, S Kendrick, R Harland, P Terasaki
- PR15 LOW MOLECULAR WEIGHT HEPARIN VERSUS UNFRACTIONATED HEPARIN FOR PREVENTION OF RADIAL ARTERY ACCESS COMPLICATIONS POST PER-CUTANEOUS CORONARY INTERVENTION(COLOUR trial)** M Farooqui; S Adusumalli; R Daggubati

**Poster Presentations, ECHI Conference Room
Vignette**

PV1	“COMING EVENTS CAST THEIR SHADOWS BEFORE” CORONARY ARTERY DISSECTION DURING PERCUTANEOUS CORONARY INTERVENTION OF BIFURCATION LESION MASQUERADING AS PLAQUE SHIFT ON CORONARY ANGIOGRAM	<u>M Farooqui</u> ; R Daggubati
PV2	SUCCESSFUL OUTCOME AFTER OUT OF HOSPITAL CARDIAC ARREST IN A PATIENT WITH A CARDIAC MASS	<u>G Nash</u> , V Mungal, V Nandwani, PJ McCarthy, R Nekkanti
PV3	CONFINED LEFT ATRIAL CALCIFICATION WITHOUT HEMODYNAMIC COMPROMISE	<u>CI Jones</u> , LB Cao, A Chagarlamudi, A Movahed
PV4	“SIDE MATTERS”: AN INTRIGUING CASE OF PERSISTENT LEFT SUPERIOR VENA-CAVA	<u>L Cao</u>
PV5	A CASE REPORT OF CAFFEINE INDUCED CARDIAC ARRHYTHMIAS AND TRANSIENT BLINDNESS	<u>SR Turley</u> , V Nandwani, PJ McCarthy
PV6	PULMONARY CEMENT EMBOLISM AFTER KYPHOPLASTY	<u>T Nguyen</u> , LB Cao , A Movahed, W Wood, J Simpson
PV7	AN UNUSUAL CAUSE OF ENCEPHALOPATHY	<u>S Gegick</u>
PV8	POSTPNEUMONECTOMY SYNDROME, AN UNUSUAL COMPLICATION	<u>MZ Rizwan</u> , KY Rahman, S Rahman, Z Ahmad, Z Rehman, A Butt
PV9	USUAL CASE OF RSV INFECTION LEADS TO ACUTE RESPIRATORY FAILURE IN NON TRANSPLANT ADULT PATIENT	<u>J Simou</u> , V Nandwani
PV10	A CASE OF PULMONARY CRYPTOCOCCOSIS IN A PATIENT ON ADALIMUMAB AND METHOTREXATE FOR RHEUMATOID ARTHRITIS	<u>ON Obi</u> , M Jacob
PV11	COUGHING UP A LUNG: PULMONARY MUCORMYCOSIS WITHOUT HEMATOLOGICAL MALIGNANCY	<u>MJ Hill</u> , AT Stang, B Kabchi, A Meara
PV12	HUNTING FOR COMPLICATED PNEUMONIAS	<u>RA Chowdhary</u> , RH Rimawi, PP Cook
PV13	FEW FATAL FEBRILE EMERGENCIES	<u>M Asghar</u> , P Pancoast
PV14	ELIZABETHKINGIA MENINGOTSEPTICUM - RARE AND RESISTANT	<u>H Sarwar</u> , RH Rimawi, AT Stang, B Kabchi, K Shah, P Cook
PV15	A CASE OF RECURRENT MENINGITIS	<u>RM Sarsour</u> , RH Rimawi, HG Adams
PV16	PAECILOMYCES – A TOUGH BUG TO KILL	<u>RH Rimawi</u> , RM Sarsour, Y Carter, T Ware, J Christie, Cook, PP, DS Siraj
PV17	NEUROCYSTICERCOSIS AS A CAUSE OF SEIZURE	<u>K Shah</u> , B Forte, B Kabchi, RH Rimawi, MS Ashraf
PV18	A CASE OF RAPIDLY FATAL VIBRIO VULNIFICUS SEPTICEMIA WITHOUT A KNOWN EXPOSURE	<u>JAB Moore</u> , AT Stang

PV19	DIFFUSE ABDOMINAL PAIN AND PALPABLE LYMPHADENOPATHY IN AN AIDS PATIENT	<u>TL Covieo</u> , JR Powell, RN Friend
PV20	A FULL LENGTH DRESS: DRUG REACTION WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS (DRESS) ASSOCIATED WITH LEVOFLOXACIN AND AZITHROMYCIN	<u>S Pancholi</u> , <u>A Stang</u>
PV21	AN INTERNIST PERSPECTIVE OF ACQUIRED HEMOPHILIA A	<u>A Shariff</u> , J. Stahl, M. Kamdar, M.C. Brake, AS.Asch
PV22	HISTOPLASMOSIS: A CAUSE FOR PANCYTOPENIA	<u>A Frenkel</u> , RH Rimawi, MS Ashraf, HG Adams
PV23	BLINDNESS IN A PATIENT WITH LUPUS	<u>HAB Nik Rushdi</u> , MC Brake
PV24	MORE THAN MEETS THE EYE: AN UNUSUAL PRESENTATION OF LUPUS CEREBRITIS	<u>J Brangman</u> , A Mathai
PV25	SCURVY IN THE HEART OF PIRATE COUNTRY	<u>TJ Parrent</u> , WA Burke
PV26	TWO OLDER CAUCASIAN FEMALES WITH TINEA CAPITIS	<u>SS Chisolm</u> , LG Pruitt, CM Phillips
PV27	NODULAR FASCIITIS OF THE SCALP: A CASE REPORT	<u>LN Caudill</u> , <u>RL Wilson</u> , WA Burke, CM Phillips, RH Schosser
PV28	EARLY WORSENING OF RETINOPATHY WITH IMPROVED GLYCEMIC CONTROL	<u>S Oberoi</u> , N Hamidi-Sitouah ,and R J Tanenberg
PV29	TREAT THE PATIENT, NOT THE NUMBERS: A CASE OF PSEUDOHYPERKALEMIA IN THE ICU.	<u>E Levin</u> , <u>S O'Neal</u>
PV30	A CASE OF NECROBIOSIS LIPOIDICA DIABETICORUM	<u>M Musec</u> , L Alapati
PV31	INTRA-MUSCULAR INSULIN DELIVERY BY PUMP OVERCOMES SUBCUTANEOUS INSULIN RESISTANCE IN UNCONTROLLED TYPE 2 DIABETES	<u>N Hamidi-Sitouah</u> , S Oberoi, R J Tanenberg
PV32	NON-PTH MEDIATED HYPERCALCEMIA ASSOCIATED WITH ELEVATED 1,25-DIHYDROXYVITAMIN D	<u>I Khanna</u> , FJ Cook and AJ Drake III
PV33	POSTMORTEM DIAGNOSIS OF DIABETIC KETOACIDOSIS PRESENTING AS THE “DEAD-IN-BED SYNDROME	<u>J Luna</u> , MGF Gilliland, H Colin, and RJ Tanenberg
PV34	METRELEPTIN THERAPY FOR LIPODYSTROPHY	<u>A Harnoor</u> , M Dar
PV35	INSULINOMA IN CHRONIC RENAL FAILURE	<u>J Stahl</u> , A Harnoor, A Drake
PV36	SYPHILIS: FORGOTTEN BUT NOT GONE	<u>NM Jasani</u> , DM Harrington, TP Desai, KO Hewan-Lowe, HL Lai.
PV37	A FEMALE PRESENTING WITH SEVERE CACHEXIA AND BRUNS – GARLAND SYNDROME	<u>K Shahzad</u> , B Ramirez, J Norbury, RJ Tanenberg



In 2008, the annual departmental research day program was dedicated and renamed the **Yash P. Kataria IM Research Day** to honor the many contributions of Dr. Yash P. Kataria, and to support the educational and research program in the Department of Internal Medicine at the Brody School of Medicine at ECU.

Dr. Kataria is Professor Emeritus of Medicine at BSOM and continues to contribute actively to the clinical, educational, and research mission of the pulmonary & critical care division at BSOM. He was the first pulmonologist in eastern NC and helped to establish the pulmonary specialty at BSOM 30 years ago and has been an integral force since the inception of the medical school. Yash was the first division chief of pulmonary medicine at BSOM and successfully recruited and established a clinical and active laboratory research program. Yash was the section head of pulmonary at BSOM / PCMH from 1978-1995, Vice Chair of the Dept of Medicine 1987-1992, and Interim Chair 1986-87. Yash is of course known regionally, nationally, and internationally for his passion in translational research with a particular focus on sarcoidosis. He has authored over 70 publications, has received the Trudeau Award from the American Lung Association, lifetime achievement award by the NC Thoracic Society, on many occasions been listed on the “Best Doctors” list, has been a reviewer and/or on editorial board for numerous specialty journals.

Over his 30 year career, he has cared for thousands of patients with sarcoidosis and he arguably has one of the largest sarcoid cohorts in the US. Yash is revered by his patients and families. Yash has literally trained hundreds of medical students and housestaff and is cherished by them as a role model and outstanding teacher at the bedside and in clinics. Yash has been a fixture in the international sarcoid community and has contributed actively at a leadership level at ACCP, ATS, and WASOG. Scientifically, Yash is perhaps best known for promulgating a paradigm shift in our understanding of sarcoid immunology. While it was accepted dogma in the 70s that sarcoidosis was a disease of “depressed immunity” and anergy, Yash proposed and championed the concept that it is a pro-inflammatory disease with involvement of activated T-cells, cytokines, etc. Yash and his group also proposed that the active “sarcoid factor” was localized to the cell walls of alveolar macrophages and monocytes or an “autologous kveim” model (this remains an intriguing hypothesis!).

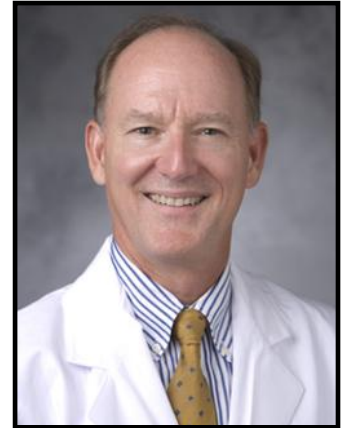
One of the missions of the medical school is community service in which medical school faculty plunged deeply. Yash lived in and loved Greenville where he raised two lovely children.

He was actively involved in the J. H Rose Attendance Area Foundation Advisory Committee; also served as a Member Board of Academic Boosters Club, Rose High School, Greenville, NC and President, Parent Teacher Association, Greenville Middle School, Greenville, NC. He also helped to develop support groups for patients with sarcoidosis & COPD, and played leadership roles in the local American Lung Association of NC. We are honoring Dr. Kataria by dedicating our annual Internal Medicine Research Day, which he started in 1987, to the **Yash P. Kataria Internal Medicine Research Day**. We will continue to build on the tradition of encouraging research by inviting leading guest speakers and facilitating scholarship and interaction by our trainees and faculty.

Keynote Address :
**“Shades of Grey:
Sorting out Idiopathic Interstitial Pneumonias”**

Paul W. Nobel, MD

**Chair, Department of Medicine
Director, Women's Guild Lung Institute
Cedars-Sinai, Los Angeles, California**



Dr. Noble's clinical areas of expertise are interstitial lung disease, conducting clinical trials in idiopathic pulmonary fibrosis, connective tissue disease-related pulmonary disease and bronchiolitis. His research focuses on cellular and molecular mechanisms of lung inflammation and fibrosis, the role of lung stem cells in pulmonary fibrosis and the role of host defense in lung inflammation and fibrosis and is heavily supported by the National Heart, Lung and Blood Institute at the National Institutes of Health.

Dr. Noble is a prolific author. His original research has been published in numerous peer-review journals, including the *New England Journal of Medicine*, *Science* and *Nature Medicine*. As deputy editor of the *Journal of Clinical Investigation*, Dr. Noble has been a leading contributor to discovery in lung disease. An elected member of the American Society of Clinical Investigation and the American Association of Physicians, he is currently deputy editor of the *Journal of Clinical Investigation* and has been a member of the editorial boards for the *American Journal of Respiratory Cell and Molecular Biology* and the *American Journal of Respiratory and Critical Care Medicine*. He also has been a member of the scientific advisory board of the American Asthma Foundation.

After earning his bachelor's degree at Haverford College and his medical degree from New York University School of Medicine, Dr. Noble completed his residency and chief residency in internal medicine at the University of California, San Francisco. He completed pulmonary and critical care fellowships at the University of Colorado Health Sciences Center and the National Jewish Center for Immunology and Respiratory Medicine.

Prior to joining Cedars-Sinai, Dr. Noble was a Charles Johnson MD Distinguished Professor and Chief of the Division of Pulmonary, Allergy and Critical Care Medicine at Duke University Medical Center in Durham, North Carolina.

As an assistant professor of medicine at The Johns Hopkins University School of Medicine, he was founder and director of the Interstitial Lung Disease Clinic, before moving on to become professor of medicine and associate chief of pulmonary and critical care at Yale University School of Medicine. At Yale, he also formed an interstitial lung disease clinic and, at Duke, he propelled his division to the highest ranks in the nation for clinical care, research productivity and National Institutes of Health funding.

The Keynote Address - Celebrating 27 Years

1987 Morris Reichlin, MD
Professor of Medicine
University of Oklahoma, School of Medicine

1988 Jesse Roth, MD
Director, Intramural Research
National Institute of Diabetes and Digestive and
Kidney Diseases, NIH

1989 Roy Patterson, MD
Professor and Chair
Department of Medicine
Northwestern University Medical School

1990 Edward W. Hook, MD
Professor and Chair
Department of Medicine
University of Virginia, Health Sciences Center

1991 Albert F. LoBuglio, MD
Director, Comprehensive Cancer Center
Director, Division of Hematology/Oncology
University of Alabama at Birmingham

1992 Raj K. Goyal, MD
Harvard Medical School
Chief Gastroenterology Division
Beth Israel Hospital

1993 Richard E. Kerber, MD
Professor of Medicine
Associate Director Cardiovascular Division
The University of Iowa College of Medicine

1994 James S. Louie, MD
Chief, Division of Rheumatology
Department of Medicine
Harbor-UCLA Medical Center

1995 Matthew I. Gilmour, B.Sc., PhD
Center for Environmental Medicine and Lung Biology
University of North Carolina at Chapel Hill

1998 O. Michael Colvin, MD
William Singleton Professor of Cancer Research
Director, Duke Comprehensive Cancer Center

1999 Jerry Palmer, MD
Professor of Medicine
Director, Diabetes Research Center
University of Washington

2000 Thomas Feldbush, PhD
Vice Chancellor for Research and Graduate Studies
Dean, Graduate School
East Carolina University

2001 William B. Applegate, MD, MPH
Professor and Chair
Department of Internal Medicine
Wake Forest University School of Medicine

2002 William Roper, MD, MPH
Dean, School of Public Health
University of North Carolina at Chapel Hill.

2003 Jeffrey P. Engel, MD
Division Head, General Communicable Disease Control
State Epidemiologist, Division of Public Health
NC Department of Health and Human Services

2004 Helen Burstin, MD, MPH
Director of the Center for Primary Care, Prevention and
Clinical Partnerships, Agency for Healthcare Research
and Quality

2005 Marschall S. Runge, MD, PhD
Chair, Department of Medicine
University of North Carolina at Chapel Hill
President, UNC Physicians

2006 Jose Caro, MD
Vice President, Endocrine Research and Clinical
Investigation
Lilly Corporate Center, Indianapolis

2007 William Stratford May, MD, PhD
Chair, Hematology and Oncology
Director, Shands Cancer Center
University of Florida

2008 Phillip A. Bromberg, MD
Bonner Professor of Medicine
Scientific Director of the Center for Environmental
Medicine, Asthma and Lung Biology
University of North Carolina at Chapel Hill

2009 Randy L. Jirtle, PhD
Professor of Radiation Oncology and Pathology
Duke University Medical Center

2010 Robert M. Lust, PhD
Interim Associate Dean, Research and Graduate Studies
Chair, Department of Physiology
East Carolina University, Brody School of Medicine

2011 David C. Goff Jr., MD, PhD
Chair, Department of Epidemiology and Prevention
Division of Public Health Services
Wake Forest University School of Medicine

2012 Vinay Kumar, MBBS, MD, FRCPath
Donald N Pritzker Professor and Chair
Department of Pathology
University of Chicago

W. James Metzger, Jr., MD Award

The W. James Metzger, Jr., M.D. award is presented to the most outstanding presentation by a junior faculty member in the Department of Internal Medicine. A peer-review process selects the winner. The recipient of the award receives a certificate and has his/her name engraved on a plaque that is displayed in the Department of Internal Medicine Library. The recipient also receives recognition on the Department of Internal Medicine web site.

Dr. Metzger, a native of Pittsburgh, Pennsylvania, was a graduate of Stanford University and Northwestern University Medical School, Chicago, Illinois. He completed his residency and research fellowship in Allergy-Clinical Immunology at Northwestern University. After serving in the United States Air Force, he came to Greenville in 1984 to join the East Carolina University School of Medicine. During his tenure at East Carolina University, Dr. Metzger rose to the rank of Professor of Medicine. He was Section Head of the Section of Allergy-Immunology and held the appointments of Vice Chairman of Research, Department of Internal Medicine; Executive Director, the Center for Asthma, Allergy, and Immunology; Assistant Vice Chancellor for Clinical Research; Assistant Dean for Clinical Research; and Director, Clinical Trials Office. He was the recipient of the East Carolina University Award for Excellence in Research and Creative Activity and the Distinguished Research Professor of Medicine. His research was published in the New England Journal of Medicine, Nature, and other journals. Dr. Metzger had mentored numerous faculty and fellows.

In August 2000 Dr. Metzger accepted a position as Professor of Allergy, Asthma, and Immunology at the National Jewish Medical and Research Center and was a faculty member at the University of Colorado Medical School, Denver, Colorado. He died on November 11, 2000 at the age of 55. Dr. Metzger represented excellence in research.

2001 Recipients:

**Carlos A. Estrada, MD, MS
Paul Mehlhop, MD**

2007 Recipient:

Christopher Newton, MD

2012 Recipient:

Maria Ruiz-Echevarria, PhD

2003 Recipient:

Lisa Staton, MD

2008 Recipient:

Li Yang, PhD

2004 Recipient:

Cassandra Salgado, MD

2009 Recipient:

Li Yang, PhD

2005 Recipient:

Barbara J. Muller-Borer, PhD

2010 Recipient:

Sunil Sharma, MD

2006 Recipient:

Timothy P. Gavin, PhD

2011 Recipient:

Sunil Sharma, MD

ABSTRACTS

In Presentation Order

OP = Oral Presentation

PR = Poster Research

PV = Poster Vignette

OP1

PULMONARY HYPERTENSION IN PATIENTS UNDERGOING KIDNEY TRANSPLANT - A SINGLE CENTER EXPERIENCE.

S Mehra, J Effird , C Christiano, S Sharma

Objective: To examine the prevalence of Pulmonary Hypertension (PH) among patients receiving a kidney transplant and evaluate 1 year renal outcomes in this population.

Methods: In this retrospective cohort study we reviewed electronic health records of patients who received a kidney transplant at our institution from 2007 to 2011 for echocardiographic evidence of PH, post transplant echocardiographic changes and impact of PH post transplant, with specific emphasis on change in serum creatinine over 12 months. Patients with RVSP \geq 35 mm Hg or with TR jet velocity \geq 3 meters/second were classified as having PH. Categorical variables were reported as frequency and percentage while continuous variables were reported as mean \pm standard deviation (SD). Statistical significance of categorical variables was tested using Fisher's exact test and Deuchler-Wilcoxon procedure for continuous variables. All tests were two-sided unless indicated otherwise.

