



*The Department of Internal Medicine
in the Brody School of Medicine
at East Carolina University*

presents the

20th Annual Research Day - 2006



CDC Department of Health and Human Services
Centers for Disease Control and Prevention

***Wednesday, May 24th, 2006
7:30 AM – 3:30 PM
Brody Medical Sciences 2W-40***



*The Department of Internal Medicine
in the Brody School of Medicine
at East Carolina University*

20th Annual Research Day - 2006

Ralph E. Whatley, MD

Chair

Department of Internal Medicine

Paul V. Phibbs, PhD

Vice Chair for Research

Department of Internal Medicine

Research Day Committee

Elizabeth McNeil Byrd, MD

Roy Carlton

Paul P. Cook, MD

Timothy A. Johnson, PhD

Cindy Kukoly

Barbara Little

Belinda Perkinson

Paul V. Phibbs, PhD

(Committee Chair)



William Osler, MD

"The hardest conviction to get into the mind of a beginner is that the education upon which he is engaged is not a college course, not a medical course, but a life course, for which the work of a few years under teachers is but a preparation."

The student life, in Aequanimitas: With other addresses to medical students...3rd ed. (Philadelphia: Blakiston's Son, 1932) p.400.

Funded by all Divisions in the Department of Internal Medicine and through the generosity of our corporate sponsors.

Join us in thanking our sponsors for their support of Research Day - 2006



Ivey Hedspeth



Eric Jarman



Craig Wisniewski



Archer Bane

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CREDIT: The Brody School of Medicine at East Carolina University designates this educational activity for a maximum 5 hours of category 1 credit toward the AMA Physician's Recognition Award. Each physician should claim only those credits that he/she actually spent in the activity.

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Department of Internal Medicine

20th Annual Research Day

Wednesday, May 24, 2006

7:30am

Continental Breakfast

8:00am

Administrative Comments

*Paul Phibbs, PhD, Chair
Internal Medicine Research Day*

8:05am

Welcome

*Ralph E. Whatley, MD, Chair
Department of Internal Medicine*

First Oral Session Moderator: Paul Cook, MD

8:15am

RO1

**OVERLOAD-INDUCED SKELETAL
MUSCLE HYPERTROPHY IS NOT
DIFFERENT IN RATS SELECTIVELY BRED
FOR HIGH AND LOW ENDURANCE
EXERCISE CAPACITY**

*TP Gavin, RM Lust, SL Britton, LG Koch,
and SE Gordon*

8:30am

RO2

**KIDNEY TRANSPLANT PATIENTS WITH
GASTROINTESTINAL COMPLAINTS
CONVERTED TO ENTERIC COATED
MYCOPHENOLATE SODIUM: A SINGLE-
CENTER EXPERIENCE WITH A
PREDOMINANTLY AFRICAN AMERICAN
POPULATION**

Singh H, Gerkin S, Parker K, Bolin P

8:45am

RO3

**GLYCEMIA OPTIMIZATION TREATMENT
(GOT): GLYCEMIC CONTROL AND RATE
OF SEVERE HYPOGLYCEMIA FOR FIVE
DIFFERENT DOSING ALGORITHMS OF
INSULIN GLARGINE (GLAR) IN PATIENTS
WITH TYPE 2 DIABETES MELLITUS
(T2DM)**

*R.J. Tanenberg, A. Zisman, J. Stewart and
the GOT Study Group, Greenville, NC;
Miami FL; Laval, Canada*