Results: Electronic medical records of the 212 patients that received renal transplant were available for review. 6 patients were excluded due to missing echocardiogram reports. 158 patients were on hemodialysis (77%), 36 on peritoneal dialysis (17%) and 12 were not on dialysis (6%). 39 of the 206 patients were found to have PH (19%), of whom 21 were males (54%). Serum creatinine documented at 1 month and 12 month post-transplant revealed that the PH group witnessed significant deterioration of serum creatinine levels during the 12 month period (mean of 1.6 mg/dl at 1 month to 3.2mg/dl at 12 months in the PH group versus a mean of 1.9 mg/dl to 1.97 respectively in the non PH group ($p_{\text{wilcoxon}}=0.045$, one-sided).

Conclusion: Our study estimates that the prevalence of PH (measured by echocardiogram) is 19% among patients receiving kidney transplant at our institution. Post transplant patients with PH had more rapid deterioration of renal function as measured by serum creatinine levels at one month and 12 months. Confirmation of our

OP2

THE CLINICAL BENEFIT OF PENICILLIN SKIN TESTING

RH Rimawi, RM Sarsour, BA Kabchi, M Gooch, MS Ashraf, M Gebregziabher, PP Cook, DS Siraj

Background: Penicillin skin testing (PST) is a simple and effective way of diagnosing a true penicillin allergy. After being off the market for five years, penicilloyl-polylysine (PPL) PST has been reintroduced in 2009 as Pre-PEN®. A high negative predictive value (NPV), cost-analysis of antibiotic alterations and avoidance of potential adverse effects can justify the benefits of utilizing PST.

Methods: In 2010, PST with PPL major determinant and penicillin G minor determinant was introduced as a quality improvement measure in an 861-bed tertiary care hospital to guide in antibiotic usage in patients with symptoms consistent with an IgE-mediated reaction(s) to penicillin. Subjects with a negative PST were then challenged with a full therapeutic course of a beta-lactam agent. NPV of skin testing was established by 24-hour follow-up. We are reporting the result of 146 patients tested between March 2012 and July 2012.

Results: Only one subject had an allergic reaction following PST. The remaining 145 patients (99%) had a negative PST and tolerated the full duration of a beta-lactam therapy without an allergic response, giving the PST a 100% NPV. The annual healthcare saving was \$82,028 from antibiotic alteration alone, other factors notwithstanding.

Conclusion: A patient with a history of penicillin allergy and a negative PST result is at a low risk of developing an immediate-type hypersensitivity reaction to penicillin. PST reliably predicts a true IgE-mediated penicillin allergy and should become a standard of care when treating patients with a history of penicillin allergy.

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OP3

THE USE OF STATIC LUNG COMPLIANCE OR ESOPHAGEAL PRESSURE MONITORING DEVICE IN ADJUSTING PEEP TO FACILITATE WEANING FROM MECHANICAL VENTILATION

Z Kassabo, K Saadah, R Shaw, M Mazer, C Bangley, P Rice, W Trainer, K Stephens

RATIONALE: Severely obese patients are often difficult to wean from mechanical ventilation (MV) due to low compliance. High positive end expiratory pressure (PEEP) is needed to recruit alveoli. To set an optimal PEEP, obese patients who failed weaning in an initial attempt were randomized to one of two methods to set PEEP in this trial. We aim to determine which method is superior in weaning patients by day 30 after starting the protocol. **METHOD:** This is a single center, randomized, prospective, controlled study of very obese patients (BMI>40) who required tracheostomy for prolonged weaning. All patients were hemodynamically stable on pressure support ventilation with FIO₂ less than 0.6. Patients were randomly assigned to one of two protocols for setting PEEP. In one group, PEEP was set based on the improvement in C stat (compliance measurement on Hamilton ventilator). In the other group, transpulmonary pressure was measured with an esophageal balloon-monitoring device (EPMD), and PEEP was set to keep transpulmonary pressure positive (0-10 cmHg). We also compared the outcomes for this entire cohort to a historic control group of patients with similar baseline characteristics, where PEEP was set by conventional weaning protocol. **RESULTS:** Preliminary data of 24 patients randomly assigned to set PEEP by Cstat or EPMD did not demonstrate a significant difference in success of weaning from MV at day 30 (Cstat 81.8% vs EPMD 69.2%). Of the patients who were weaned by day 30, however, the mean days to wean were less in the EPMD arm vs the Cstat arm (5.9 days vs 11.9 days P<0.015). When the success of weaning at day 30 in the entire cohort of the 24 study patients was compared with 24 similar historic controls, the study patients had a higher success of weaning at day 30 (75% vs 62.5%). The set PEEP was higher in the study patients compared to historical controls (25.3 cmHg vs 9.0 cmHg, p<0.0001). None of the study subjects had pneumothorax or hemodynamic compromise. **CONCLUSIONS:** Whether PEEP is set by Cstat or EPMD does not have a significant impact in weaning obese patients. The high PEEP used in both methods did not have adverse consequences. Compared to historic controls, in which lower PEEP was used, we observed improvement in weaning outcomes using higher PEEP. We believe that high pleural pressures in obese patients cause atelectasis, and using higher PEEP opens alveoli and leads to higher success in weaning.

Notes:

OP4

GENDER DIFFERENCES IN CHRONIC HEART FAILURE PATIENTS

S Mehra, J Efirid, I Osman, J Cahill

Objective: To study gender differences in chronic heart failure patients followed in a transitional heart failure clinic.

Methods: A medical record review was conducted of 675 chronic heart failure patients enrolled at our heart failure clinic for a 2 year period (1 October 2010 to 30 September 2012). Baseline clinical characteristics were compared between male and female patients. Fisher's exact test was used to test for statistical significance of dichotomous variables and Wilcoxon procedure was used for continuous variables. P values were adjusted for multiplicity using the Hochberg step-up method.

Results: The male to female ratio of patients was 1.5:1. Use of antidepressants was more common in females (17% vs. 11%, p=0.036), while opioid use was more common in males (20% vs. 14%, p=0.051). There was no statistically significant difference between males and females for presence of hypertension, atrial fibrillation, ventricular tachycardia, New York Heart Association class, sleep apnea, diabetes mellitus, left ventricular hypertrophy on echocardiogram and number of all-cause hospitalizations in the two year period. Coronary artery disease was more common in males (57% vs. 41%, p<0.001). Males were more likely to have premature ventricular contractions on their electrocardiograms (31% vs. 20%, p<0.001). QRS duration was statistically wider in males (118±31 vs. 111±32, p=0.0004). Males were found to have a lower left ventricular ejection fraction at baseline (34±13 vs. 38±16, p=0.0001). P values for antidepressant and opioid use were not statistically significant after multiplicity adjustment.

Conclusion: Notable differences were observed between male and female chronic heart failure patients. These differences are important to consider when interpreting clinical heart failure trials because women often are under-represented in these

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OP5

IMPACT OF REGULAR COLLABORATION BETWEEN INFECTIOUS DISEASE AND CRITICAL CARE ON ANTIMICROBIAL UTILIZATION AND PATIENT OUTCOME

RH Rimawi, M Mazer, RM Sarsour, BA Kabchi, A Frenkel, DS Slraj, M Gooch, X Fang, PP Cook

Introduction: Antimicrobial stewardship programs have been shown to help reduce the use of unnecessary antimicrobial agents in the hospital setting. To date, there has been very little data focusing on high-use areas such as the medical intensive care units (MICU). A prospective intervention was done to assess guideline compliance, antimicrobial expenditure and healthcare cost when an infectious disease (ID) fellow rounds regularly in the MICU.

Methods: A 3-month retrospective chart review was followed by a 3-month prospective intervention the following year in our 24-bed MICU. 246 total charts were reviewed to assess generally accepted guideline compliance, demographics and microbiologic results. During the intervention period, the IDF reviewed the charts, including physician notes, radiographic results and microbiology data, and made recommendations regarding antimicrobial use. Antimicrobial use, treatment duration, APACHE II scores, length of stay (LOS), mechanical ventilation days (MVD) and mortality rates were compared during the two periods.

Results: No baseline statistically significant differences in the two groups were noted (i.e. age, gender, race or APACHE II scores). Indications for antibiotics included healthcare-associated (53%) and community-acquired pneumonias (17%) and urosepsis (17%). Significant reductions were seen in extended-spectrum penicillins ($P=0.0080$), carbapenems ($P=0.0013$), vancomycin ($P=0.0040$), and metronidazole ($P=0.0004$) following the intervention. Antimicrobial modification led to an increase in narrow-spectrum penicillins ($P=0.0322$). The intervention group had a significantly lower rate of treatments that did not correspond to guidelines ($P<0.0001$). There was a reduction in MVD ($P=0.0053$), LOS ($P=0.0188$) and hospital mortality ($P=0.0367$). The annual calculated healthcare savings was \$89,944 in early antibiotic cessation alone.

Conclusion: Active communication with an ID practitioner can significantly reduce MICU antibiotic overuse by earlier modification or cessation of antibiotics without increasing mortality. This in turn can reduce healthcare costs, foster prodigious education and strengthen relations between the two subspecialties.

Notes:

OP6

RETROSPECTIVE ANALYSIS OF HEPATITIS C TREATMENT IN PATIENTS CO-INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS.

B Kabchi, G Bakaj, R Rimawi, M Elnabtiti, D Siraj.

Background: Protease inhibitors (PI) were approved by the FDA for the treatment of chronic hepatitis C virus (HCV) type 1 infection in May 2011. Addition of a PI to pegylated interferon and ribavirin increased efficacy to 66-75% in general population and up to 50% in African Americans. Poorer outcomes are associated with HIV/HCV co-infection, HCV type 1 and 4, higher viral loads, and black race. Given high morbidity and mortality of HIV/HCV co-infection and improved outcomes of the new drugs, off-label use of PI has been widely adopted by Infectious Diseases specialists. The safety and efficacy of these regimens have not been established, and phase 2 studies are undergoing. ECU Infectious Diseases Clinic has started PI based treatment in selected genotype 1 HIV/HCV co-infected patients who are on concomitant HIV treatment regimens, with modifications to the HIV regimen as necessary. The patient population seen at ECU Infectious Diseases and Travel Medicine Clinic is generally under-represented in HCV treatment studies and the efficacy is usually lower.

Methods and Objectives: Retrospective chart review of patients with HIV/HCV co-infection who undergo HCV treatment with PI at the ECU Infectious Diseases Clinic to determine efficacy of treatment, patient demographics, changes to HIV regimen, effect on response to HIV regimen, and adverse effects occurrence.

Results: Nine patients identified with HIV/HCV co-infection started therapy with pegylated interferon, ribavirin and telaprevir. 67% of patients initiated in therapy are African-American. One patient completed therapy and is virologically suppressed, two patients discontinued therapy due to side effects or non-compliance, two patients failed response, and four patients are continuing treatment at this time with virological response to date. Eight patients have showed significant side effects including anemia, acute kidney injury, skin rash, and worsening depression, but only one of them required discontinuation of therapy.

Conclusions: New HCV treatment with telaprevir in patients co-infected with HIV appear to be well tolerated despite the side effects. Efficacy is promising based on preliminary data but further data and studies are needed.

Notes:

OP7

MICRO-RNA REGULATION OF MACROPHAGE ACTIVATION

M McPeck, A Malur, B Barna, MJ Thomassen

Background: Peroxisome proliferator – activated receptor gamma (PPAR gamma) is a member of the nuclear receptor superfamily. In different cell types PPAR gamma plays distinct roles which include the regulation of inflammatory mediators. Our previous studies have shown the constitutive expression of PPAR gamma in healthy alveolar macrophages. Deficiency of PPAR gamma in alveolar macrophages results in their activation and the elevation of pro-inflammatory cytokines and chemokines. MicroRNAs (miRNAs) are approximately 22 nucleotide noncoding RNAs that regulate gene expression by either inhibiting translation or promoting degradation of their target messenger RNAs. Numerous cellular processes are affected by micro RNAs. Because of their role in gene regulation, we hypothesized that miRNA expression would be dysregulated in alveolar macrophages from macrophage-specific PPAR gamma knockout mice. **Methods:** To characterize the micro RNA expression of alveolar macrophages deficient of PPAR gamma, miFinder plates were utilized. MiFinders profile the expression of 84 common and well characterized miRNAs by Real Time PCR (RT-PCR). **Results:** The miFinder plates revealed differential expression of six miRNAs with a >2 fold increase in pooled alveolar macrophages deficient of PPAR gamma compared to controls (n=3, p<0.05). Mir-27b has been implicated in adipocyte differentiation and regulation of PPAR gamma. The miFinder assay revealed an increase of 3.4 fold (p=0.002) and individual assays show an increase of 2.6 fold (n=6, p=0.002) of miR-27 in PPAR gamma deficient alveolar macrophages. MiR-23b was also shown to be increased 3.6 fold in PPAR gamma deficient macrophages and has been associated with chemokine production in the literature. **Conclusion:** These results suggest that regulatory micro RNA plays a role in the pro-inflammatory phenotype of PPAR gamma deficient alveolar macrophages.

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OP8

ACTIVATION OF THE GPR4 RECEPTOR IN B16F10 MELANOMA CELLS DECREASES CELL SPREADING AND ALTERS FOCAL ADHESION DYNAMICS THROUGH THE G_{12/13}/RHO PATHWAY.

CR Justus, LV Yang

Background: In order for a tumor cell to spread, it must degrade the basement membrane and enter the blood stream or draining lymph nodes. Furthermore, it must attach to a distant site, spread, and migrate out of the blood stream and into a suitable environment for cell growth. In this report we investigated the function of the proton-sensing G protein-coupled receptor, GPR4, and its effect on the attachment and cell spreading capabilities of B16F10 melanoma cells that have been genetically modified to express the GPR4 receptor at a high level, namely B16/GPR4 cells. **Methods:** Several B16F10 melanoma cell lines were plated onto tissue culture plates, matrigel, or glass coverslips with media buffered to pH 6.4, 7.4, and 8.4. Subsequently, a number of chemical activators and inhibitors were used to examine cell spreading and focal adhesion dynamics. **Results:** We report that after plating B16/GPR4 cells onto tissue culture plates as well as matrigel, cell spreading is inhibited at pH 6.4. To further investigate the downstream signaling pathways and the G-protein that is responsible for decreased cell spreading we first used CT04 (C3 transferase), a direct Rho inhibitor, or a G_{12/13} dominant negative construct. This restored cell spreading in B16/GPR4 cells to a level similar to the vector control group. Additionally, we tested the G_q and the G_s pathway with Thapsigargin and a dominant negative G_q construct or 2', 5'-dideoxyadenosine and 8-bromo-cAMP and found that there was no change in cell spreading. In addition, Immunocytochemistry (ICC) of B16/GPR4 cells on glass coverslips confirmed an altered localization of phospho-paxillin Y118 and phospho-focal adhesion kinase Y397 from the cell periphery to the cell body at acidic pH. Treatment with CT04 restored this modification demonstrating the G_{12/13}/Rho pathway's responsibility in altered focal adhesion dynamics. To investigate a decrease in B16/GPR4 cell migration we performed additional ICC tests of phospho-paxillin Y118 in spontaneously migrating cells, which revealed that when under acidic conditions the signal in the leading edge and tail region of B16/GPR4 cells is decreased. **Conclusion:** These reports indicate that through the G_{12/13}/Rho downstream pathway cell spreading as well as focal adhesion dynamics is altered, which may

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OP9

COMPARISON OF ENDOBRONCHIAL ULTRASOUND AND TRADITIONAL METHODS OF TRANSBRONCHIAL NEEDLE ASPIRATION FOR THE EVALUATION OF PARABRONCHIAL LYMPH NODES.

BD Putnam, H Mehta, D Belangia, E McNeill, R Talento, K Hewan-Lowe, S Ben-Or, MR Bowling.

Background: Evaluation of parabronchial lymph nodes has traditionally been done with transbronchial needle aspiration (TBNA) and has depended greatly on the bronchoscopist's skill and knowledge of airway and mediastinal anatomy. Endobronchial ultrasound (EBUS) has emerged as a real-time guide for TBNA in parabronchial lymph node biopsy. We endeavored to evaluate whether EBUS guided TBNA was superior to traditional TBNA in achieving diagnosis or adequate tissue sampling, as well as comparing adequate yield from EBUS under moderate and deep sedation. **Methods:** A retrospective chart review of all EBUS guided and traditional TBNAs in a tertiary care academic medical center between September 2010 and January 2013 was performed. Adequate yield, being either diagnosis or lymphoid tissue sampling, was calculated between the EBUS guided TBNA and traditional TBNA groups. Yield was also calculated between EBUS guided TBNA under moderate and deep sedation. **Results:** Comparison of EBUS guided TBNA was found to provide diagnosis or lymphoid tissue in 261 out of 264 cases (98.9%). Traditional TBNA was found to be much lower at 74.6% (97 out of 130 cases). EBUS performed under moderate sedation was found to provide adequate yield in 99.4% of cases versus 97.9% in cases performed under deep sedation. The final diagnosis in 46.4% of cases under deep sedation was benign lymphoid tissue compared to 31.7% of moderate sedation cases. Of those cases under deep sedation, a small number of cases went to mediastinoscopy, video-assisted thoracic surgery (VATS), or lobectomy to assist in providing a diagnosis. **Conclusions:** EBUS guided TBNA is superior to traditional TBNA in the evaluation of parabronchial lymph nodes. Performing EBUS guided TBNA under moderate sedation is an effective and cost-efficient method for evaluating parabronchial lymph nodes. In a small set of patients, mediastinoscopy, VATS, and lobectomy was found to provide additional diagnostic information

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OP10

MAGNETIC RESONANCE PRESENTATION OF PULMONARY HYPERTENSION: PRELIMINARY FINDINGS.

S George, S Mehra, S Sharma, J Cahill

Background: Pulmonary artery Hypertension (PAH) is a life threatening chronic disorder of the pulmonary circulation. Sickle cell disease is a risk factor for PAH, with an incidence between 10-30% and increased mortality rate. Right heart catheterization (RHC) is the gold standard for diagnosis of PAH. However RHC is an invasive procedure, with inherent risks to the patients. Magnetic resonance imaging (MRI) has been shown to provide high quality anatomic and hemodynamic information. The goal of this study is to derive anatomic and hemodynamic parameters from MRI and Computational fluid dynamics (CFD) in human subjects for non-invasive diagnosis of pulmonary hypertension (PH). **Methods:** Sickle cell patients and non-sickle cell patients (controls) with a tricuspid regurgitant jet velocity >2.5 cm/s, who underwent RHC were invited to undergo MRI. The right heart was evaluated using short axis cine protocols. Phase-contrast (PC) scans were performed to collect time varying velocity distributions using ECG leads for cardiac vector cardiogram gating. Velocity data were gathered in the pulmonary artery (PA) and inferior vena cava (IVC) from breath-held cardiac gated PC-MR using standard gradient echo sequences (gradient recalled echo, GRE) with velocity encoding. Based on the flow waveform from PC-MR, the acceleration time (time to peak flow) and ejection time (systolic time) were calculated. Student *t*-tests were performed to determine significance of parameters between those with and without PH. **Results:** To date eight patients have been analyzed; two were normotensive and six were hypertensive (one without sickle cell disease). A moderate positive linear correlation ($r=0.81$) and moderate inverse correlation ($r=-0.71$) were found between mean pulmonary artery pressure and PA area/BSA (only for sickle cell patients) and AT/ET respectively. **Conclusions:** MR parameters, PA Area/BSA and AT/ET, were determined to have potential diagnostic value in patients suspected of PH. Future studies are ongoing for evaluating right heart function and utilization of computational fluid dynamics.