9:00am

RO4

**BONE MARROW CHANGES IN PATIENTS
WITH HIV**

*Neverova, Maria. MD, Liles, Darla, MD,
Gagnon, Gregory, MD*

9:15am

RO5

**LOPINAVIR/RITONAVIR MONOTHERAPY
FOR HIV PATIENTS**

Ahmed O. Farooq, MD Paul P. Cook, MD

RP1	ULTRAFINE PARTICULATE MATTER EXPOSURE AUGMENTS ISCHEMIA REPERFUSION INJURY IN MICE	<i>E Cozzi, S Hazarika, HW Stallings III, WE Cascio, RB Devlin, RM Lust, CJ Wingard, MR Van Scott</i>
RP2	ACUTE EXPOSURE TO AMBIENT ULTRAFINE PARTICULATE MATTER INCREASES THROMBOGENIC POTENTIAL	<i>E Cozzi, CJ Wingard, WE Cascio, RB Devlin, RM Lust, MR Van Scott, RA Henriksen</i>
RP3	VIABILITY OF MESENCHYMAL STEM CELLS LABELED WITH QUANTUM DOT NANO PARTICLES	<i>PR Gunst, M Collins, BJ Burrows, AP Kypson, BJ Muller-Borer</i>
RP4	CONTINUING LATENT TUBERCULOSIS INFECTION TREATMENT WITH RIFAMPIN ALONE AFTER DEVELOPING MILD TO MODERATE HEPATITIS DURING SHORT REGIMEN WITH PYRAZINAMIDE AND RIFAMPIN	<i>RA Maldonado, PP Cook</i>
VP1	IS 10,000 UNITS OF INSULIN/HR TOO MUCH? A CASE STUDY OF EXTREME INSULIN RESISTANCE	<i>Sebastian Abadie, MD, Christopher A Newton, MD</i>
VP2	A FARMER'S DEADLY HARVEST: AN ISOLATED CASE OF MULTIPLE ENDOCRINE FAILURE SECONDARY TO CHRONIC HERBICIDE POISONING	<i>B. Lawal M.D, I. Carouba M.D, J. Gibbs M.D, S. Odeke, MD</i>
VP3	ATRIAL FIBRILLATION DURING ADENOSINE PHARMACOLOGICAL STRESS TESTING	<i>MS Cummings, J Raza, A Movahed</i>
VP4	METASTATIC SKIN MELANOMA TO THE STOMACH: AN UNUSUAL CAUSE OF UPPER GI BLEEDING	<i>JE Khoury, D Ramasamy, M Haque</i>
VP5	MAN'S BEST FRIEND OR FOE? A CASE OF PULMONARY BLASTOMYCOSIS	<i>Bayo Lawal M.D, Franklin Nwachukwu M.D</i>
VP6	ADRENOCORTICOTROPIC HORMONE INDEPENDENT MACRONODULAR ADRENAL HYPERPLASIA (AIMAH)	<i>Claudine Meyer, MD, Preceptor: Sylvester Odeke, MD; Almond Drake, MD.</i>
VP7	SPINAL CORD INFARCTION WITH MULTIPLE ETIOLOGIC FACTORS	<i>John Millichap, MD, Bernie Sy, MD</i>
VP8	UNUSUAL CAUSE FOR ABDOMINAL PAIN & CONSTIPATION IN AN AFRICAN-AMERICAN WOMAN	<i>Laura Moore, MD, Dan Ramasamy MD, Christopher Lochmuller, MD, Mamun Shahrier, MD, PhD</i>

VP9 ABNORMAL COAGULATION TESTS IN PATIENT WITH MULTIPLE MYELOMA *Hayan, Moualla, MD; Gregory Gagnon, MD*

VP10 OSTEOMALACIA INDUCED BY SEVERE HYPOPHOSPHATEMIA SECONDARY TO TENOFOVIR *Hayan Moualla, MD; Almond J. Drake, MD; Fiona J. Cook, MD*

Second Oral Session
Moderator: William Wood, MD

10:00am **RO6** FACTORS PREDICTING TUMOR SIZE AT PRESENTATION IN BREAST CANCER PATIENTS *A. Rosenberg, L. Burke, P. Vos, M. Brinson*

10:15am **RO7** ESTIMATION OF LEFT VENTRICULAR EJECTION FRACTION IN PATIENTS WITH ATRIAL FIBRILLATION A COMPARISON BETWEEN 2 DIMENSIONAL ECHOCARDIOGRAPHY AND GATED SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY *J Young, S Ahmed, J Raza, A Movahed*