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OP11

EMERGING TECHNOLOGY IN DIAGNOSIS OF LUNG CANCER AND ITS UTILITY IN A MULTIDISCIPLINARY TEAM APPROACH.

H Mehta, M Kohan, S Ben-Or, M Bowling

Background: Resection of stage 1A lung cancer has been shown to have a 5-year survival rate of 70-80%. Stereotactic radiosurgery has been reserved for non-operable candidates. It utilizes radiopaque fiducial markers to give high dose radiotherapy with the intention of targeting treatment more accurately than standard radiotherapy. These markers have traditionally been placed bronchoscopically or transthoracically by radiology, who are typically hesitant due to the high risk of pneumothorax. The utility of Electromagnetic Navigation Bronchoscopy (ENB) provides an alternative approach in the diagnosis and management of solitary pulmonary nodules by a multidisciplinary team. We set out to determine if using ENB in conjunction with a multidisciplinary approach can provide diagnosis, as well as the ability to decrease time from detection of a nodule to treatment. **Methods:** A retrospective chart review of patients that underwent ENB for diagnosis and/or fiducial marker placement was conducted. The impact on the management of lung cancer especially in a multidisciplinary approach at a tertiary academic medical center was evaluated. **Results:** The data of 126 patients was obtained from 2 standard operators, an interventional bronchoscopist and a thoracic surgeon. The diagnostic yield for peripheral nodules using ENB was 71%. With the use of ENB, placement of these fiducial markers has led to a steep growth in the number of cases receiving stereotactic radiosurgery at our institution. The number of cases has increased from 29 in 2011 to 48 in 2012 (65.5% increase). Total pneumothorax rate was 5% versus 33-67% with the transthoracic procedure. It typically took a patient seen by radiology 4-6 weeks whereas the utilization of ENB in a multidisciplinary team has greatly shortened that to 5-7 days with significant results. **Conclusion:** ENB has been an essential tool for the multidisciplinary team by providing a diagnostic yield of pulmonary nodules, which is equivalent to the stated yield in literature. It has also increased the number of fiducial markers placed, thereby increasing the number of patients that receive stereotactic radiosurgery, a potentially curative procedure. ENB has also reduced the time for diagnostic yield and fiducial marker placement. This multidisciplinary team approach along with these potential benefits of ENB has led to a more innovative, aggressive and individualized care for patients in the management of lung cancer.

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OP12

USING SOCIAL MEDIA TO CREATE A PROFESSIONAL NETWORK BETWEEN PHYSICIAN-TRAINEES AND THE AMERICAN SOCIETY OF NEPHROLOGY

A. Shariff; X. Fang; T. Desai

Introduction: Twitter is the fastest growing social media network. It offers participants the ability to network with other individuals. Medical societies are interested in helping individuals network in order to boost recruitment, encourage collaboration, and assist in job placement. We hypothesized that the American Society of Nephrology successfully used Twitter to create a network between participants and itself in order to stay connected with its members.

Methods: Tweets from 3 Twitter networking sessions during Kidney Week 2011 analyzed for content. These messages were used to create a network between all participants of the networking sessions. The network was analyzed for strength by calculating clustering coefficients (CC) and the number of uni- and bi-directional connections. Each individual participant's influence with the network was quantified by calculating eigenvector coefficients (EC).

Results: A total of 376 Twitter messages were authored by 8 moderators and 9 trainees. The majority of tweets by trainees (64%) and moderators (61%) discussed one of three themes: 1) networking, 2) education or 3) navigating Kidney Week 2011. A total of 25 online network connections were established during the 3 sessions, of which 20% were bidirectional. The CC for the network was 0.300. All moderators formed at least 1 connection, but 7 out of the 9 trainees failed to make any connections. The ASN made 5 unidirectional and 0 bidirectional connections with a low EC of 0.108.

Conclusions:

The American Society of Nephrology was unable to form powerful connections with trainees through Twitter. However, medical societies should not be discouraged by the results reported in this investigation. As societies become more familiar with Twitter and understand the mechanisms to develop connections, these societies will have a greater influence within increasingly stronger networks

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OP13

THE EFFECTS OF PHENTERMINE AND VITAMIN B12 ON WEIGHT LOSS AMONG OBESE PATIENTS

M Lang, T Sachs, B Brown, A Allsbrook, K Parker, J Powell

Background: Obesity in the United States has become an epidemic with one third of the population being considered obese. With obesity rates on the rise, there is a greater need for the development of new, safe, and effective ways for individuals to lose weight without having surgical interventions. Phentermine has been prescribed for years by physicians as an appetite suppressant and has resulted in modest amounts of weight loss. Recently, there has been a surge of physicians prescribing Phentermine and intramuscular B12 injections for weight loss; however, there is no currently published research of the combination.

Methods: 20 people were recruited and randomized in a 1:1 ratio to one of two groups: Phentermine and B12 in combination (intervention group), or Phentermine alone (control). At weekly subsequent visits, patients had a clinical assessment, their medications assessed, and vitals checked. Each person was provided with their weekly supply of Phentermine (37.5mg orally per day) as well as received an intramuscular injection (1000 mg) of either B12 or saline depending on their group assignment. Participants were required to undergo their assigned treatment for a total of 12 weeks (3 months). Weekly vitals included the following: weight and blood pressure.

Results: Data was analyzed at Weeks 6 and 12 using SAS mixed effects model for repeated measures. At Week 6, there was no statistically significant difference in weight between the two groups. At Week 12, after controlling for race and sex, there was a statistically significant difference favoring the Phentermine/B12 group for both BMI (p-value: 0352) and systolic blood pressure (p-value: 0491).

Conclusion: Additional studies and follow up are needed to determine the long-term benefits of Phentermine and B12 on weight and blood pressure.

Notes:

OP14

HYPOGLYCEMIA AFTER ROUX-EN-Y GASTRIC BYPASS SURGERY: IS EXCESSIVE INSULIN SENSITIVITY THE CAUSE?

M Dar, W Chapman, J Pender, W Pories, L Dohm, A Drake III, J Houmard

Roux-en-Y gastric bypass (RYGB) is an effective treatment for morbid obesity, insulin resistance and type 2 diabetes. However, a recent cohort study by Marsk et al noted a 2.7 fold increased risk for hypoglycemia post-RYGB which adversely impacts the emotional and physical well being of patients. Current medical and surgical treatments are often ineffective due to a poor mechanistic understanding of why hypoglycemia occurs in such patients. Accordingly, we performed minimal model testing on 7 post-RYGB hypoglycemic subjects to characterize if whole body insulin sensitivity and/or insulin secretion was increased compared to 11 post-RYGB euglycemic cross-sectional controls.

In terms of insulin sensitivity, the mean insulin sensitivity index (Si) from minimal model testing for the post-RYGB hypoglycemic cohort (age 44 ± 3.6 , BMI 32.0 ± 1.8 , N=7) was 7.53 ± 1.94 mU-l-1·min-1 compared to 4.1 ± 0.5 mU-l-1·min-1 in euglycemic post-RYGB controls (age 41 ± 3.3 , BMI 27 ± 0.9 kg/m², N=11). In terms of insulin secretion, the mean acute insulin response to glucose (AIRg) in the hypoglycemic cohort was 254 ± 76 mu/L·min compared to 457 ± 95 mu/L·min in the euglycemic cohort.

In conclusion, it appears that patients experiencing hypoglycemia post-RYGB are more insulin sensitive and secrete less insulin compared to euglycemic post-RYGB controls. This suggests that excessive insulin sensitivity may represent a novel mechanism underlying post-RYGB hypoglycemia. A better understanding of how this occurs may improve future clinical treatment for this complication.

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OP15

ONE YEAR SURVIVAL AND PHYSICAL FUNCTIONING WITH SURGERY COMPARED TO NO SURGERY IN EARLY STAGE LUNG CANCER

PR Walker, S Cykert, F McGuire, L Edwards, P Dilworth-Anderson

Background: Medical co-morbidities in patients with lung cancer frequently impact a treatment decision out of fear of doing harm without a benefit. A prospective study looking at racial disparity factors associated with surgery decisions in early lung cancer identified > 2 co-morbidities with an Odds Ratio (OR) of 0.04 of going to surgery for African Americans (AA) patients, yet a 10-fold higher likelihood of Caucasians (C) going to surgery with an OR 0.45. (Cykert et al JAMA 2010: 303: 2368) **Methods:** 386 out of the original 437 patients with early stage lung cancer and no absolute contraindications to surgery were evaluated at multiple institutions for relative co-morbidities and with an initial Short Form 12 (SF-12) to assess physical functional status at enrollment and one year after enrollment. One year mortality and physical functional status was assessed. **Results:** 66% of C underwent surgery compared to 55% of AA (p = .048). One year mortality was not different between the AA (15%) and C (15.4%) populations (p=0.9); however not powered for a survival difference between surgery and no surgery. One year mortality in the overall surgical group was 10.8% compared to 22.8% in the non-surgical group; OR 0.50 (p<0.001). Patients with > 2 co-morbidities at diagnosis had a 27.5% one year mortality compared to 13.5% with < 2 co-morbidities; OR 1.7 (p=0.01). Combined analysis of co-morbidities and surgery revealed those with < 2 co-morbidities having surgery experienced a 10% one year mortality and those with > 2 co-morbidities 19%; without surgery one year mortality was 20% and 31% respectively. Despite > 2 co-morbidities, there was a 12% absolute mortality reduction with surgery. Regression analysis controlling for age and co-morbidities identified no physical functioning decline with surgery compared to the non-surgical group. **Conclusions:** One year mortality was doubled in patients with early lung cancer who declined surgery compared to those treated with surgery. There was no increased physical functioning decline in patients treated with surgery compared to no surgery. Treatment decisions in early lung cancer should be based on the survival benefit and not a perceived concern of physical functioning decline.

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OP16

RENAL TRANSPLANT RECIPIENTS WITH POSITIVE DONOR SPECIFIC ANTIBODIES MAINTAIN STABLE GRAFT FUNCTION WITH MYCOPHENOLIC ACID ESCALATION

L Rebellato, P Bolin, K Parker, A Allsbrook, B Brown, S Kendrick, M Everly, P Terasaki, R Harland

Background: Donor-specific HLA antibody (DSA) formation in post-renal transplant patients is associated with chronic rejection and graft failure. Previous studies in our transplant population have shown a > 20% risk of graft loss by 3 years after DSA formation. Detection of DSA occurs months before graft dysfunction, affording providers time to intervene. Testing for IgG3 antibodies were performed to investigate their role in DSA formation. This study assessed whether the escalation of Mycophenolic acid (MPA) could reduce DSA and stabilize renal function in DSA positive patients. **Methods:** 32 DSA positive patients were enrolled, 30 were followed for one year. MPA dose was escalated to a minimum daily dose of 1440 mg or the equivalent, with the maximum dose never exceeding the manufacturer's recommendations. Sera was collected at enrollment and during routine clinic visits for DSA and IgG3 testing. HLA single antigen beads were analyzed by Luminex to determine donor specificity and strength of the antibodies, measured as mean fluorescence intensity (MFI). Immunosuppression consisted of a thymoglobulin induction, calcineurin inhibitor, Prednisone, and MPA. **Results:** At 12 months daily MPA was > 1440 mg in 93% of patients. Transplant to DSA detection ranged from 1 month to 8 years with an average of 3 years. DSA detection to dose escalation ranged from 1 month to 10 years averaging 26 months. 20% were found to be IgG3 positive. Average time from DSA detection to intervention was 23 months for negative patients compared to 37 months for positive. Participants maintained stable renal function. Class I and Class II DSAs remained stable. **Conclusions:** Escalation of MPA is beneficial to patients with positive DSA. The most interesting IgG3 finding was the increased time between DSA detection and treatment for positive patients. Longer follow-up may provide insight into the value of IgG3 testing. Further studies are warranted to determine if escalation of MPA will impact long term graft survival.

Notes:

INCREASED EXPRESSION OF TOLL-LIKE RECEPTORS 7 AND 9 AND OTHER CYTOKINES IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENTS: ETHNIC DIFFERENCES AND POTENTIAL NEW TARGETS FOR THERAPEUTIC DRUGS.

ELTreadwell, C Xia, J Oates, B Word, K Wiley and BD Lyn-Cook.

Background: Increased expression of pro-inflammatory cytokines such as interferons, tumor necrosis factors (TNFs) and specific interleukins (ILs) has been found in a number of autoimmune diseases, including systemic lupus erythematosus (SLE). These cytokines are induced by toll-like receptors (TLRs). TLRs are activated in response to accumulation of apoptotic bodies. These receptors play critical roles in innate immune systems. Increased levels of INF- α have also been found in many SLE patients and often correlated with disease severity. **Methods:** Blood samples were consecutively obtained by informed consent from 280 patients, 142 lupus and 138 non-lupus, seen in the rheumatology clinics at East Carolina University. Cytokines were analyzed from blood serum using enzyme linked immunoassay (ELISA) for IL-6 and INF- α . Total RNA was isolated using a Paxgene kit from peripheral blood mononuclear cells of African American (AA) and European American (EA) women blood samples. Quantitative real-time PCR using the CFX real-time system were conducted on all samples to determine TLRs 7 and 9, as well as INF- α expression. **Results:** TLR 7 ($p < 0.01$) and 9 ($p < 0.001$) expression levels were significantly increased in lupus patients compared to age-matched controls. AA women with lupus had a 2-fold increase in TLR-9 expression levels when compared to their healthy controls or EA lupus patients. However, there was no ethnic difference in expression of TLR-7 in lupus patients. INF- α expression was significantly higher in lupus patients ($p < 0.0001$) and also showed ethnic difference in expression. Serum levels revealed significant increases in expression of IL-6, IFN- γ and TNF- α . AA women with lupus had significantly higher serum levels of IL-6 and TNF- α . **Conclusion:** AA women with lupus demonstrated increased levels of specific pro-inflammatory cytokines and TLRs when compared to EA women. Increased expression in these lupus patients provides an opportunity for potential targets with antagonist as new therapies for SLE.

Notes:

PR1

POST-BRONCHOSCOPY METHEMOGLOBINEMIA: A CASE SERIES AND REVIEW OF THE LITERATURE

C Brown, M Bowling

Background: Methemoglobinemia results from oxidation of ferrous iron to ferric iron within the hemoglobin molecule. This molecule cannot bind oxygen and increases the affinity of normal hemoglobin for oxygen which results in decreased oxygen offloading in peripheral tissues. At elevated levels, methemoglobinemia can cause dyspnea, cyanosis, and even death. Common local anaesthesia agents have been correlated with methemoglobinemia. Bronchoscopy is a commonly performed clinical procedure which uses topical application of these anaesthetics to provide patient comfort. Methylene blue is an agent thought to help reverse the effects of methemoglobinemia by facilitating the methemoglobin reductase system. **Methods:** Using multiple search engines including PubMed and the Cochrane Database, available data on cases of methemoglobinemia following bronchoscopy were pooled. Adult and pediatric cases were considered. **Results:** Eleven cases were identified. Cases occurred from 1977 until present. Data gathering was complicated by the fact that a consistent reporting system was not used across cases. Arterial blood gas (ABG) data and CO-oximetry reported levels of methemoglobin were reported where available. No patients died from methemoglobinemia. The most common finding across all patients was a decreased peripheral oxygen saturation. Cyanosis was also frequently reported. There was a disparity between the low peripheral oxygen saturation which was reported and the pO₂ on the ABG. Dose and type of anaesthetic agent varied widely across studies. **Conclusions:** Using topical anaesthetic during bronchoscopy appears relatively safe. No fatalities from methemoglobinemia after bronchoscopy have been reported. A high suspicion for methemoglobinemia is required in patients who develop hypoxia or cyanosis post-procedurally. Access to CO-oximetry can confirm the diagnosis but the clinical picture is often sufficient to proceed with methylene blue treatment or observation, based on how severely the patient is affected. Patients who return to baseline can be considered for discharge home.

Notes:

PR2

THE ROLE OF PPAR_γ IN CARBON NANOTUBE-ELICITED GRANULOMAS LUNG INFLAMMATION

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Background: Although granulomatous inflammation is a central feature of many disease processes, cellular mechanisms of granuloma formation and persistence are poorly understood. Carbon nanoparticles, which can be products of manufacture or the environment, have been associated with granulomatous disease. This paper utilizes a previously described carbon nanoparticle granuloma model to address the issue of whether peroxisome proliferator-activated receptor gamma (PPAR_γ), a nuclear transcription factor and negative regulator of inflammatory cytokines might play a role in granulomatous lung disease. PPAR_γ is constitutively expressed in alveolar macrophages from healthy individuals but is depressed in alveolar macrophages of patients with sarcoidosis, a prototypical granulomatous disease. Our previous study of macrophage-specific PPAR_γ KO mice had revealed an intrinsically inflammatory pulmonary environment with an elevated pro-inflammatory cytokines profile as compared to wild-type mice. Based on such observations we hypothesized that PPAR_γ expression would be repressed in alveolar macrophages from animals bearing granulomas induced by MWCNT instillation. **Methods:** Wild-type C57Bl/6 and macrophage-specific PPAR_γ KO mice received oropharyngeal instillations of multiwall carbon nanotubes (MWCNT) (100 μg). Bronchoalveolar lavage (BAL) cells, BAL fluids, and lung tissues were obtained 60 days post-instillation for analysis of granuloma histology and pro-inflammatory cytokines (osteopontin, CCL2, and interferon gamma [IFN-γ] mRNA and protein expression. **Results:** In wild-type mice, alveolar macrophage PPAR_γ expression and activity were significantly reduced in granuloma-bearing animals 60 days after MWCNT instillation. In macrophage-specific PPAR_γ KO mice, granuloma formation was more extensive than in wild-type at 60 days after MWCNT instillation. PPAR_γ KO mice also demonstrated elevated pro-inflammatory cytokine expression in lung tissue, laser-microdissected lung granulomas, and BAL cells/fluids, at 60 days post MWCNT exposure. **Conclusions:** Overall, data indicate that PPAR_γ deficiency promotes inflammation and granuloma formation, suggesting that PPAR_γ functions as a negative regulator of chronic granulomatous inflammation.

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PR3

TRANSMEMBRANE PROTEIN WITH EPIDERMAL GROWTH FACTOR AND TWO FOLLISTATIN MOTIFS AND SARCOSINE DEHYDROGENASE COOPERATE TO MODULATE ONE CARBON METABOLISM AND INVASION OF PROSTATE CANCER CELLS

TD Green, AS Asch, MJ Ruiz-Echevarría

BACKGROUND: The Transmembrane protein with epidermal growth factor and two follistatin motifs, TMEFF2, has been implicated in prostate cancer but its role in this disease is unclear. We recently demonstrated that the tumor suppressor role of TMEFF2 correlates, in part, with its ability to interact with sarcosine dehydrogenase (SARDH) and modulate the levels of sarcosine. TMEFF2 overexpression inhibits sarcosine-induced invasion. Here, we further characterize the functional interaction between TMEFF2 and SARDH and their link with sarcosine metabolism and invasion.

METHODS: RNA interference was used to study the effect of SARDH and/or TMEFF2 knockdown (KD) on invasion, evaluated using Boyden chambers. The dependence of invasion on 1-C metabolism was evaluated by determining sensitivity to methotrexate (MTX). Real-time PCR and western blot of subcellular fractions were used to study the effect of SARDH KD or TMEFF2 KD on expression of enzymes involved in one carbon (1-C) metabolism and on TMEFF2 expression and localization. Protein interactions were analyzed by mass-spectrometry. Cell viability and proliferation were measured by cell counting and MTT analysis.

RESULTS: SARDH and/or TMEFF2 KD promote increased cellular invasion, sensitize the cell to methotrexate, render the cell resistant to invasion induced by sarcosine, a metabolite from the folate-mediated 1-C metabolite pathway, and affect the expression level of enzymes involved in that pathway. In addition, while SARDH KD affects TMEFF2 subcellular localization, this effect is not responsible for the increased invasion observed in SARDH KD cells.

CONCLUSIONS: Our findings suggest a role for TMEFF2 and the folate-mediated 1C-metabolism pathway in modulating cellular invasion.

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PR4

THE TRANSMEMBRANE PROTEIN WITH EPIDERMAL GROWTH FACTOR AND TWO FOLLISTATIN MOTIFS 2 INHIBITS HUMAN PROSTATE CANCER CELL MIGRATION THROUGH ITS G PROTEIN ACTIVATING DOMAIN

X Chen, MJ Ruiz-Echevarría

Background: The type I transmembrane protein with epidermal growth factor and two follistatin motifs 2 (TMEFF2) is expressed mainly in brain and prostate. Expression of TMEFF2 is deregulated in a significant fraction of primary and metastatic prostate cancer, suggesting a role in this disease. In fact, we have previously shown that TMEFF2 can function as a tumor suppressor in vitro, inhibiting monolayer and anchorage-independent cellular growth in HEK293T cells and sarcosine-induced cell migration and invasion in benign prostate epithelial RWPE-1 cells. However, the molecular mechanisms involved in the tumor suppressor phenotype of TMEFF2 are not clear. TMEFF2 has several biologically important features. Its short cytoplasmic tail has features resembling a G protein activating domain, suggesting that it may signal through a G protein. We hypothesize that the tumor suppressor activity of TMEFF2 is, at least in part, due to signaling mediated by the putative G protein activating domain. **Methods:** Prostate cancer cells overexpressing TMEFF2 or a mutant lacking the cytoplasmic tail were tested for their migratory potentials using wound-healing assays. Cells were also tested for their spreading ability on different extracellular matrix proteins. Immunofluorescence was utilized to visualize focal adhesions and stress fibers in the above cells. **Results:** Our results demonstrate that overexpression of TMEFF2 in human prostate cancer cell line RWPE-2 causes about 60% decrease in cellular migration as assessed by wound-healing assays. Interestingly, we found that RWPE-2 cells overexpressing TMEFF2 have a defect in cell spreading on culture dishes (~20% decrease) as well as on vitronectin-coated coverslips (~30% decrease) and that this defect is accompanied by abolished focal adhesion and stress fiber formation. Moreover, the inhibition of TMEFF2 on cellular migration is dependent on its G protein activating domain as deletion of this domain rescues migration, spreading on vitronectin, and focal adhesion formation. **Conclusions:** In summary, the data presented here indicate, for the first time, that the anti-migratory effect of TMEFF2 in human prostate cancer cells is mediated by its G protein activating domain.

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PR5

MITOCHONDRIAL BIOGENESIS IN HUMAN MESENCHYMAL STEM CELL DIFFERENTIATION

A. Ajmera, M.C. Collins, P. V. Pradhan, E. J. Anderson, B.J. Muller-Borer

Introduction: With an increased understanding of myocardial infarction, human mesenchymal stem cell (hMSC) transplantation therapies have shown promising results as a possible treatment for heart failure. However, little is known about mitochondrial biogenesis for hMSCs transplanted to a cardiac microenvironment, though mitochondria are vital to cell energy production, cellular differentiation, and cell death. The purpose of this study was to investigate the role of mitochondrial biogenesis in adult hMSC differentiation and acquisition of a cardiac phenotype. Based on recent experimental evidence, we hypothesized that mitochondrial activity would be enhanced when hMSC differentiation was directed towards a cardiac-like fate. **Methods:** Two models to direct hMSC differentiation to a cardiac-like phenotype were evaluated. In the 1st model, hMSCs were treated for 2.5 weeks with a combination of 3 growth factors (GF): insulin-like growth factor, fibroblast growth factor, and bone morphogenetic protein. In the 2nd model, hMSCs were co-cultured with neonatal rat cardiac myocytes for 48 hours. For both models qRT-PCR was performed on Mitochondrial Transcription Factor B1(TFB1M), Ubiquinol-Cytochrome C Reductase Core Protein 1(UQCRC1), Nuclear Respiratory Factor 1 (NRF-1), and Myocyte-specific Enhancer Factor 2C (MEF2C). In GF treated hMSCs, protein expression of N-cadherin and mitochondrial Electron Transport Chain (ETC) complexes II, III, IV and V were evaluated, and oxidative capacity with mitochondrial O₂ consumption was assessed. **Results:** GF treated hMSCs showed increased mitochondrial gene expression of TFB1M ($p=0.04$), increased O₂ consumption, and increased protein expression of mitochondrial ETC complex II and N-cadherin. No significant differences in expression of other cardiac specific genes were observed with this model. Co-cultured hMSCs showed increased mitochondrial and cardiac specific gene expression when compared to control for TFB1M, UQCRC1, and MEF2C ($p\leq 0.05$). **Conclusions:** These findings suggest that augmentation of mitochondrial gene expression, content, and oxidative capacity may contribute to hMSC differentiation towards a cardiac-like fate, and suggest that mitochondrial function may be a critical component for enhancing hMSC therapies in cardiac tissue regeneration and repair.

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PR6

DYNAMIC BEHAVIOR OF MESENCHYMAL STEM CELLS IN A CARDIAC MICROENVIRONMENT: A TIME-LAPSE IMAGING STUDY

L. Coltraine, M.C. Collins, P Pradhan, B. J. Muller-Borer

Human mesenchymal stem cells (hMSCs), when cultured in an *in vitro* cardiac microenvironment, establish cell-cell communications and express cardiomyocyte specific genes and proteins as early as 24 hours after co-culture. However, hMSC differentiation to a cardiac-like phenotype is observed only after days in culture. The focus of this investigation was to quantitate dynamic hMSC behavior to elucidate the time course of hMSC differentiation to a cardiac-like phenotype. **Methods:** Neonatal rat ventricular cardiomyocytes were isolated and grown in monolayers in multiwell tissue culture plates. hMSCs expressing mitochondrial dsRed were added to the cardiomyocyte cultures at a ratio of 1:10 (hMSCs:myocytes). Time-lapse recordings were performed on a Zeiss Axio Observer inverted microscope with full incubation (37° C, 5% CO₂). Regions of interest (ROI), were identified (one per well) and images of each ROI were acquired every 10 minutes over a 14hr period at 24 – 48 hrs (Group1), 7 days (Group 2) and 14 days (Group 3) after co-culture. The co-cultures were maintained in a cell culture incubator between imaging sessions and the protocol was repeated in 3 separate co-cultures. Spatio-temporal characteristics of the hMSCs were evaluated with ImagePro cell tracking software. **Results:** An average of 2 hMSCs were tracked per ROI. With increased time in co-culture the average speed of hMSCs significantly decreased ($p\leq 0.05$). Group 1 hMSCs were faster than hMSCs in Group 2 and Group 3 (22 ± 1 vs. 16 ± 1 $\mu\text{m/hr}$ and 22 ± 1 vs. 17 ± 1 $\mu\text{m/hr}$ respectively). There was no difference in hMSC speed in Group 2 vs. Group 3 hMSCs. In addition, Group 1 hMSCs traveled significantly farther ($p\leq 0.05$) in the first 4 hours of observation compared to hMSCs in Group 2 and Group 3 during the same time period (88 ± 4 vs. 73 ± 4 μm and 88 ± 4 vs. 80 ± 5 μm respectively). **Conclusions:** Using an *in vitro* co-culture model we successfully imaged and tracked hMSC dynamics in a cardiac microenvironment. hMSC mobility during the 14 day observation period decreased, correlating with the observed time for hMSC differentiation to a cardiac-like phenotype. Understanding spatio-temporal hMSC behavior is important for developing successful strategies for cell transplantation therapies and understanding mechanisms controlling hMSC survival, engraftment, differentiation and functional integration with the host tissue.

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PR7

EVALUATION OF THE NUCLISENS EASYQ KPC TEST FOR DETECTION OF THE *bla_{KPC}* GENE AMONG MULTIDRUG-RESISTANT CLINICAL ISOLATES AT VIDANT MEDICAL CENTER

KL Augustino, J Christie, KM Ramsey

Background: Carbapenems are often used to treat infections caused by Gram-negative bacteria that produce extended-spectrum β -lactamases (ESBL). However, in the last decade, a new class of bacterial enzymes capable of inactivating carbapenems, *Klebsiella pneumoniae*-producing carbapenemases (KPCs) has disseminated rapidly in the United States. These multi-resistant pathogens contain the *bla_{KPC}* gene that can confer resistance to all beta-lactam antibiotics. Misidentification of KPC-producing bacteria may occur with routine automated susceptibility testing, and the recommended phenotypic test, the modified Hodge test (MHT), is time-consuming. Therefore, a rapid and reliable method for detection of carbapenemases in Gram-negative bacilli is essential for optimal patient care and to facilitate the control of spread in hospitalized patients.

Methods: The study was conducted with a total of 55 bacterial isolates. These included 40 strains producing carbapenemases as evaluated by the MHT, and 15 negative from various clinical sources recovered from May 2009-September 2012. Samples were blinded and coded. Reproducibility was tested by running these isolates in triplicate. The NucliSENS EasyQ KPC test was performed according to the manufacturer's protocol. Data was analyzed using the NucliSENS EasyQ Director software.

Results: The results of the EasyQ KPC assay were concordant with the results obtained by the modified Hodge test. Forty-of-forty (100%) of clinical isolates that were shown to produce carbapenemase by the MHT were detected as having the *bla_{KPC}* gene using the EasyQ KPC assay. Fifteen/15 isolates (100%) proven negative by the MHT also tested negative with the EasyQ KPC assay. Samples were run in triplicate with no discordant results.

Conclusion: The results of the NucliSENS EasyQ KPC assay were comparable to the MHT which, in the past, was the gold standard for detection of KPC. The turnaround time for the test results is approximately 2 hrs. Therefore, this test appears to be a rapid and reliable test for the detection of organisms carrying the *bla_{KPC}* gene and may replace the MHT in larger clinical microbiology laboratories.

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PR8

VITAMIN D DEFICIENCY IN AN ADULT POPULATION WITH SICKLE CELL DISEASE

PC Boettger

Objectives: to examine the prevalence of Vitamin D deficiency in adults with sickle cell disease, response to treatment of deficiency, relative risk determination of vitamin D deficiency for variations in hepatic and renal function, implications for avascular necrosis, and fractionation of exogenous vs endogenous vitamin D levels before and after treatment. **Background:** Children with sickle cell disease are known to have a prominent incidence of low Vitamin D that appears to persist into adulthood. The measurement of serum Vitamin D25(OH)D level is generally recognized as the clinical standard for evaluation Vitamin D status in both children and adults with normal with normal liver and kidney function, and represents the primary circulating form of Vitamin D. **Methods:** Serum Vitamin D25(OH)D and/or Vitamin D1,25(OH)2D levels obtained in 116 patients with Hgb SS (n = 73), Hgb SC (n = 30), HgbS/thalassemia (n = 11), and Hgb S/lepore (n = 2) over a period of 21 months. Along with Vitamin D levels, LFTs, total protein, albumin, and creatinine levels were reviewed that coincided with vitamin D levels or were obtained within 3 months. Data included post treatment vitamin d levels and chemistries, within 6 months, in the portion of patients that were treated with oral ergocalciferol 50,000 units twice per week for 15 weeks. Presence or absence of avascular necrosis (AVN) prior to treatment in each patient was also noted. **Results:** Results were divided into HgbSS and HgbS/other (SC, S/thalassemia, S/lepore). The mean baseline Vitamin D25(OH)D level in Hgb SS patients (n = 57) was 11.1, and in HgbS/other patients was 15.79 (n = 39), A Welch Two sample t-test yielded p-value = 0.03401. Following treatment the mean level in Hgb SS patients (n = 21) was 22.74, and in HgbS/other patients was 17.00 (n = 9), A Welch Two sample t-test yielded p-value = 0.4627. The mean baseline Vitamin D1,25(OH)2D level in HgbSS patients (n = 13) was 45.55, and in HgbS/other patients was 25.55 (n = 15). A Welch Two sample t-test yielded p-value = 0.8635. There was insufficient data for analysis of post treatment Vitamin D1,25(OH)2D levels. **Conclusion:** Initial results reveal those patients with HgbSS disease had significantly lower baseline Vitamin D25(OH)D levels compared to those with other subtypes. Furthermore there was no significant difference in levels following treatment between the two groups, while the mean for both groups remained below normal (30-100) after treatment. Baseline Vitamin D1,25(OH)2D levels were not significantly different between adults with HgbSS disease and those with other subtypes

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PR9

A New Multidisciplinary Learning Technique.

W Ayscue, P Ouellette, W Robey, R Shaw, A Sorrell

BACKGROUND: Traditionally, education of healthcare professionals has occurred in “silos” where each discipline learns competencies pertinent to their field. Medical knowledge has become so vast that no individual can learn it all, and teamwork is essential in providing patient care. We created a collaborative learning experience involving Vidant Medical Center nurses, Pitt Community College respiratory therapy (RT) students, and ECU/Vidant Internal Medicine residents. The focus of this project was to evaluate whether participants viewed this as a worthwhile learning experience. **METHODS:** Team Based Learning (TBL) followed by Simulation was done during an afternoon session. The educational objectives were to have participants learn how to recognize and treat pulmonary embolism and collaborate in treating patients. The TBL paradigm of students reading material prior to the session, taking a 10-question individual quiz, and then working on the questions in teams was utilized. Each team had 3-4 residents, 1 RT student, and 1 nurse. Following the TBL, the teams managed a simulated patient with pulmonary embolism and respiratory distress. The participants debriefed by viewing a video of their team performance and completed a Likert survey of the value of this learning. **RESULTS:** The Likert survey indicated that most participants prefer TBL/simulation format to didactic teaching. The experience helped participants understand how other disciplines think about problems, improved working relationships between disciplines, and practically manage a patient. They were more neutral as to whether this format was more effective than working with a board review book to retain information. Subjective comments were positive. There was no significant difference in responses by the three disciplines. **CONCLUSIONS:** This method of learning improved collaboration between different healthcare disciplines and was an effective learning tool. TBL, followed by simulation, facilitated learning about patient management and the value of collaboration. Most participants felt the interactive learning of TBL and simulation was preferable to didactic PowerPoint® lectures. We have had three of these sessions and will continue this format. The challenge is to determine if there is empiric evidence for improvement in patient outcomes and test scores on standardized exams. More detailed evaluations will be done in the future.

Notes:

PR10

SUBTYPES OF SKIN CANCERS SEEN IN DERMATOLOGY CLINIC: A 10 YEAR REVIEW

N Davies, J Defazio, CM Phillips, P Vos

The method of treating a skin cancer and likelihood of a tumor being more aggressive may depend on several variables. One common one is the subtype of skin cancer identified. Morpheaform basal cell carcinomas for example are more aggressive than other subtypes of basal cell carcinoma and thus require a more aggressive approach. Nodular melanoma may be more invasive on presentation and may portend a poorer outcome. We looked to clarify the subtypes of skin cancer we were seeing in clinic over a 10 year period. The original data collected was from a clinical tool called a dermatopathology log book. Biopsy results were written in these and were the original vehicle for quantifying the number of skin cancers seen in our clinic. In many cases subtypes of the skin cancers were not identified. An extension of the IRB study was approved to allow us to clarify in the medical record the subtypes of skin cancer.

3,230 basal cell carcinomas were treated in clinic in a ten year period. Of these 83 were morpheaform, 681 were infiltrative and 435 were micronodular. All of these (1199 total) are considered to be a more aggressive subtype.

2,256 squamous cell carcinomas were seen in that same 10 year period. The more aggressive forms of squamous cell are moderately differentiated (222) and poorly differentiated (65), which may require more aggressive therapy.

The aggressiveness and survivability of melanoma are predicted more by the depth of invasion and other recognized pathologic characteristics such as ulceration, but some subtypes tend to be more invasive at the time of diagnosis. One hundred and eighty one melanomas were seen over that same 10 year period. Five of these were metastatic, 6 were nodular and only 3 were acrolentiginous. Superficial spreading melanoma (37) & lentigo maligna melanoma (20) tend to be more survivable. The most superficial variety is melanoma in situ which made up 95 of the cases over the 10 year period.

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PR11

CHANGING FREQUENCY OF SKIN CANCER IN DERMATOLOGY CLINIC OVER A 10 YEAR PERIOD

CM Phillips, Paul Vos

The number of skin cancers seen in our dermatology clinic was tracked over the course of a 10 year period from 2001-2010. The data was extracted from dermatopathology log books with each type of skin cancer being recorded in the calendar year the biopsy was done. The number of patients seen in dermatology clinic each calendar year was recorded from a separate electronic medical record data base. The number of each of the major subtypes of skin cancer (basal cell, squamous cell and melanoma) was looked at and expressed as the number of squamous cells per 1,000 patients seen. The data was analyzed using a weighted linear regression model over the 10 years of data collection. The number of basal cell carcinoma, squamous cell carcinoma and melanomas per thousand patients seen was trending up between 2001 through 2010, however only the squamous cell carcinoma reached a point of statistical significance ($p = 0.046$).

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PR12

A SINGLE CENTER EXPERIENCE WITH INTERMITTENT HIGH DOSE INTRAVENOUS IMMUNOGLOBULIN AS TREATMENT FOR DONOR SPECIFIC ANTIBODIES IN RENAL TRANSPLANT RECIPIENTS

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Background: Donor-specific HLA antibody (DSA) formation in post-renal transplant patients is associated with chronic rejection and graft failure. Previous studies in our population have indicated that DSA formation is a strong predictor of graft loss (>20% at 3 years). Detection of DSA often occurs months before graft dysfunction, affording providers time to intervene. This study proposed to utilize high dose intravenous immunoglobulin (IVIg) to reduce DSAs and therefore prevent future graft dysfunction.

Methods: Thirteen renal transplant patients developed DSA were given intermittent high dose IVIg (2 grams/kg) for at least one month and a maximum of six months. DSA levels and renal function were monitored during the course of treatment. HLA single antigen beads were analyzed by Luminex to determine donor specificity and strength of the antibodies, measured as mean fluorescence intensity (MFI). Participants' immunosuppression consisted of thymoglobulin induction, Prednisone, Tacrolimus, and MPA.

Results: Transplant to development of DSA averaged 19 months with treatment being initiated between one and six months. Class I and II DSA MFI was 6450 and 8940, respectively. IVIg had a greater impact on Class I DSA reducing it by almost half to a mean of 3750. Class II remained stable with a mean of 8940. Graft function remained stable with creatinines of 2.3 mg/dL pre- IVIg to 2.8 mg/dL post-IVIg.

Conclusion: IVIg may lower DSA intensity; however, it may not correlate with better graft function. This intervention for DSA reduction may need further investigation to evaluate the long-term benefits of IVIg.

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PR13

UTILIZATION OF INTRAVENOUS IMMUNOGLOBULIN IN THE TREATMENT OF DONOR SPECIFIC ANTIBODIES AND THE ASSOCIATION WITH ANEMIA

B Brown, K Parker, R Harland, P Bolin

Background: From 2009 to 2012, 36 patients were treated with intravenous immunoglobulin (IVIG) for anticipated or developing graft dysfunction. This included patients treated for the development of donor specific antibodies (DSA) alone.