10:30am **VO1** SEVERE CORONARY SPASM REFRACTORY TO MEDICAL THERAPY *Velappan, P, Kaul, S, Babb, JD*

10:45am **VO2** DYSPHAGIA IN YOUNG ADULTS SECONDARY TO AN EMERGING PROBLEM WITH UNIQUE FEATURES: THREE CASE REPORTS *Dan Ramasamy M.D., Mahfuzul Haque M.D., F.R.A.C.P.*

11:00am **VO3** NON STEROIDAL ANTI-INFLAMMATORY DRUG INDUCED GASTROINTESTINAL STRICTURES: TWO CASE REPORTS *Dan Ramasamy M.D., Joe Khoury M.D., Mahfuzul Haque M.D., F.R.A.C.P.*

Keynote Address

11:15am **Introduction of Keynote Speaker** *Ralph E. Whatley, MD, Chair
Department of Internal Medicine*

11:20am **ON METHODS TO ARREST THE PROGRESSION OF TYPE 2 DIABETES** *Jose Caro, MD, Vice President
Endocrine Research and Clinical Investigation
Lilly Corporate Center, Indianapolis, IN*

12:15pm **Lunch and Posters**

Second Poster Session

1:15pm

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|-------------|---|--|
| RP5 | CONTRIBUTIONS OF GM-CSF DEFICIENCY AND SURFACTANT EXCESS TO PULMONARY LIPID GENE DYSFUNCTION | <i><u>A Malur, M Febbraio, C Swaisgood, TL Bonfield, CF Farver, BP Barna, MS Kavuru, MJ Thomassen</u></i> |
| RP6 | QUALITY OF COMMUNICATION FOR TRANSFERS FROM EXTENDED CARE FACILITIES TO THE EMERGENCY DEPARTMENT | <i><u>JR Shiber, ZL Kiker, KL Brewer</u></i> |
| RP7 | ACTIVIN A DEFICIENCY: ASSOCIATION WITH AUTOIMMUNE LUNG DISEASE | <i><u>MJ Thomassen, H Dalrymple, TL Bonfield, BP Barna, A Malur, N John, and MS Kavuru</u></i> |
| RP8 | A NOVEL NON-INVASIVE DEVICE TO ASSESS ACOUSTIC WAVEFORMS IN CAROTID DISEASE | <i><u>Velappan, P., Pravica, D., Day, O., Johnson, T.A., Nanjundappa, A., Miller, M.J., Powell, C.S., Kaul, S., Cascio, W.E.</u></i> |
| RP9 | IDENTIFICATION OF BORDER ZONES IN SWINE CARDIAC TISSUE WITH THE USE OF A TYPHOON VARIABLE MODE IMAGING SYSTEM | <i><u>BJ Burrows, PR Gunst, BJ Muller-Borer, WE Cascio, TA Johnson</u></i> |
| VP11 | ACQUIRED FACTOR VIII INHIBITOR IN ASSOCIATION SU11248 (SUTUN®) | <i><u>Hayan Moualla, MD; Darla Liles, MD; Mikhael Vinogradov, MD</u></i> |
| VP12 | LEMIERRES SYNDROME IN A PREVIOUSLY HEALTHY 28 YEAR OLD MALE | <i><u>Ogi Ndili-Obi, MD, Yu Liu, MD, Tahir Farooq, MD, Dawd Siraj, MD, MPH</u></i> |
| VP13 | VIBRIO VULNIFICUS SEPSIS IN A RENAL TRANSPLANT PATIENT SUCCESSFULLY TREATED WITH ANTIBIOTICS, SURGICAL DEBRIDEMENT AND DROTECOGIN ALFA | <i><u>J. Sepich, MD, C. Scott, MD, E. Rabaa, MD, C. Brown, MD</u></i> |
| VP14 | PATIENT WITH RETROPERITONEAL FIBROSIS WITH ACQUIRED FACTOR VIII AND IX INHIBITORS TREATED WITH FACTOR VIIA SUCCESSFULLY FOR POSTOPERATIVE BLEEDING | <i><u>Satvir Singh, MD, <u>Darla K. Liles, MD</u>, Charles Knupp, MD</u></i> |
| VP15 | AMYLOIDOSIS WITH FACTOR X DEFICIENCY PRESENTING AS MASSIVE GI BLEEDING TREATED SUCCESSFULLY WITH FACTOR VIIA | <i><u>Satvir Singh, MD, <u>Darla K. Liles, MD</u>, Charles L. Knupp</u></i> |
| VP16 | AIDS ASSOCIATED LYMPHOMA OR PRIMARY HIV ASSOCIATED THROMBOCYTOPENIA OR TTP? | <i><u>Andre Talantov, MD; Thomas Kerkering, MD</u></i> |
| VP17 | AN ABDOMINAL FLUID COLLECTION IN A NON-HIV PATIENT WITH CD4 + T- LYMPHOCYTOPENIA | <i><u>Lakshmi Turlapati, MD</u></i> |

- VP18** NOCARDIAL INFECTION PRESENTING AS CEREBRAL ABSCESS *Pauravi Sanghadia, MD, MPH, Chirag Desai MD, Harry Adams, MD*
- VP19** ATYPICAL PRESENTATION OF CARDIAC TAMPONADE *Jordan Young, MD, William Johnson, MD, William Wood, MD*

Third Oral Session
Moderator: Carter Childs, MD

- 1:45pm** **RO8** OPTIMIZING TACROLIMUS THERAPY IN MAINTENANCE RENAL ALLOGRAFTS: 6 MONTH RESULTS *P. Bolin Jr, F Shihab, L Mulloy, A Henning, J Gao, the OPTIMA Study Group, M Bartucci, J Holman Jr and MR First*
- 2:00pm** **RO9** TEACHING AND MEASURING PROFESSIONALISM USING THE CLINICAL SKILLS EXAM: IMPACT OF FEEDBACK *Lane, H, Larsen, P, Merricks, P, Barchman, MJ, and Previll, K*
- 2:15pm** **RO10** EFFECT OF REDUCTION IN CIPROFLOXACIN USE ON PREVALENCE OF METHICILLIN-RESISTANT Staphylococcus aureus RATES WITHIN INDIVIDUAL UNITS OF A TERTIARY-CARE HOSPITAL *PP Cook, P Catrou, M Gooch, D Holbert*
- 2:30pm** **RO11** HYPERUTILIZATION IN THE EMERGENCY DEPARTMENT *JR Shiber, KL Brewer, MB Longley.*
- 2:45pm** **RO12** ULTRAFINE PARTICULATE MATTER EXPOSURE ATTENUATES MOUSE AORTIC RELAXATIONS *Christopher J Wingard, Emily Cozzi, Brian Tuttle, April Bofferding, Wayne E Cascio, Robert B Devlin, Robert M Lust and Michael R Van Scott*
- 3:00pm** **RO13** SYSTEMIC LUPUS ERYTHEMATOSUS ASSOCIATED WITH ANTI-SU ANTIBODIES IN AFRICAN AMERICANS *E.L. Treadwell, I. Marshall and G.S. Cooper*
- 3:15pm** **Closing Remarks and Award Presentations** *Ralph E. Whatley, MD, Chair
Department of Internal Medicine*

RO##: Research Oral
RP##: Research Poster
VO##: Vignette Oral
VP##: Vignette Poster

Underlined author will present the abstract.



ON METHODS TO ARREST THE PROGRESSION OF TYPE 2 DIABETES

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

Jose F. Caro, M.D. Vice President of Global Diabetes Care Outcomes is responsible for providing leadership to Lilly's transformation to become a "catalyst" for improvement in the outcomes to people with Diabetes. Dr. Caro is Professor of Medicine at Indiana University School of Medicine and Distinguished Emeritus Professor of Medicine at East Carolina University School of Medicine. Dr. Caro was Vice President of Endocrine Research and Clinical Investigations for 10 years, responsible for the discovery and development of drugs for diabetes, obesity and related co-morbidities from target identification to the end of phase II clinical trials. Prior to joining Lilly in 1996, Dr. Caro was the Magee Professor of Medicine and Chairman of the Department at Jefferson Medical College of Thomas Jefferson University and Chief of Endocrinology and the Diabetes Center at East Carolina University School of Medicine.