Methods: Thirty-six patients who developed DSA were treated with IVIG. The average total dose of IVIG was 365 grams and typically was less than or equal to 1 gram per kilogram per dose. DSA levels and renal function were monitored during the course of treatment. Renal function, hemoglobin, and DSA were also monitored pre and post treatment.

Results: Average time from transplant to DSA detection was 27 months. Mean renal function was 2.9 mg/dl before IVIG and 2.8 mg/dl after treatment. Fifty-one percent were blood type O, 30% were A, 9% were B, and 7% were AB. Notably, 62% of the A group developed worsening anemia following IVIG treatments, likewise 50% group B, and 66% group AB. Patients with O blood type maintained stable hemoglobin. Patients with A blood type had 11% change, B 6% change, AB 18%. No patient developed overt symptoms or signs of hemolysis. Mean class II MFI was 9655 pre-treatment and 10124 post-treatment. Of note, 3 patients who developed DSA during the first 90 days of transplant and were promptly treated with IVIG had complete remission of DSA and stable renal function.

Conclusion: IVIG treatment for DSA detection with development of renal failure was not associated with reduction in DSA MFI, but may be associated with improved renal function. A small subset of three patients who were promptly treated following the development of DSA within the first 90 days post transplant had complete remission of DSA and improvement in renal function. Patients receiving IVIG treatment should be monitored closely for anemia. Blood types A, B, and AB were found to be higher risk for anemia following IVIG. IVIG may be an option for some renal transplant patients who develop DSA.

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PR14

HIGHER INCIDENCE OF NON-HLA ANTIBODIES IN KIDNEY TRANSPLANT PATIENTS WITH BIOPSY-PROVEN REJECTION OR LESIONS

M. Taniguchi, L Rebellato, C Junchao, J Hopfield, K Briley, C Haisch, P Catrou, P Bolin, K Parker, W Kendrick, S Kendrick, R Harland, P Terasaki

Background: The association of non-HLA antibodies (abs) with rejection has been implicated in kidney transplantation. However, their impact on graft survival and development during rejection (RG) vs. non-rejection (NRG) terms is unknown. We aimed to study the incidence and the long-term effect of non-HLA abs in patients (pts) who experience renal graft rejection or non-rejection related lesions during post-transplantation, in comparison with pts who did not. **Methods:** The study enrolled a total of 320 pts who received kidney transplants between 1999 and 2008. Of the 320 pts, 129 had biopsy-proved (BP) rejection or non-rejection related lesions whereas the remaining 191 pts did not. Serum samples were tested for the presence of both HLA-DSA and non-HLA abs against angiotension II type 1 receptors (AT1R) and endothelin-1 type A receptors (ETAR). **Results:** Higher frequency of anti-AT1R was observed in the RG than in the NRG. Eighty five percent of anti-AT1R positive pts in the RG were graft-failed (17/20) with a significant correlation with the occurrence of anti-ETAR as opposed to only 11% in the NRG (1/9) (p=.001). Kaplan-Meier graft survival curves in the RG showed that the lowest graft survival occurred in the simultaneous presence of 3 types of abs (HLA-DSA, anti-AT1R, and anti-ETAR). Anti-AT1R remained a potential predictor of graft failure together with DSA and re-transplant.

Conclusion: Higher incidence of non-HLA abs against AT1R and ETAR was observed in pts who had BP rejection/lesions followed by graft loss. The difference in the development pattern of anti-AT1R between rejection and non-rejection groups may indicate the difference in the functional property of anti-AT1R post-transplantation. Graft injury as evidenced by histology, may be an indication of a triggering immune response that promotes the generation of antibody diversity to cause further graft damage toward graft failure. Further studies on the causal effect on non-HLA abs on graft injury are warranted.

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LOW MOLECULAR WEIGHT HEPARIN VERSUS UNFRACTIONATED HEPARIN FOR PREVENTION OF RADIAL ARTERY ACCESS COMPLICATIONS POST PER-CUTANEOUS CORONARY INTERVENTION(COLOUR trial)

M Farooqui; S Adusumalli; R Daggubati

Introduction: Multiple recent studies underscore Low molecular weight heparin (LMWH) to be as safe and effective as Unfractionated heparin (UFH) but very few have assessed the safety and efficacy of LMWH usage during PCI through radial artery approach.

Hypothesis: We assessed the hypothesis that LMWH is equally effective as UFH during PCI through radial artery approach in reducing local access complications.

Methods: A retrospective case analysis of outcomes in 239 patients who underwent PCI through radial artery approach in the past 3 years at a university hospital was done. About 173 patients received UFH, 59 received LMWH (Enoxaparin), 7 received both LMWH and UFH during PCI.

Results: We observed that about 4 patients in the UFH group, 1 in the LMWH group and none in the combined group had local complications at the radial artery catheterization site. Equivalence testing showed that the risk of radial bleeding complications comparing the UFH and LMWH groups were equivalent.

Conclusions: In conclusion, LMWH is equally effective as UFH when used during PCI through radial artery access. Further large scale studies are needed to elucidate this relationship.

Notes:

PV1

“COMING EVENTS CAST THEIR SHADOWS BEFORE” CORONARY ARTERY DISSECTION DURING PERCUTANEOUS CORONARY INTERVENTION OF BIFURCATION LESION MASQUERADING AS PLAQUE SHIFT ON CORONARY ANGIOGRAM

M Farooqui; R Daggubati

Cardiovascular disease remains the number one killer of American men and women and over one million left heart catheterization are performed each year. Bifurcations lesions account for about 16 percent of all PCI procedures. Despite of the advances made in trans-catheter therapeutics, the treatment of bifurcation lesions remains a significant challenge in per cutaneous coronary interventions. These lesions are at significant risk for plaque shift and early recognition is the key to prevent any catastrophic sequelae.

We present a case of 38 year old female with typical anginal chest pain, diagnosed with NSTEMI with troponin I of 2.31. Left heart catheterization revealed 80% LAD lesion focal right at the ostium, It was a type A lesion about 5mm in length. In the mid left anterior descending, there was another 20% lesion after the first diagonal with FFR of 0.77. Medina classification of bifurcation lesions (1, 1, 0). A DES 3.5x 12 was placed on the ostial LAD. Post-intervention fractional flow reserve of the left anterior descending was 0.90, however after coronary injections, the fractional flow reserve would decrease to approximately 0.83 and then after some time, would return to normal. The LAD PCI was complicated by plaque shift vs dissection into LCx resulting in TIMI II flow in the left circumflex. This was treated successfully by stenting LCx with 3.5x 12 DES. Post PCI IVUS showed no residual dissection or perforation with TIMI 3 flow in both LCx and LAD. Patient was placed on Glycoprotein 2b3a antagonists and nitroglycerin drip peri-procedure. She had an uneventful recovery post PCI.

This case illustrates

1. The importance of recognition of potential complications of bifurcation lesion PCI
2. For bifurcation lesions with insignificant involvement of the side branch, we cannot predict the fate of the side branch after PCI.
3. Side branch compromise as a result of plaque shift is associated with increased rate of peri-procedure myocardial infarction and related complications.

Notes:

PV2

SUCCESSFUL OUTCOME AFTER OUT OF HOSPITAL CARDIAC ARREST IN A PATIENT WITH A CARDIAC MASS

G Nash, V Mungal, V Nandwani, PJ McCarthy, R Nekkanti

OBJECTIVES

- Quality CPR can improve outcomes after cardiac arrest
- Therapeutic hypothermia can improve neurologic outcomes after cardiac arrest
- We report a case of cardiac arrest due to ventricular tachycardia in a patient with a large cardiac hemangioma
- Cardiac hemangiomas are rare, making about two percent of all primary cardiac tumors

CASE

A 31-year-old male had an out of hospital cardiac arrest. Bystander CPR was begun immediately and continued for 10 minutes; EMS continued CPR for 10 minutes and the patient was cardioverted for ventricular tachycardia in the field. The patient was intubated and transferred to a regional hospital. Hypothermia was initiated with cold fluids and ice and he was transferred to Vidant.

An Echocardiogram showed a large ventricular mass with a mildly depressed ejection fraction. The patient was continued on therapeutic hypothermia in the cardiac intensive care unit. After 24 hours, he was slowly re-warmed and extubated on his 3rd hospital day. He was transferred out of the cardiac intensive care unit on his 5th hospital day and discharged on his 7th hospital day with minimal neurologic sequelae with an implantable cardioverter-defibrillator (ICD). Ten days later the lesion was then surgically removed and found to be hemangioma, a rare benign primary cardiac tumor. The patient was seen in clinic one month after surgery and is now back to work.

CONCLUSIONS

- Quality CPR and therapeutic hypothermia can improve outcomes after cardiac arrest
- Primary cardiac tumors are rare but can cause potentially lethal arrhythmias in patients
- Hemangiomas are benign and account for about two percent of cardiac tumors
- ICD placement is indicated in this patient population

Notes:

PV3

CONFINED LEFT ATRIAL CALCIFICATION WITHOUT HEMODYNAMIC COMPROMISE

Cl Jones, LB Cao, A Chagarlamudi, A Movahed

Learning Objective: Left atrial calcification is a serious complication that is seen with rheumatic heart disease, end stage renal disease or following cardiac surgery. It is commonly associated with arrhythmias, valvular abnormalities and heart failure which can lead to hemodynamic compromise.

Case Information: Out patient is a 55 year old African American female who presented for cardiac risk stratification prior to renal transplant surgery with history of ESRD on hemodialysis, two prior renal transplants, hyperparathyroidism and HTN. She had elevated intact parathyroid hormone 1346.4 pg/mL. CT heart showed calcification within the wall of left atrium without involvement of the mitral annulus and valve. 2D transthoracic echocardiogram showed normal sized LV at 3.5cm with significant calcification and no mitral stenosis. Left ventricle was normal in size with normal EF. The RA, RV were both normal in size and without calcification. The patient was stable hemodynamically. **Summary:** calcification of the left atrium was first described by Oppenheimer in 1898⁸. It is often associated rheumatic disease, chronic hemodialysis and cardiac surgery. Women in their 5th and 6th decades are mostly affected⁸. The structure that is often spared is the atrial septum. There are 3 types of calcification. Type A is secondary to mitral stenosis with calcification of left atrial appendage. Type B is secondary to advanced mitral stenosis with calcification of atrial free wall and mitral valve. Type C is secondary to mitral regurgitation with calcification of posterior wall⁹. In Rheumatic disease calcium deposition is the result of changes in fluid dynamics in the left atrium secondary mitral stenosis or following mitral valve repair⁶. Calcification in hemodialysis patients is usually widespread involving multiple chambers, valves or pericardium. Imaging can be done with Chest X-ray, transesophageal and transthoracic echocardiography, however, CT is better to determine extent of calcification¹². The accepted surgical treatment for left atrial calcification is a total endoatrioectomy with mitral valve replacement. The case that we report is unique since it does not fit into the accepted classifications. There is a high degree of calcification through out the left atrium and calcification is significantly confined to the left atrium, without mitral stenosis, arrhythmias or other significant hemodynamic complications.

Notes:

PV4

“SIDE MATTERS” AN INTRIGUING CASE OF PERSISTENT LEFT SUPERIOR VENA-CAVA L Cao

Central venous catheters (CVC) insertions increasing each year and misplacement do occur. Persistent left sided superior vena-cava (PLSVC) is one of the causes of such misplacements. PLSVC occur due to failure of degeneration of the left cardinal vein. PLCVS is rare congenital abnormality occurring in 0.3% of general population. It is often first discovered during CVC insertion or during surgery. A PLSVC can cause problems during establishing CVC (catheterization of the CS can result in hypotension, angina, perforation of the heart, cardiac tamponade and arrest), pacemaker implantation (due to the tortuous course of the electrode, it can be difficult to fix the electrode into position and obtain stable capture), or cardiopulmonary bypass (isolated PLSVC impairs the use of retrograde cardioplegia)

We present a case of 68 yo hispanic male presenting with de-novo systolic heart failure. Electrocardiogram revealed frequent PVC's. Transthoracic echocardiography(TTE) revealed a dilated CS, and agitated saline injected from the left arm revealed opacification of the CS before the RA. The patient had no additional cardiac abnormality. Patient responded appropriately to conservative medical management. This finding on TTE was very crucial as this patient is a candidate for Implantable cardioverter defibrillator (ICD) in the future and the procedure would require special considerations as mentioned below.

This case illustrates the importance of identifying left sided superior vena cava as this will prevent difficulties for establishing central venous access, pacemaker implantation and cardio-thoracic surgery. And also that this condition is also associated with an increased incidence of other congenital heart disease, arrhythmias and conduction disturbances. PLSVC can be easily diagnosed based on typical chest X-ray finding post CVC insertion, TTE and venography. Placement of permanent pacing leads in such cases is technically challenging and often requires shaping of stylets and considerable lead maneuvering

Notes:

PV5

A CASE REPORT OF CAFFEINE INDUCED CARDIAC ARRHYTHMIAS AND TRANSIENT BLINDNESS

SR Turley, V Nandwani, PJ McCarthy

LEARNING OBJECTIVES

- Posterior reversible encephalopathy syndrome (PRES) classically presents with seizures, mental status changes and visual impairment
- PRES is associated with hypertensive encephalopathy, immunosuppressive drugs & various pregnancy, renal, hematologic & endocrine syndromes
- Caffeine can cause arrhythmias & HTN; Reports of PRES also exist
- Caffeine is found in a variety of over-the-counter medications and beverages

CASE

A 61-year-old female presented to an outside hospital with headache, tachypnea, & hallucinations. A normal head CT & elevated salicylate level were found & she was managed symptomatically.

She was discharged & that day she went to the ER with acute blindness and palpitations. She had tachy-arrhythmias, premature ventricular contractions and was sent to our cardiac service. On arrival she was agitated & had a seizure, ventricular tachycardia & asytle. After a period of CPR, circulation returned. She was intubated placed on amioderone, levetiracetam & an MRI of the head showed findings consistent with PRES.

The family revealed that she took 10 doses of BC Powder and drank 12 bottles of Mountain Dew daily. On her second hospital day a salicylate level was elevated, she was extubated; arrhythmias subsided, vision returned and she was transferred to telemetry.

SUMMARY

- We report a case of cardiac arrhythmias and PRES due to caffeine
- The pathophysiology of PRES is unknown
- PRES is managed by addressing the underlying cause and supportive care
- Clinical/radiographic findings typically improve over days without sequelae

Notes:

PV6

PULMONARY CEMENT EMBOLISM AFTER KYPHOPLASTY

Nguyen T, Cao LB, Movahed A, Wood W, Simpson J

Introduction With the aging population and an increasing incidence of compression fractures, vertebroplasty and kyphoplasty are commonly performed for relieving pain, and restoring height of fracture vertebrae. Cement leakage to the surrounding tissues is the most frequent described complication, and is rarely associated with any clinical symptoms. The leakages range from asymptomatic to nerve irritation and pulmonary cement embolisms (PCE) to cardiac perforation. We described a case report of a patient who presented with an incidental finding of PCE after 4 days of kyphoplasty. **Case report:** A 74-year-old male with compression fracture underwent percutaneous kyphoplasty of T5 and T6. Four days later, he experienced profound shortness of breath and was brought to emergency department. His saturation was 99% on 4 liters of nasal canula. Computed tomography angiography of chest showed findings suspicious for a cement embolism to left lower lobe within the pulmonary artery branches. Linear cement was also noted within azygos vein and a few small emboli can be visualized within the right lung. PCE was diagnosed, and the patient was treated with intravenous heparinization, followed by 6 months of coumarin therapy. **Discussion:** PCE occurs in 0.4% after kyphoplasty and 0.9% in vertebroplasty. Most PCEs are asymptomatic and discovered incidental on post-operative chest X-rays or computed tomography (CT). If symptoms occur, the most common one is dyspnea. Findings of single or multiple tubular branchings, radiographically dense opacity on chest X-rays, should raise suspicions for PCE. CT scan should then be performed to confirm the diagnosis. Echocardiogram may be beneficial in the setting of multiple emboli or a single large embolus in symptomatic patients. Treatment approaches are non-evidence based and include observation without anticoagulation, anticoagulation with heparinization followed by 6-months of consecutive coumarin therapy, and surgical embolectomy in severe cases. Kyphoplasty are relatively safe, but still associates with multiple complications. The frequency of symptomatic PCE may increase in the clinical setting because of the widespread use of percutaneous vertebroplasty and kyphoplasty. The astute clinician should be aware of these complications and consider it in the differential diagnosis of acute chest pain and dyspnea during the postoperative period.

Notes:

PV7

AN UNUSUAL CAUSE OF ENCEPHALOPATHY

S Gegick

Learning objectives: Treatable causes of encephalopathy can be overlooked without careful investigation. The diagnosis of syphilis should prompt an evaluation for HIV. Altered mental status in a patient with syphilis should prompt an evaluation for neurosyphilis.

Case information: A 48 year old female presented with hemorrhagic stroke. She subsequently developed severe agitation requiring daily restraints. She was diagnosed with syphilis (positive RPR, positive serum Treponema pallidum immunoglobulin G) and human immunodeficiency virus. She was treated for neurosyphilis because she was agitated, had a cerebrospinal fluid (CSF) lymphocytic pleocytosis, and an elevated lumbar puncture opening pressure. Her agitation significantly improved following 2 weeks of penicillin treatment.

Summary: The diagnosis of neurosyphilis cannot be made with absolute certainty in this case because of the negative CSF antibody assays. However, the presence of remote ischemic infarctions, agitation, and presence of Treponemal antibody in the serum persuaded us to treat her with a neurosyphilis antibiotic regimen. The improvement of her agitation as demonstrated by discontinuation of restraints appeared to parallel her antibiotic course. The case serves as a reminder that agitated delirium can potentially have a treatable etiology

Notes:

PV8

POSTPNEUMONECTOMY SYNDROME, AN UNUSUAL COMPLICATION

MZ Rizwan, KY Rahman, S Rahman, Z Ahmad, Z Rehman, A Butt

Learning objects: Evaluation of chronic shortness of breath in patients with pneumonectomy and to recognize the complications of pneumonectomy.

Case presentation: 66 year old male with past medical history of COPD on home oxygen, SVT, HTN, DM, CHF and carcinoid tumor s/p right pneumonectomy about 15 years ago, presented to ER with shortness of breath. He had this exertional dyspnea for more than a year. He complained of orthopnea, leg swelling and had dry cough. He was an ex smoker and had a 30 pack year smoking history. On examination patient had dyspnea, crackles at left base and trace leg edema. Labs were unremarkable except for hemoglobin of 10.9 g/dl and BNP of 540 pg/ml. Chest X-ray showed complete opacification of right hemithorax, right mediastinal shift and mild diffuse prominence of pulmonary interstitium on the left. Patient was admitted with working diagnosis of congestive heart failure exacerbation and possible bronchial obstruction. On echocardiogram his EF was 45-50%. CT scan of the chest showed moderate mediastinal shift to the right; left main stem bronchus stenosis, likely from extrinsic compression. Pulmonary function tests were consistent with significant obstructive disease. A diagnosis of postpneumonectomy syndrome (PPS) was proposed. Diagnosis was confirmed with fiberoptic bronchoscopy, which showed that left main stem bronchus was compressed from posterior to anterior; and past this, all segmental orifices were widely patent. CT surgery consult was obtained, but patient declined any surgical intervention and was discharged to home.

Discussion: PPS results from an excessive mediastinal shift and rotation producing symptomatic airway and esophageal stretching and compression. Onset of symptoms is between 7 months to 35 years after surgery. Female gender, young age at surgery and right pneumonectomy are common risk factors. Most patients present with progressive dyspnea. Often they have history of stridor, heartburn and recurrent pneumonias. Diagnosis is confirmed with CT chest and fiberoptic bronchoscopy. It is commonly treated with repositioning of mediastinum with saline solution-filled prosthesis. Most patients have significant improvement after this procedure.

Conclusion: Our objective of presenting this case is to enhance awareness of this entity amongst physicians, to enable early recognition of PPS, and to minimize potentially preventable patient morbidity and mortality.

Notes:

PV9

USUAL CASE OF RSV INFECTION LEADS TO ACUTE RESPIRATORY FAILURE IN NON TRANSPLANT ADULT PATIENT

J Simou, V Nandwani

Back ground

The role of respiratory syncytial virus is major pathogen among infants, but there is little information about the role of RSV in adult Population. I report case a case of severe RSV in an adult.

Case Information

34 years old man with history of multiple sclerosis (on Interferon 3 times a week) and hypothyroidism who presented to emergency room with few days history of fever, Cough with sputum production, on arrival to ED his exam showed tachycardia (heart rate 120), tachypnea (RR 30) and hypoxic with oxygen saturation of 88% on 100% face mask. Temperature 100.9F. Lung exam showed bilateral rhonchi with good air intake, no heart murmur, no leg edema. Neurological exam, not focal deficit except him was obtunding. Chest X-ray, showed possible left lower lobe infiltrate. Laboratory showed leukocytes (13k). Patient was intubated for hypoxia and airway protection and started on broad spectrum Antibiotic. Blood culture, sputum culture and BAL remain negative RSV antigen came back positive. Antibiotic was stopped and he was extubated one day 3 on the ventilator. His respiratory status continues to improve off antibiotics. He was transferred to the floor and discharge home few days later

Discussion

Respiratory syncytial virus is well-known pathogen in the pediatric population but it usually missed in older population because the RSV infection presentation can mimics of influenza and sensitive molecular diagnostic methods are needed to detect it. Clinician needs to keep in mind RSV infection in all population; identity RSV infection will help to decrease usage of unnecessary antimicrobial.

Notes:

PV10

A CASE OF PULMONARY CRYPTOCOCCOSIS IN A PATIENT ON ADALIMUMAB AND METHOTREXATE FOR RHEUMATOID ARTHRITIS

ON Obi, M Jacob

Learning Objective

This is a case report of pulmonary cryptococcosis in a patient with rheumatoid arthritis (RA) treated with simultaneous Adalimumab and Methotrexate.

Case Description

The patient: A 59 year old Caucasian female with a 6-week history of progressive SOB, low-grade fever & non-productive cough. Her medical problems include DM II, hypertension, asthma and RA on Adalimumab, Methotrexate & tapering doses of prednisone. This was the patient's 3rd admission in a 6-week period for pneumonia. CXR at first presentation was unremarkable. A repeat CXR a week later showed a RML infiltrate with concern for collapse. A Chest CT obtained at the same time showed RML atelectasis. She received empiric Moxifloxacin but presented again four weeks after discharge, with persistent SOB, fever and malaise. This time, she was hypoxic and a repeat CT of the chest showed right-sided pneumonia involving the RLL and RML peripherally. She was re-admitted and treated with IV Vancomycin and Piperacillin-Tazobactam. She was weaned off oxygen and discharged 4 days later, only to re-present within 24 hours with worsening SOB. She was afebrile, blood cultures were negative, BNP was normal and routine labs were unremarkable except for a positive mycoplasma IgG antibody from her first admission that was considered adequately treated. A bronchoscopy with BAL was performed and BAL cultures from the RML returned positive for *Cryptococcus neoformans*.

Discussion

Adalimumab and Methotrexate are disease-modifying anti-rheumatic drugs known to suppress the cellular immune system & increase the risk of opportunistic infections. Pulmonary cryptococcosis, while on these medications, is rare. The 1st reported case of Adalimumab-associated pulmonary cryptococcosis was in 2011 in a 56-year-old female with RA on simultaneously administered Adalimumab, Methotrexate and Isoniazid ([Ann Thorac Cardiovasc Surg.](#) 2011;17(4):390-3 -). Our case underscores the relative rarity of pulmonary cryptococcosis in this setting and emphasizes the need for continued close monitoring of patients on these medications.

Notes:

PV11

COUGHING UP A LUNG: PULMONARY MUCORMYCOSIS WITHOUT HEMATOLOGICAL MALIGNANCY

MJ Hill, AT Stang, B Kabchi, A Meara

Objectives: Mucormycosis is a life-threatening, opportunistic infection caused by certain molds that are ubiquitous in the environment. Given its rare incidence, mucormycosis can be challenging to diagnose, especially in the absence of a classical presentation. **Case Summary:** We present a 64-year-old woman with complaint of low back pain and cough productive of yellow sputum. She denied fevers, chills, chest pain or dyspnea. Her past medical history included lupus nephritis treated with mycophenolate and diabetes mellitus secondary to steroid therapy for idiopathic retroperitoneal fibrosis. She had dry mucous membranes and bibasilar rales. Labs revealed normal WBC and differential, blood chemistry was consistent with hyperosmolar hyperglycemic nonketotic state and AKI due to dehydration. CXR showed a new right upper lobe (RUL) density that was initially interpreted as reflecting a “focal subtle airspace consolidation,” thus she was empirically started on vancomycin, cefepime, and azithromycin for presumptive healthcare-associated pneumonia. Shortly after admission, she developed hemoptysis, persistent fever, and an upward trending leukocytosis. On hospital day four, a CT scan of her chest showed a RUL lesion with a ring of consolidation with ground glass opacity in the center (reverse halo sign). Bronchoalveolar lavage cultures confirmed one colony of *Rhizopus* species. The patient was started on posaconazole and underwent RUL lobectomy which revealed the presence of a “large black mass” with pus and “dishwater material” draining from it. Tissue pathology showed acute necrotizing hemorrhagic pneumonia, numerous fungal hyphae consistent with mucormycosis, and bronchial and vascular margins free of disease. After weaning her immunosuppressive therapy she had an uneventful post-operative period and was discharged home on a six-month course of posaconazole. **Discussion:** Our case illustrates the successful medical and surgical management of a patient with steroid-induced hyperglycemia who presented with pulmonary rather than classic rhinocerebral mucormycosis. Since pulmonary mucormycosis carries a mortality rate reported as high as 85%, it is imperative to suspect this manifestation in a diabetic patient with multiple other predisposing conditions. Ultimately, the clinician’s cognizance of host risk factors for this rapidly progressive, invasive fungal infection is essential to ensure the early recognition and aggressive management critical for survival.

Notes:

PV12

HUNTING FOR COMPLICATED PNEUMONIAS

RA Chowdhary, RH Rimawi, PP Cook

Learning Objectives: To illustrate the etiologies, clinical manifestations, diagnosis and treatment of tularemia. To present a case of two critically ill patients who developed similar infections secondary to the same exposure. **History:** We present 2 cases (patient-A and patient-B) who presented with progressive pneumonia after rabbit hunting together 1 day prior. Patient-A is a 62-year-old male who presented with diffuse headache, nausea, vomiting, diarrhea and abdominal pain. An abdominal CT incidentally showed extensive bilateral lung disease. Liver function tests (LFTs) were elevated. Three days later, he developed respiratory failure and required intubation. *F. tularensis* antibody serology was 1:80. Patient-B is a 61yrs male who presented with night sweats, chills and fevers. Unlike patient-A, patient-B would skin the rabbit and occasionally cut himself. Both patients’ bury rabbits in their yard, which they landscape with a lawn mower weekly. Chest x-ray showed bilateral air-space disease. LFT’s were elevated as well. He also developed respiratory failure and required intubation. CT showed a right lower lobe (RLL) cavitory lesion with empyema. His blood culture came back positive for *F. tularensis*, confirmed by polymerase chain reaction (PCR) at the state-health department. His antigen titer came back positive at 1:512. **Discussion:** Tularemia is highly virulent infection caused by *F. tularensis*. Humans acquire infection through: (1) Bite from an infected tick; (2) Inhalation; (3) Ingestion; (4) Inoculation through skin with infected animal (i.e. rabbit) body parts. The organism is considered a potential bioterrorism agent and is a state-reported infection. Clinical symptoms include ulceroglandular, glandular, oropharyngeal, pneumonia, oculoglandular and typhoidal. Pneumonic onset, as with our index cases, typically develop a sudden onset of fever, myalgia, conjunctivitis, arthralgias and/or a perplexing pneumonia 1-10 days after exposure. Most human infections become apparent after 3-5 days, as was the case with our patients. The course of disease involves the spread of the organism to multiple organ systems, including the lungs and liver. Blood cultures, serology and PCR can establish the diagnosis. Treatment includes aminoglycosides (i.e. streptomycin), however fluoroquinolones and tetracyclines have been used. Despite its’ rarity in the US, healthcare providers should still strongly consider tularemia when they encounter perplexing pneumonias in patients with risk factors for infection.

Notes:

PV13

FEW FATAL FEBRILE EMERGENCIES

M Asghar, P.Pancoast

Learning Objectives: Discuss head and neck infectious disease emergencies. Highlight the importance of early recognition and treatment, associated high mortality and morbidity rate without prompt recognition. Also discuss the differential diagnosis and current treatment guidelines.

Case Information: We present a 41 yo hispanic male with past medical hx of seizure disorder post traumatic head injury in 1995, presenting with one week history of headache and altered mental status. Associated with fever, low energy and vomiting. Patient was febrile upto 102.5 F, tachycardiac and hypotensive. Physical examination showed confusion, increased somnolence (GCS 11) and positive neck stiffness. No other focal neurological deficits. Initial work up showed leucocytosis, blood cultures positive for streptococcus pneumoniae. CT head showed an extra-axial left frontal region mass lesion and air fluid level in frontal sinuses. Comparing it with his prior head CT in 1999, it was thought to be a stable mucocele or an arachnoid cyst. No concerns for an abscess as per expert evaluation. Lumbar puncture was consistent with acute bacterial meningitis. Patient admitted to MICU and initiated on IV antibiotics (vancomycin, rocephin and flagyl) He became stable with improvement in his neurological examination. Patient was sent home on IV ceftriaxone for 3 weeks as per IDSA guidelines and culture sensitivities for acute bacterial meningitis. Patient returned to ED 4 days later, with worsening mental status and high grade fever despite being on culture sensitive IV antibiotics. Repeat CT imaging showed significant enlargement of the left frontal lesion with air fluid level, midline shift with surrounding edema all concerning for brain abscess. Pt was taken to OR for emergent craniotomy, evacuation of the abscess and cranialization of the frontal sinus. He was continued on Rocephin and flagyl for 6 weeks. Pt significantly improved and transferred to rehabilitation unit.

Discussion: Streptococcus pneumoniae is a common cause of bacterial meningitis but rare for brain abscess. Most of the cases are reported before 1930s. For patients with predisposing risk factors for brain abscess, aggressive IV antibiotics therapy and surgical evacuation is the treatment of choice. Mortality upto 30% is reported in literature without early recognition and prompt aggressive treatment.

Notes:

PV14

ELIZABETHKINGIA MENINGOTSEPTICUM - RARE AND RESISTANT

H Sarwar, RH Rimawi, AT Stang, B Kabchi, K Shah, P Cook

Learning Objectives: To discuss the etiology, taxonomy, clinical manifestations, diagnosis and treatment of *Elizabethkingia meningoseptica*. To illustrate the difficulty in treating this organism due to its common resistance to conventional broad-spectrum antibiotics.

Case Summary: A 69-year-old male with a history of metastatic lung cancer diagnosed 1 month ago status post chemotherapy and radiation, and mitral valve replacement who presented to the emergency department with altered mental status and fever. On examination, he was febrile yet hemodynamically stable and his cardiac exam was unremarkable. Janeway like lesions were present on his hands. Laboratory and radiologic tests were unremarkable. Blood cultures grew *Elizabethkingia meningoseptica*, resistant to almost all antibiotics. Levofloxacin, trimethoprim-sulfamethoxazole, cefoxitin and piperacillin-tazobactam were sensitive. He was treated with oral ciprofloxacin and amoxicillin-clavulonate empirically and later switched to cefoxitin. Repeat blood cultures again grew the same organism with similar resistance pattern. A trans-esophageal echocardiogram was requested for the high clinical suspicion of endocarditis but unfortunately he succumb to his illness.

Discussion: *E. meningoseptica* is a rare gram-negative rod that belongs to genus *Chryseobacterium*, previously classified as *Flavobacterium*. It is mostly found in contaminated water and soil. The majority of cases occur nosocomially. Immunocompromised adults are at high risk of infection. The most common infections are bacteremia (65%), followed by intra-abdominal (13%) and respiratory tract infections (9%). Antibiotic susceptibility patterns typically show resistance to β -lactams, including carbapenems and aztreonam. 2nd generation gram negative therapies (i.e. colistin) are typically ineffective as well. Antibiotic susceptibility is often limited to minocycline, rifampin and levofloxacin. Our patient was likely at risk for *E. meningoseptica* bacteremia due to his immunocompromised state. He met the modified Duke's criteria for probable infective endocarditis, which only 4 prior cases have been reported. Healthcare providers should be aware of this rare organism due to its resistance to conventional antimicrobial therapies.

Notes:

PV15

A CASE OF RECURRENT MENINGITIS

RM Sarsour, RH Rimawi, HG Adams

Learning Objectives: To discuss a rare case of recurrent aseptic meningitis secondary to type 2 Herpes-simplex virus (HSV); To illustrate the importance of early recognition to help healthcare providers manage this diagnosis appropriately.

Case Summary: A 23 year old female with a history of genital herpes and two prior episodes of aseptic meningitis secondary to HSV-2 presented with severe diffuse headaches, neck stiffness and photophobia. Her previous episodes, first one being 2 years prior and second one being 9 days prior, were both confirmed by a positive cerebral spinal fluid PCR. She was afebrile, aseptic with normal mentation on this admission. Empiric antibiotics for bacterial meningitis were discontinued after the lumbar puncture revealed a 98% lymphocytic pleocytosis. She was treated with intravenous acyclovir and supportive measures and improved within 4 days.

Discussion: Mollaret's meningitis is a form of recurrent benign lymphocytic meningitis, most commonly attributed to HSV-2 infection. It is a rare illness with very few case reports documented in the medical literature. It is characterized by >2 episodes of fever, headaches, photophobia and meningismus lasting days to weeks. This is followed by spontaneous complete resolution of symptoms usually within 2-5 days. At the time of diagnosis, genital or oral lesions are usually absent. However when they do occur, the genital lesions typically precede the onset of headache and meningismus by 5-7 days. CSF PCR is the gold standard for diagnosis, being 85% sensitive. In general, unlike HSV encephalitis, HSV meningitis should be treated supportively. However, the recommendation for Mollaret's meningitis is acyclovir for 7-10 days. Although acyclovir is recommended, it has never been shown to definitively alter the natural history of the disease. The major problem in assessing the efficacy of acyclovir is the nature of this disease, which has spontaneous resolution even without treatment. Experts recommend that suppression of genital herpes may reduce recurrences, however this has not been proven either. We present a case of recurrent HSV-2 lymphocytic meningitis to educate healthcare providers in the etiology, clinical manifestations, diagnosis and treatment of this recurring disease

Notes:

PV16

PAECILOMYCES – A TOUGH BUG TO KILL

RH Rimawi, RM Sarsour, Y Carter, T Ware, J Christie, Cook, PP, DS Siraj

Learning Objectives: To discuss the clinical manifestations, risk factors and therapies used for *Paecilomyces lilacinus*; To illustrate the difficulty in treating and the importance of recognizing *Paecilomyces*; To present the 7th case of *Paecilomyces lilacinus* soft-tissue infection successfully treated with voriconazole.

Case Summary: A 55-year-old male presented with sudden onset of left-leg swelling, redness, warmth and pain for 24 hours. He denied trauma, fever, chills, insect/animal bite. His past medical history consisted of chronic obstructive pulmonary disease on chronic steroid maintenance and home oxygen, insulin-dependent diabetes mellitus and testicular cancer status post orchiectomy and chemotherapy with radiation 14 months prior to his current complaint. He lived in a swampy, heavily wooded area and often walked around in these areas with shorts and without shoes. He received broad spectrum antibacterial therapy with little clinical response in his left leg. Magnetic resonance imaging showed a small, 2x4cm² fluid collection. Gram stain, acid-fast stain and bacterial cultures of the fluid were negative. Fungal culture, however, grew a mold, identified as *Paecilomyces* species. The collection was drained and the area was debrided. Susceptibility testing showed an elevated minimum inhibitory concentration (MIC) for amphotericin B and fluconazole but low MIC to voriconazole. The patient was started empirically on oral voriconazole 200mg twice daily. At follow-up 8 weeks after start of therapy, the wound had good granulation tissue and after 90 days, the wound had completely healed.

Summary: *Paecilomyces lilacinus* is a rare but emerging pathogen that causes severe human infections, especially in immunocompromised hosts. It is an important organism to identify due to its poor susceptibility to conventional antifungal drugs, including amphotericin B, itraconazole and fluconazole. Oculomycosis and cutaneous infections are the two most common manifestations of *P. lilacinus* infections. Voriconazole has been used successfully to treat *P. lilacinus* endophthalmitis, but reports of skin and soft tissue infections treated with voriconazole are limited to six prior publications. Our immunocompromised patient had a subcutaneous *P. lilacinus* infection treated with 3 months of voriconazole therapy and is the seventh published case of a successful outcome.

Notes:

PV17

NEUROCYSTICERCOSIS AS A CAUSE OF SEIZURE

K Shah, B Forte, B Kabchi, RH Rimawi, MS Ashraf

Learning Objectives: To review and discuss up-to-date literature in the etiology, pathogenesis, clinical manifestation and management of the diagnosis associated with Neurocysticercosis(NCC).

Case Presentation: 49 year old Hispanic male with a history of epilepsy presented with a tonic-clonic seizure. After the seizure, the patient complained of left lower extremity numbness and tingling sensation. 3 days prior, the patient had a diffuse headache that was progressively worsening, relieved partially with analgesics. He denied any fever, chills, photophobia, neck stiffness/pain, blurry vision, or extremity weakness. He was non-compliant with his antiepileptic therapy. He emigrated from Mexico 2 years prior and has been working on a farm in North Carolina. Physical exam, including neurological exam, was benign. CT scan of the head showed diffuse cystic lesions and calcifications. Laboratory studies, including complete blood count and chemistry, were normal except for a mildly elevated creatinine. HIV antibody test was negative. Based on the history, epidemiology and radiologic findings, the patient met the probable diagnostic criteria for NCC. Enzyme-linked immunotransfer blot (EITB) assay was positive, further supporting the diagnosis.

Summary: Neurocysticercosis is the nervous-system form of cysticercosis caused by larvae of the tapeworm, *Tenia solium*. It is commonly associated with seizures, headache, and focal neurological deficits and can have long-term neurological sequelae such as epilepsy and hydrocephalus. CT, MRI, EITB combined with clinical and epidemiological criteria help support the diagnosis. Identification of a scolex is the pathognomonic radiographic finding. Prior to starting the therapy, ophthalmologic examination, PPD, *Strongyloides* serology should be done in all the patients with NCC. Treatment includes Albendazole and Steroid with or without antiepileptic medication. Healthcare providers should consider this diagnosis when evaluating a patient coming from areas known to be endemic for NCC presenting with seizures.

Notes:

PV18

A CASE OF RAPIDLY FATAL VIBRIO VULNIFICUS SEPTICEMIA WITHOUT A KNOWN EXPOSURE

JAB Moore, AT Stang

LEARNING OBJECTIVES: 1. Review the presentation of *Vibrio vulnificus* septicemia. 2. Highlight the need for early treatment of *V. vulnificus* septicemia, given the high case-fatality of this uncommon infection.