Dr. Caro received his M.D. degree with honors in 1973 from the School of Medicine in Madrid Spain and Montevideo Uruguay. He served as a resident in Medicine at Jefferson Medical College and as a Fellow in Endocrinology and Metabolism at the University of Rochester School of Medicine and Dentistry. Dr. Caro is Board Certified in Internal Medicine and Endocrinology and Metabolism by the American Board of Medicine.

Dr. Caro is a member of various professional and honorary societies, including the American Society for Clinical Investigation (Young Turk) and the Association of American Physicians (Old Turk). He served as the President of the American Diabetes Association, North Carolina Affiliate and as the Chairman of the Scientific and Medical Oversight Committee at the national level. Dr. Caro has also served the Juvenile Diabetes Foundation International in different roles and has recently become a founding member of its Management Advisory Board. Dr. Caro is the recipient of the Medal of Honor and is an honorary member of the Real Academy of Medicine of Granada, Spain. He is the Honorary Director of the Peking Diabetes Center and Honorary Professor of the Peking University Health Science Center in China.

Dr. Caro has authored or co-authored approximately 200 papers and invited book chapters and he was recently listed as the third most highly cited investigator in the world in the field of Obesity Research (1991 – 2001) by the Institute for Scientific Information (I.S.I.). Dr. Caro serves as Section Editor and is on the Editorial Board of several scientific journals. He is one of the editors with Dr. Leslie DeGroot of the first electronic textbook of Endocrinology (ENDOTEXT.com). Dr. Caro has served as a member and Chairman of several study sections at NIH over the last two decades, and more recently as a member of the National Institute of Diabetes and Digestive and Kidney Diseases Advisory Council (2001 –2004) and Chairman of the Research Grants Approval Committee.

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 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

2003 Recipient:

Lisa Staton, MD

2004 Recipient:

Cassandra Salgado, MD

2005 Recipient:

Barbara J. Muller-Borer, PhD

Abstracts of Oral and Poster Presentations

(Abstracts are listed in the order in which they are presented.)

RO #01

OVERLOAD-INDUCED SKELETAL MUSCLE HYPERTROPHY IS NOT DIFFERENT IN RATS SELECTIVELY BRED FOR HIGH AND LOW ENDURANCE EXERCISE CAPACITY.

TP Gavin, RM Lust, SL Britton, LG Koch, and SE Gordon

Rats selectively bred for high endurance exercise capacity (HCR) demonstrate greater skeletal muscle oxidative capacity and capillarization compared to low endurance exercise capacity (LCR) counterparts. As these rats were selectively bred for endurance exercise capacity, it is unknown if this selection criteria also selects for differences in the potential for muscle hypertrophy in response to overload. PURPOSE: To determine if the skeletal muscle hypertrophy response to overload is different between HCR and LCR rats. METHODS: Unilateral gastrocnemius ablation was performed and soleus and plantaris muscle wet weight measured in LCR and HCR male rats at 1 and 4 wk post-surgery. Muscles from the ablated hindlimb were compared to the sham operated hindlimb and to muscles from the hindlimb of non-operated control animals. RESULTS: In the soleus, significant overload-induced muscle hypertrophy was evident by 1 wk, but was not significantly increased to a greater extent after 4 wk. In the plantaris, overload-induced muscle hypertrophy was significantly increased after 1 wk and to a still greater extent after 4 wk. However, there were no differences in overload-induced hypertrophy of soleus or plantaris between LCR and HCR after 1 or 4 wk. There were no differences in soleus or plantaris wet weight between sham operated and control animal hindlimb at 1 or 4 wk. CONCLUSIONS: These results suggest that selectively breeding rats for high and low endurance capacity does not alter the muscle hypertrophy response to chronic overload.

Supported by NIH AG-21891, AG-25101, and HL-64270.