CASE: A 68 year old female with no known past medical history, recent illness, or sick contacts presented to an outside hospital with complaints of weakness, fatigue and dizziness. At time of presentation, she was found to have hypotension refractory to multiple fluid boluses. Chest x-ray was unrevealing, urine and blood cultures were obtained. The patient was started on vasopressin, vancomycin and piperacillin-tazobactam prior to transfer to an intensive care unit at another facility. On examination in the ICU, her lungs were clear to auscultation, cardiac exam was normal, and no skin rashes were seen. Laboratory evaluation revealed a leukocytosis of $21 \times 10^9/L$ and no abnormalities on routine chemistries and liver function panel. Initial blood cultures grew Gram-negative rods, which were later confirmed to be *Vibrio vulnificus* on 3 separate culture results. The patient's daughter, who was present during her hospitalization, denied that she had any recent travel, water contact or seafood consumption. Despite treatment with doxycycline and tobramycin, the patient's condition rapidly declined. Over the course of 36 hours, she became progressively hypotensive despite use of multiple vasopressors and ultimately died of multisystem organ failure.

Summary: Septicemia due to *Vibrio vulnificus* usually results from consuming contaminated seafood by a susceptible patient with underlying liver disease, immunosuppression, or iron overload. As this case illustrates, however, deaths have also rarely occurred in otherwise apparently healthy persons. A high index of suspicion must be maintained for patients presenting with a clinical syndrome compatible with *V. vulnificus* septicemia, given the extremely high mortality rate of around 50% within 24-48 hours. Even in the absence of known risk factors, microbiological evidence of infection should prompt swift initiation of antibiotics effective against this potentially lethal pathogen.

Notes:

PV19

DIFFUSE ABDOMINAL PAIN AND PALPABLE LYMPHADENOPATHY IN AN AIDS PATIENT

TL Covieo, JR Powell, RN Friend

Learning Objectives: Immunocompromised patients often present with a chief complaint that fosters a broad differential diagnosis. Each differential needs to be evaluated with the understanding that the patient's immunocompromised state may lead to an atypical presentation.

Case information: We present the case of a 23 year old African American male with a past medical history of AIDS who presented with abdominal pain and a palpable, tender lymph node in his left groin. The abdominal pain began 2-3 weeks prior to his presentation. He further characterized the pain as diffuse and associated with nausea, vomiting, decreased oral intake, a 30 pound weight loss and constipation. The patient also stated that he noted a painful swollen lymph node in his groin. He had recently been evaluated by his primary care physician, who diagnosed him with prostatitis and prescribed him a course of ciprofloxacin. Despite completing the antibiotics, his symptoms continued. Upon presentation to our facility, the patient was afebrile; a physical examination demonstrated a diffusely tender abdomen with a 4 cm by 4 cm palpable, painful lymph node in his left groin. The patient's skin was without rashes or lesions. Notably, the Computed Tomography of the abdomen and pelvis demonstrated diffuse mesenteric, inguinal and retroperitoneal lymphadenopathy. Biopsy and microscopic examination of the left inguinal lymph node revealed vascular structures, spindle cells and immunoperoxidase stain was positive for herpesvirus-8, consistent with the diagnosis of Kaposi's sarcoma.

Summary: Kaposi's sarcoma is a neoplasm induced by herpesvirus-8. It is the most common malignancy in AIDS patients, with the most common presentation being cutaneous lesions. Rarely, as illustrated in this case, it is possible to have a sole lymph node involvement of the disease without cutaneous, visceral or pulmonary involvement.

Notes:

PV20

A FULL LENGTH DRESS: DRUG REACTION WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS (DRESS) ASSOCIATED WITH LEVOFLOXACIN AND AZITHROMYCIN

S Pancholi, A Stang

LEARNING OBJECTIVES: 1) Recognize the importance of an accurate history, including scrutiny of recent medication changes, in determining the etiology of a patient's presentation 2) Review the clinical features of DRESS (Drug Reaction with Eosinophilia and Systemic Symptoms) **CASE**

INFORMATION: A 26-year-old with a past medical history of polycystic ovarian syndrome was treated for bronchitis with azithromycin and levofloxacin. Fifteen days after medication usage, she experienced abdominal pain and a pruritic rash that progressed from her elbows and thighs to her trunk. She was started on a prednisone taper. Because she developed hyponatremia, she was advised to visit the emergency department. Shortly afterwards, she developed leukocytosis up to 51,900 with neutrophilic and eosinophilic predominance, elevated ALT, a diffuse body rash, and respiratory distress requiring intubation. She was treated with high-dose methylprednisolone, after which her symptoms began to improve.

SUMMARY: Drug reaction with eosinophilia and systemic symptoms (DRESS) can be challenging for the internist to diagnose, given its long latency period and considerable variability in clinical characteristics. Typically, patients present with fever, leukocytosis, lymphadenopathy, rash, and abnormal liver tests — findings that can raise strong suspicion for an infectious illness rather than a severe, idiosyncratic drug reaction. This patient's presentation was initially concerning for sepsis, given that she had leukocytosis, lactic acidosis, and respiratory decompensation. Also, the presence of rash on the distal extremities with progression to the trunk was concerning for possible Rocky Mountain Spotted Fever. However, the patient had no exposure to tick bites and had systemic symptoms to suggest another diagnosis. This case illustrates the importance of a thorough medical history, as the diagnosis could have been missed without the knowledge of her medication usage. We also highlight two drugs that are rarely associated with DRESS, with only single case reports previously reported in the literature. Given the potentially-life threatening nature of DRESS, the internist should include drug hypersensitivity in the differential diagnoses in the setting of acute systemic illness with skin and hematological abnormalities.

Notes:

PV21

AN INTERNIST PERSPECTIVE OF ACQUIRED HEMOPHILIA A

A Shariff, J. Stahl, M. Kamdar, M.C. Brake, A.S.Asch

Learning objective: Acquired Hemophilia is a **rare bleeding disorder with an incidence of 1 in a million** caused by **autoantibodies directed against Factor VIII**.

- Awareness of acquired hemophilia (AHA) as a cause of unexplained anemia and coagulopathy.
- Effectiveness of standard treatment despite high inhibitor levels
- Delay in diagnosis and treatment and unnecessary instrumentation can lead to significant mortality and morbidity

Case information: A 65 year old African American male with gout and hypertension with no history of bleeding presented with unexplained anemia and Hemoglobin of 3.3 gm/dL. Despite extensive gastro-endoscopic investigation he continued to require multiple blood transfusions. Further investigation revealed a Prothrombin Time (PT) of 11.1, fibrinogen of 675, an elevated d-dimer of 6.62, and a prolonged activated prothrombin time (aPTT) of 104, which failed to correct with mixing study indicating presence of an inhibitor to a coagulation factor. Results revealed extremely low Factor VIII (FVIII) levels and extremely high FVIII inhibitor levels of 460 BU (Bethesda Units) confirming AHA. Patient was treated with standard regimen of Factor VII, Prednisone, Rituximab, cyclosporine and vincristine. Despite extremely high inhibitor levels patient achieved complete remission. Surprisingly, he returned in 2 months with a pulmonary embolus. He was successfully anti-coagulated with no evidence of bleeding.

Conclusion:

- **Awareness of acquired hemophilia** is important to make diagnosis in patients with unexplained anemia. High mortality of 8-22%
- Potential **confusion with Disseminated Intravascular Coagulopathy (DIC)**
- **Rare incidence of 1 in a million** - enrolling these patients in a study is often a difficult task
- **Only a hand full have reported high inhibitor levels of 460 Bethesda Units (BU)** as seen in this patient (study of 249 patients where the **median inhibitor level was found to be 10 BU**)

Notes:

PV22

HISTOPLASMOSIS: A CAUSE FOR PANCYTOPENIA

A Frenkel, RH Rimawi, MS Ashraf, HG Adams

LEARNING OBJECTIVES: To illustrate the epidemiology, pathogenesis, clinical manifestations, diagnosis and treatment of histoplasmosis; To describe a case of a fungal infection as a cause of bone marrow suppression secondary to immune modulators used for rheumatoid arthritis.

CASE INFORMATION: A 54 year old male with a past medical history of rheumatoid arthritis who has been taking methotrexate for 15 years and etanercept for the last year presents to the hospital with fever and fatigue. His labs revealed pancytopenia. Physical exam is significant for splenomegaly. All cultures for infectious work-up returned negative. A bone marrow biopsy showed granulomatous inflammation with fungal organisms identified as budding yeasts. Histoplasma urinary antigen returned positive. The patient was started on amphotericin and eventually transitioned to oral itraconazole. The pancytopenia and fevers quickly resolved. Bone marrow cultures later confirmed histoplasmosis.

SUMMARY: Histoplasmosis is an infection caused by *Histoplasma capsulatum*. It is the most prevalent endemic mycosis in the USA. 500,000 new cases occur each year in the USA alone. 1 in 2000 patients may experience an acute infection where presentation may vary and usually depends on the patient's immunity, exposure history and age. Lungs are the portal of entry for this organism. In the environment *H. capsulatum* exists as a mold with hyphae. The hyphae produce macroconidia or microconidia. When the spores aerosolize and are inhaled into the lungs of a susceptible host, the warm temperatures inside the host transform the organism into a budding yeast. The yeast are then engulfed by macrophages and transported to regional lymph nodes and other tissue. This process can potentiate disseminated disease. Non specific symptoms with fever and splenomegaly may be the only presentation of disseminated histoplasmosis. This should be considered in the differential in such cases. Recognizing the manifestations of disseminated histoplasma can be difficult and often overlooked. In the following case, we can appreciate the many signs and symptoms to consider when thinking of disseminated histoplasmosis.

Notes:

PV23

BLINDNESS IN A PATIENT WITH LUPUS

HAB Nik Rushdi, MC Brake

Learning objectives: Sagittal sinus thrombosis is a rare hematologic complication of Systemic Lupus Erythematosus (SLE) that can lead to blindness. Treatment involves immunosuppression and chronic systemic anticoagulation which can lead to bleeding diatheses. **Case information:** CW is a 40 year old man with SLE, lupus nephritis, anti-phospholipid antibody syndrome and chronic thrombocytopenia who presented with bilateral vision loss after trauma. He exhibited one and a half syndrome on physical exam and complete loss of visual fields. He was diagnosed with bilateral sigmoid sinus thrombosis by MRI. His embolus was not amenable to surgical treatment including optic nerve fenestration, lumbar peritoneal shunt or venous sinus stent. He was treated with acetazolamide, immunosuppression (prednisone, intravenous immunoglobulin, rituximab, cyclophosphamide, vincristine) and heparin as a bridge to warfarin. He developed intra-retinal hemorrhages and severe thrombocytopenia necessitating platelet transfusions. His vision gradually improved but 1 year later he developed ischemic optic atrophy. **Summary:** This case illustrates the morbidity associated with hematologic complications of SLE. Anticoagulation in this patient was a delicate balance of therapeutic warfarin levels and bleeding complications. Despite maximal medical management, patients may go on to have permanent blindness.

Notes:

PV24

MORE THAN MEETS THE EYE: AN UNUSUAL PRESENTATION OF LUPUS CEREBRITIS

J Brangman, A Mathai,

Learning Objectives:

- To discuss the diagnostic criteria for lupus cerebritis
- To discuss the differential diagnosis of lupus cerebritis
- To discuss the importance of obtaining a thorough family history
- To discuss an unusual presentation of lupus cerebritis in a patient without a known history of systemic lupus erythematosus

Case information:

We present the case of a 19 year old Caucasian female with a history of complex partial seizures, depression, and cognitive deficits who was admitted with a sudden onset of fever, seizure, and altered mental status. Prior to admission, she had been seizure free for several years on Lamictal. Associated symptoms included fatigue, generalized weakness, hair loss, and intermittent joint pain for several months. Two weeks prior to admission she developed dizziness, falls, and was unable to complete her activities of daily living. On exam, she was febrile with altered mental status, chorea, hyperreflexia, generalized weakness, malar rash, cervical lymphadenopathy, and calf tenderness. Laboratory testing showed a mildly elevated lamictal level. Blood, urine, and CSF cultures were negative. A 24-hr EEG and brain MRI were negative. Psychiatry was consulted due to the concern that the etiology was psychiatric. Additional family history revealed that there was a strong family history of autoimmune disorders, which then prompted an autoimmune work up. ANA was positive with a homogenous pattern and C3 and C4 were low. Cardiolipin IgG, double stranded DNA, extractable nuclear antigen, single stranded DNA, and beta microglobulin were positive.

Summary:

Lupus cerebritis presents with associated seizures, chorea, stroke, or headaches. Our patient continued to have symptoms and seizures despite anti-epileptic therapy. In the management of a patient who has an unusual course, negative EEG and brain MRI, or who doesn't improve with therapy, the differential must be broadened to ensure the diagnosis is not missed. Our patient was simultaneously diagnosed with SLE and lupus cerebritis. Treatment with azathioprine and high dose steroids resulted in the resolution of symptoms.

Notes:

PV25

SCURVY IN THE HEART OF PIRATE COUNTRY

TJ Parrent, WA Burke

LEARNING OBJECTIVES: In a country where obesity is rampant and no one appears to be hungry, nutritional deficiencies still occur more than one may think. The skin often provides us with information that can guide clinicians to make the correct diagnosis, but those details are often very subtle and easily missed. This case details how the skin led the clinician to ask the right questions, order the appropriate test, and make the correct diagnosis of scurvy. **CASE INFORMATION:** A 56 year-old lady presented to clinic with a 1+ year history of a reddish-purple scattered rash on her lower extremities and waist. Progressively moving up her legs. Symptoms included intermittent pruritus and numbness in her feet. Had been seen in the ED and diagnosed with non-blanching purpuric rash and given PO steroids, which did not improve condition. Platelets were normal. Patient's medical history significant for severe GERD and hypertension, which she managed with Nexium and HCTZ. On exam, she had numerous 1-2mm red petechiae in a perifollicular pattern present on her lower extremities. On questioning, patient stated her diet consisted of fried chicken and cabbage. No intake of vitamins, fruits, or fruit juices due to issues with her GERD. Ascorbic acid level was evaluated and found to be deficient, which supported the patient's history, exam findings, and diagnosis of scurvy. **SUMMARY:** Scurvy is caused by a deficiency in Vitamin C. Historically, it is often remembered to be associated with sailors and James Lind's 18th century citrus cure. In modern times, it is largely associated with alcoholics. Clinical symptoms include perifollicular hemorrhage, corkscrew-shaped hairs, follicular keratotic plugging, bleeding gums, neuropathy, and poor wound healing. Our patient, who abstained from fruit out of fear of exacerbating her GERD, presented with perifollicular hemorrhage and neuropathy which helped guide our investigation. Other signs may have been present, but she was edentulous and actively shaved her body. She was placed on a Vitamin C supplement and counseled on proper nutrition as treatment and prevention of further manifestations of scurvy. In conclusion, subtle details are critically important in dermatological exams and can help pinpoint the diagnosis. Scurvy, though rare today, still occurs in select groups of people, notably alcoholics. While we will always think of the "ARGH" grumbling pirates as suffers of scurvy, perhaps we will now remember the "GERrrrD" growling GI sufferers as well.

Notes:

PV26

TWO OLDER CAUCASIAN FEMALES WITH TINEA CAPITIS

SS Chisolm, LG Pruitt, CM Phillips

Learning Objectives: Tinea capitis is a very common condition diagnosed in dermatology clinics. Traditionally, we are taught as dermatologists that it is most common in children, particularly school-aged African-American patients. It is thought to have a very low incidence in elderly Caucasian patients. However, it is important to remember that a disease can present even in low-incidence populations, and under those circumstances it can present atypically.

Case Information: We present the cases of two Caucasian females who were seen in our clinic and eventually diagnosed with tinea capitis. One patient, age 60, had initial presentation felt to be consistent with seborrheic dermatitis but progressed to have an area of alopecia as well as a rash on her face consistent with tinea faciale. The other, age 73, had initial presentation felt to be consistent with seborrheic dermatitis that was resistant to treatment. KOH was positive in both cases.

Summary: Knowing the typical presentation as well as the most commonly affected patient population is an important aspect of quick, accurate clinical assessments. However, it is important to keep in mind that atypical presentations and/or presentations in less-commonly affected populations do occur, as our two cases of tinea capitis in older adult Caucasian females suggests.

Notes:

PV27

NODULAR FASCIITIS OF THE SCALP: A CASE REPORT

LN Caudill, RL Wilson, WA Burke, CM Phillips, RH Schosser

LEARNING OBJECTIVES: Nodular fasciitis is a benign entity with pseudosarcomatous features that requires thorough histopathological exam to distinguish it from a true malignancy.

CASE INFORMATION We present an interesting case from our procedure clinic, in which a 54 year old African American male patient presented for an excision of a presumed intradermal cystic lesion on the scalp. The excision unexpectedly extended to the subgalea, and subsequent pathologic examination revealed nodular fasciitis

SUMMARY Nodular fasciitis typically presents as a quickly growing mobile nodule on the volar forearm in young adults. A cranial variant may occur in infants and young children. It can be idiopathic or traumatic in nature. Histologic features include loosely arranged bundles of fibroblasts and myofibroblasts with an accelerated mitotic index, thus eliciting concern for sarcoma.

Notes:

PV28

EARLY WORSENING OF RETINOPATHY WITH IMPROVED GLYCEMIC CONTROL

S Oberoi, N Hamidi-Sitouah, and RJ Tanenberg

Learning Objective:

Early Worsening of Retinopathy with rapid Improvement of Glycemic Control is a known complication which requires timely screening and intervention.

Case information: 53 y/o Caucasian female seen in Endocrinology for evaluation of uncontrolled Type 2 DM with insulin resistance. She was diagnosed with type 2 DM 12 yrs back. Her Hba1C was >14% and glucose level 359 upon presentation. Her physical exam was remarkable for pre-proliferative diabetic retinopathy with prior laser treatment in left eye. As her glycemic control improved from Hba1c of 14% to 7.2% in the 4 months' time on intensive insulin pump therapy, she experienced worsening of vision with visual acuity changing from 20/25 to 20/400 in left eye. Proliferative retinopathy lead to a large vitreous hemorrhage for which she is currently being treated with Avastin and Laser surgery. Depending on the resolution of the vitreous hemorrhage she may need vitrectomy in the left eye.

Summary: Risk factors for developing diabetic retinopathy are duration of Diabetes, severity of hyperglycemia, HTN and hyperlipidemia. Long term hyperglycemia causes vascular endothelial dysfunction resulting in loss of endothelial cells and pericytes. One of the possible mechanisms implicates growth factors, particularly IGF1. For normal secretion of IGF1 by the liver an adequate insulin level in the portal system is required. In poorly controlled insulin dependent diabetes, plasma IGF1 concentrations are low. A rapid rise of IGF1 from low to normal values has been found to accompany worsening of retinopathy when insulin therapy is intensified and diabetic control improved. Therefore, timely screening and intervention by ophthalmology is recommended

Notes:

PV29

TREAT THE PATIENT, NOT THE NUMBERS: A CASE OF PSEUDOHYPERKALEMIA IN THE ICU.

E Levin, S O'Neal

Introduction: Extreme hyperkalemia is a medical emergency due to the risk and potential fatality of arrhythmias causing cardiac arrest. Pseudohyperkalemia is a well-known artifactual phenomenon that has been described in the context of extreme leukocytosis. Many hypotheses exist to explain the phenomenon including: 1. Potassium released from white blood cells due to clotting; 2. Combination of fragility of leukocytes and the mechanical stress in the sample tube causing release of potassium; 3. Increase in consumption of metabolic fuels that is seen with severe leukocytosis which causes impaired Na/K ATPase pump activity contributing to the release of potassium due to excess leakage or shift of potassium out of cells.

Case Description: A 79 year old male with a history of HTN reports to the Emergency Department with complaint of dizziness. Potassium at that time was 9.4 mEq/L and white blood cell count 3.9 k/uL. The patient's review of systems and remainder of exam were otherwise unremarkable. No EKG changes were noted Nephrology and Hematology were immediately consulted. The potassium level was confirmed twice using two different laboratory studies (potassium level in the serum and potassium level in the plasma). He underwent medical management of hyperkalemia and was transferred to medical ICU for emergent dialysis. The patient declined dialysis. After using ACD (acid citrate dextrose) tubes for laboratory evaluation of the patient's potassium level, the patient was actually found to be hypokalemic. In addition, peripheral smear was done which found smudge cells, with concern for Chronic Lymphocytic Leukemia (CLL). In our case, the patient declined emergent dialysis as well as further medical management of hyperkalemia, which could have been fatal for reasons that will be described in this case. How can this be prevented? The purpose of this case is to educate healthcare professionals on how to recognize and confirm pseudohyperkalemia.

Notes:

PV30

A CASE OF NECROBIOSIS LIPOIDICA DIABETICORUM

M Musec, L Alapati

Objectives: To increase the awareness of necrobiosis lipoidica diabetorum (NLD) among internist's.

Case: An 18 year old African American female with a past medical history of diabetes mellitus type I and asthma, was referred to our emergency department by her wound doctor for concerns of an infected non healing ulcer on the right shin. It started as a very small wound that grew with time and recently developed bad odor. She denied any other lesions on her arms, legs or face. The patient denied fever, chills, trauma, bite or history of MRSA. Vitals were stable and she was afebrile. Exam findings: healthy looking young lady with an open wound about 3x4 inches in size on her right shin above her ankle. Lab findings- WBC 8k/uL, HgA1c 12.8, ESR 45. Imaging: Tibia/ Fibula Xray: right lower leg radiographs demonstrating soft tissue changes consistent with known infectious process. No definite deep soft tissue air collection or osteomyelitis. She had multiple courses of antibiotics in the past for the same. The patient was admitted to the General Medicine team for the management of DKA and was started on IV antibiotics for the wound. As the ulcer is chronic in nature, patient is afebrile with normal WBCs and not very significant elevation of ESR, we consulted infectious disease. They did not feel that this was an infectious process. They recommended not to continue antibiotics and to consult Dermatology. Dermatology's impression was that the ulcer is consistent with NLD and recommend applying Bactroban ointment or Vaseline to the ulcerations, lidex ointment to dark peripheral rim and out-patient follow up.

Summary: Necrobiosis Lipoidica Diabetorum (NLD) is a necrotizing skin condition that occurs in patients with diabetes. The severity or control diabetes in an individual does not affect who will or will not get NLD. NLD occurs in approximately 0.3% of the diabetic population and is more common in women. It most frequently appears on the patient's shins, often on both legs. The lesions are often asymptomatic but may become tender and ulcerated when injured. There is no defined cure for Necrobiosis Lipoidica Diabetorum. Better maintenance of diabetes after being diagnosed with NLD will not change how quickly it will resolve.

Notes:

PV31

INTRA-MUSCULAR INSULIN DELIVERY BY PUMP OVERCOMES SUBCUTANEOUS INSULIN RESISTANCE IN UNCONTROLLED TYPE 2 DIABETES

N Hamidi-Sitouah, S Oberoi, R J Tanenberg.

Learning objectives: The delivery of regular insulin intramuscularly using a pump seems to be the ideal alternative treatment for patients suffering from subcutaneous insulin resistance. **Case information:** We describe a case of a 53 year old Caucasian female who was referred to Endocrinology for evaluation and management of Uncontrolled Type 2 Diabetes mellitus with Insulin Resistance. She was diagnosed with type 2 DM twelve years prior to presentation. After she failed multiple attempts on different oral agents due to lack of efficacy or severe side effects, she was switched to insulin. Despite taking massive doses of every kind of insulin including U-500 insulin, she gained 85 lb and developed insulin edema with no improvement in her glycemic control. In fact, all her blood glucose levels were over 300 and her hemoglobin A1c remained in a range of 12%. At the time of her initial visit, she was taking Liraglutide 1.8 q PM. Her hemoglobin A1C was >14% and her glucose level was 359. Her physical exam was remarkable for retinopathy and mild peripheral neuropathy. Height 5' 4", Wt 144 lb, BMI 24.82 kg/m², BP 115/70, P 98. The patient was given 10 units of insulin lispro subcutaneously. Her FSBS did not drop after 1 hour, then 3 units of the same insulin were injected I.M. and her FSBS dropped by 100mg/dl in 90 minutes. Treatment with I.M. Regular insulin was begun and Liraglutide was continued. Further work up revealed C-peptide 3.72ng/ml, GAD-65 Ab < 1 U/ml, Insulin Ab < 0.4 U/ml. Ten days later, the patient was started on an insulin pump using Regular insulin I.M. Two months later, she showed significant improvement in her glycemic control reflected by a drop in her Hb A1c from >14% to 7.2% without hypoglycemia. **Summary:** Subcutaneous insulin resistance is a rare but severe condition of which the etiology is still unknown. Treatment options described in the medical literature include chronic IV insulin administration and the implantation of an insulin pump with intra-peritoneal insulin administration, which is only done experimentally. The delivery of regular insulin intramuscularly using a pump seems to be an alternative treatment. This is a new approach that we have shown to be effective without any complications noted. It is affordable and allows the patients to maintain a good quality of life.

Notes:

PV32

NON-PTH MEDIATED HYPERCALCEMIA ASSOCIATED WITH ELEVATED 1,25-DIHYDROXYVITAMIN D

I Khanna, FJ Cook and AJ Drake III

Background: Hypercalcemia is a common clinical problem with primary hyperparathyroidism and malignancy accounting for the majority of the cases. A less frequent etiology is abnormal activation of extrarenal 1-alpha-hydroxylase, causing elevated 1,25-dihydroxyvitamin D(1,25(OH)₂D), associated with granulomatous disease or certain lymphomas. We describe three patients who presented with symptomatic hypercalcemia and suppressed intact PTH, no suggestion of malignant disease and no evidence of pulmonary disease on CXR. Other common causes of hypercalcemia were ruled out.

Clinical Cases: (1) 45 y.o female presented with nausea, vomiting and abdominal pain. Laboratory evaluation revealed serum calcium of 13.9 mg/dL (8.5-10.5), suppressed i-PTH of 4.6 pg/mL (7.0-53.0), undetectable PTHrP (14-27 pg/mL), 25-hydroxyvitamin D (25OHD) of 8 ng/mL (30-100) and an elevated 1,25 (OH)₂D of 84 pg/mL (18-72). CT scan of chest and abdomen revealed diffuse lymphadenopathy with hepatosplenomegaly. Malignancy was initially suspected but biopsy of the porta hepatic mass showed benign lymphoid tissue with non-necrotizing granulomas and multinucleated giant cells consistent with sarcoidosis. (2) 66 y.o female presented with dyspnea, increasing weakness, and weight loss. Labs showed a serum calcium of 13.5 mg/dL, undetectable i-PTH and PTHrP, 25OHD was 6 ng/mL, 1,25(OH)₂D was elevated at 82 pg/mL. CT scan of the chest and abdomen was unremarkable. BM biopsy showed non-necrotizing epitheloid granulomas consistent with sarcoidosis. (3) 72 y.o male presented with fatigue, weakness, new onset anemia and renal insufficiency. Labs showed serum calcium of 12.8 mg/dL, iPTH of 4.7 pg/mL, normal PTHrP of 16 pg/mL, 25OHD of 36 ng/mL and an elevated 1,25(OH)₂D of 119 pg/mL. Imaging studies and BM biopsy was negative. Due to persistent symptomatic hypercalcemia, patient was empirically treated with prednisone 20 mg daily. **Conclusion:** Granulomatous disorders are an important cause of non-PTH mediated hypercalcemia, once malignancy is ruled out. A low/normal 25OHD with an elevated 1,25(OH)₂D is highly suggestive of dysregulated extrarenal 1-alpha hydroxylase activity. This mechanism is implicated in hypercalcemia seen with granulomatous diseases including sarcoidosis.

Notes:

PV33

POSTMORTEM DIAGNOSIS OF DIABETIC KETOACIDOSIS PRESENTING AS THE “DEAD-IN-BED SYNDROME

J Luna, MGF Gilliland, H Colin, and RJ Tanenberg

Learning Objective: Death at home from severe hypoglycemia is not uncommon in young patients with type 1 diabetes (the so called “Dead in Bed Syndrome”). Recent literature has documented both the hypoglycemia and potentially fatal arrhythmias that are hypothesized to result in death. On the other hand, death from diabetic ketoacidosis (DKA) almost invariably occurs in the hospital setting (e.g., emergency room or intensive care unit).

Case Information: We report a case of a 25-year-old male with a history of poorly controlled type 1 diabetes mellitus despite use of an insulin pump (continuous subcutaneous insulin infusion therapy), who was found deceased in his own undisturbed bed. There was vomitus noted on the pillow but no obvious cause of death. The insulin pump and tubing were intact and attached to the left lower quadrant abdominal wall. As part of the autopsy, the insulin pump and his glucometer were downloaded. The insulin pump was empty but working correctly with the last reported activity 3 days prior to his demise. Vitreous humor fluid was obtained and analyzed demonstrating: glucose 755 mg/dl, sodium 131 mEq/L, chloride 90 mEq/L, carbon dioxide <5 mEq/L and an anion gap >36 mEq/L. Toxicology was negative for drugs and revealed elevated levels of acetone and Isopropanol. This biochemical evaluation was consistent with diabetic ketoacidosis (DKA) as the cause of death. Microscopic examination of the kidneys showed marked subnuclear vacuolization in the proximal tubules, consistent with the diagnosis of Armani-Ebstein lesion. First described in 1877, these lesions are strongly associated with diabetic ketoacidosis and reflect accumulation of lipid in the setting of excessive glucose reabsorption seen preceding death from diabetic coma.

Summary: The most likely cause of death at home in young patients with type 1 diabetes is severe hypoglycemia. However in this case, autopsy confirmed DKA based on vitreous humor biochemistry and microscopic examination of the kidneys demonstrating the Armani-Ebstein phenomenon. We conclude analysis of the vitreous fluid and microscopic examination of the kidneys for the presence of Armani-Ebstein lesion are useful to help determine the cause of death in patients with type 1 diabetes mellitus

Notes:

PV34

METRELEPTIN THERAPY FOR LIPODYSTROPHY

A Harnoor, M Dar

Learning objectives: 1) Review the pathophysiology and clinical features of Acquired and Inherited Lipodystrophies. 2) Review the physiology of leptin. 3) Discuss the rationale for Metreleptin therapy for severe lipodystrophy.

Case Information: We describe the case of a 49 yr old Caucasian female who was seen for poorly controlled type 2 diabetes mellitus complicated by non-proliferative diabetic retinopathy, peripheral neuropathy, coronary artery disease, significant peripheral vascular disease and severe hypertriglyceridemia. Her type 2 diabetes remained poorly controlled despite an intensive insulin regimen and metformin. The patient’s A1C ranged from 7.8% to 10.6% between 2008 and 2011. Her triglyceride level was 1632 mg/dL. The patient had fat loss in her torso, arms and lower extremities and was felt to have a Familial Partial Lipodystrophy of the Dunnigan’s variety. The diagnosis was made clinically in consultation with Dr. Abhimanyu Garg at UT Southwestern. The patient was subsequently transitioned to U-500 due to severe insulin resistance. The patient was subsequently enrolled in a compassionate use study using recombinant human leptin with a measured serum Leptin level of 16.3 ng/dL at baseline. She was started at 5 mg/d sc and eventually titrated to her current dose of 7.5 mg/d sc. During the time she has remained on recombinant human leptin, her A1c has ranged from 6.2% to 8.6% and triglycerides from 482-1500 mg/dL.

Summary: Lipodystrophic syndromes are a heterogeneous group of congenital or acquired disorders characterized by either complete or partial lack of adipose tissue. These patients are predisposed to insulin resistance, diabetes mellitus, dyslipidemia and hepatic steatosis. Metreleptin replacement has provided tangible benefits to some patients with severe leptin deficiency from congenital and non-HIV-related acquired generalized and partial lipodystrophy. Our patient appears to have derived modest benefit from metreleptin in terms of improved glycemic control, decreased triglyceride levels and some improvement in overall sense of well being. Currently, an application to the FDA to use Metreleptin in the treatment of certain metabolic disorders associated with lipodystrophy is being submitted based upon primary data from an NIH study and open-label data from this and other study sites. At this time, the use of Metreleptin remains investigational.

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INSULINOMA IN CHRONIC RENAL FAILURE

J Stahl, A Harnoor, A Drake

Learning Objectives: Discuss the difficult diagnosis and work up for Insulinoma in Chronic renal Failure.

Case Information: A 78 y/o female with history of Hypertension and Chronic Kidney Disease Stage IV presented from an outside hospital for recurrent episodes of hypoglycemia. The patient noted early morning hypoglycemic symptoms (tachycardia, diaphoresis, near syncope) for approximately 1-2 years which improved after eating. She had 2 prior hospitalizations for the same, but a cause was never found. She had a spontaneous hypoglycemic episode with serum blood glucose of 27 mg/dL while in the hospital. Concomitant serum Insulin was 13 uIU/mL, Pro Insulin 23.9 pmol/L, C-Peptide 2.39 ng/mL and Betahydroxybutyrate was <1.8 mg/dL. Further, insulin antibodies and hypoglycemic agent screen were negative. Her Creatinine was 2.59 with GFR 22 mL/min. These biochemical parameters were consistent with the presence of endogenous hyperinsulinemia as the cause of her recurrent hypoglycemia. Although a transabdominal ultrasound was negative, an endoscopic ultrasound revealed a 1.3 cm mass in the body of the pancreas. FNA of the mass revealed a well differentiated pancreatic endocrine tumor. She underwent successful subtotal pancreatectomy, splenectomy, and cholecystectomy. Final pathology revealed a well differentiated grade I neuroendocrine tumor located at the body/tail of the pancreas. Although she did require insulin for 48 hrs post- op, she was discharged home on no insulin and no further episodes of hypoglycemia.

Summary: While the diagnosis and evaluation of hypoglycemia due to insulinoma is well described, the criteria are based on normal renal and hepatic function. In chronic renal failure there is reduced renal gluconeogenesis and impairment in the degradation and clearance of insulin and C-peptide. As a result, the positive predictive value of a 72 hour fast with evaluation of insulin, pro-insulin and C-peptide is significantly reduced. It has been suggested that negative beta-hydroxybutyrate levels during a 72 hour fast may be more reliable in the setting of chronic renal failure. In the setting of advanced CKD, the definitive diagnosis of insulinoma is quite challenging and requires confirmation with localization, in the face of high clinical suspicion, even after apparently positive biochemical results from a 72 hour fast.

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SYPHILIS: FORGOTTEN BUT NOT GONE

NM Jasani, DM Harrington, TP Desai, KO Hewan-Lowe, HL Lai.

Learning Objectives: Syphilis masquerading as a primary renal disorder is rarely encountered due to the low incidence of syphilis in US. We report this rare clinical entity in a patient with no other signs or symptoms of the infectious disease. **Case Information:** A 29 year old man with high risk sexual behavior was evaluated for newly diagnosed hypertension and acute kidney injury. The examination was remarkable for a BMI of 34.8kg/m², blood pressure of 158/94 mm Hg and lower extremity edema. Urinary sediment showed abundant granular casts, white blood cells and non-dysmorphic red blood cells. Blood chemistries revealed a BUN of 73mg/dL, creatinine of 8.54 mg/dL and serum albumin of 2.9g/dL. 24 hour urine protein excretion was 7.94 grams. Serum complement, ANA, anti-native DNA, hepatitis and HIV serology were unremarkable. Serum and urine protein-electrophoreses were consistent with glomerular pattern proteinuria. C-reactive protein was 32 mg/dL. Ultrasound imaging revealed mild renal size disparity with increased cortical echogenicity.

Renal biopsy showed segmental congestion of glomerular capillary loops, interstitial edema and mild interstitial inflammatory infiltrate with sparse eosinophils. Features of acute tubular injury with tubular epithelial regeneration were noted. Immunofluorescence microscopy showed granular peripheral capillary wall staining for IgG (4+), IgA (2+), IgM (trace), C3(3+), C1q(3+), kappa light chains (3+) and lambda light chains (4+). Electron microscopy showed sparse, electron-dense, intra-membranous, sub-epithelial and mesangial deposits and sub-total foot process effacement. A rapid plasma reagin test was positive (1:64) and he received 3 doses of penicillin G. The treponema pallidum specific enzyme immunoassay was subsequently positive. Complete resolution of proteinuria and normalization of renal function was noted on follow up evaluation one week after finishing the treatment for secondary syphilis. **Summary:** Secondary syphilis can lead to renal manifestation without other systemic features and the few such cases reported in literature were usually responsive in terms of reduction or resolution of proteinuria after treatment of syphilis. Recognition of this rare cause of membranous nephropathy is necessary to ensure appropriate therapy.

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A FEMALE PRESENTING WITH SEVERE CACHEXIA AND BRUNS – GARLAND SYNDROME

K Shahzad, B Ramirez, J Norbury, RJ Tanenberg

Introduction: The Bruns – Garland Syndrome was first described in 1890's. It has been known by many names including diabetic amyotrophy. It is a subacute, painful, asymmetric lower limb neuropathy that is associated with weight loss and type II diabetes mellitus. There have been interesting cases reported in the literature of patients presenting with myoclonus, extreme cachexia, and also progressing to severe quadriparesis. **Case Report:** We present a case of a 50 years old African American female diagnosed with type 2 DM at age 45, who was admitted to VMC complaining of Chest Pain and unintentional weight loss of at least 43 Kg over a period of 3 years. Her admission weight was 41 kg with a BMI of 15. She had been constantly nauseated, but not vomiting. She was able to eat all her meals and had a good appetite. Also, she complained of left thigh pain and weakness that began 2 months prior to her admission. Physical exam findings were significant for cachexia, and decreased strength of her left lower extremity with absent quadriceps and Achilles tendon reflexes. Laboratory findings were consistent with normal ESR, negative HIV, and negative hepatitis panel. She had a gastric emptying study showing moderate gastroparesis. Patient had had age appropriate screening for breast and colon cancer, which were all negative. Her nerve conduction studies were significant for prolonged latency of sural sensory nerve, and mildly slowed conduction velocity of the motor conduction bilaterally. This was consistent with mild diabetic amyotrophy of the left lower extremity affecting mostly the proximal muscles. A nerve biopsy was not performed. **Conclusion:** Bruns – Garland Syndrome or Diabetic Amyotrophy is a devastating condition that affects otherwise asymptomatic people. The patients suffering with this syndrome are known to present with a steady progression of their symptoms for 2 – 18 months, or even longer before showing improvement of the condition. It begins focally with pain but it can evolve into widespread bilateral paralytic disorders. Patients have prolonged morbidity from pain and weakness, and many of them become wheelchair-dependent. Some patients recover from the condition when adequate care is instituted. It is important to recognize the syndrome in order to establish adequate pain management, immunotherapy, physical therapy and nutritional support so that recovery is assured.

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