Notes:

RO #02

KIDNEY TRANSPLANT PATIENTS WITH GASTROINTESTINAL COMPLAINTS CONVERTED TO ENTERIC COATED MYCOPHENOLATE SODIUM: A SINGLE-CENTER EXPERIENCE WITH A PREDOMINANTLY AFRICAN AMERICAN POPULATION

Singh H, Gerkin S, Parker K, Bolin P

Background and Objectives: Enteric-coated mycophenolate sodium, (EC-MPS), has been reported to improve some gastrointestinal (GI) symptoms which often lead to reductions in mycophenolate mofetil (MMF) therapy. We examined the question of whether improvement in MMF related intolerance follows conversion from MMF to EC-MPS in a sub-group of our kidney transplant population which is predominantly African American (AA).

Methods: During routine clinic visits between June 2004 and October 2005, twenty-four MMF-treated patients not participating in a clinical trial were noted to have GI symptoms possibly related to MMF. These patients were converted to EC-MPS and followed to determine if the symptoms resolved.

Results: This group was 62.5%(15) AA, 37.5%(9) non African American. Thirty-eight per cent were diabetic and 62% non-diabetic. Fifty percent were on tacrolimus and 42% were on cyclosporine. One patient was on sirolimus and one patient was on MMF and prednisone alone. Mean post-op time at conversion to EC-MPS was 75.5 months (± 29.4 months). There was a 96 % response rate with 23 of 24 patients having relief from symptoms after conversion to EC-MPS. Continued resolution of symptoms has been documented over a follow-up period of 6 to 20 months.

Symptoms were categorized based on those with diarrhea 46%(11) versus those with non-diarrhea 54%(13). Non-diarrhea complaints included dyspepsia, abdominal pain, nausea, vomiting, constipation and GI bleed. The diarrhea group consisted of 73%(8) AA and 27%(3) non-AA. The non-diarrhea group included 46%(6) AA and 54%(7) non-AA.

Conclusions: Our single-center experience of 24 patients suggests that kidney transplant recipients with suspected MMF-related GI symptoms are likely to experience a resolution of their symptoms upon conversion to EC-MPS. The improvement was experienced in both African American and non-African American patients, and did not depend on the duration of MMF therapy before conversion. The predominance of diarrhea in the AA population was a novel finding and warrants further evaluation.

Notes:

RO #03

GLYCEMIA OPTIMIZATION TREATMENT (GOT): GLYCEMIC CONTROL AND RATE OF SEVERE HYPOGLYCEMIA FOR FIVE DIFFERENT DOSING ALGORITHMS OF INSULIN GLARGINE (GLAR) IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM)

R.J. Tanenberg, A. Zisman, J. Stewart and the GOT Study Group
Greenville, NC; Miami FL; Laval, Canada

This 24-wk, randomized open-label study compared the rate of severe hypoglycemic events (primary endpoint) for 5 dosing algorithms of GLAR, as well as the proportion of patients reaching A1C levels \leq 7.0%. The intent-to-treat population included 4823 patients with T2DM and A1C \leq 7.0% who were not currently on insulin therapy.

Patients continued prior oral agents (except thiazolidinediones which were discontinued) and began GLAR 10 U/day, which was actively titrated weekly according to the algorithm group (defined by fasting blood glucose [FBG] goals of 80, 90, 100, 110, or 120 mg/dl respectively).

Demographics (median age 55y, 48% male, 70% white, mean diabetes duration 8.3y, mean diabetes duration 7.0 y), baseline characteristics (mean A1C 9.2%, BMI 34.7kg/m²) and study completion (88.4% to 90.57%) were similar among groups.

A1C values improved in all groups in a linear progression from 1.7 to 2.0 percent below baseline. Despite low overall hypoglycemic rates, severe hypoglycemia was associated with increasingly aggressive dose titration.

More aggressive FBG targets required higher doses of GLAR, resulting in greater improvements in A1C, a higher proportion of patients achieving A1C $<$ 7%, but higher rates of hypoglycemia.

A target FBG of 110 mg/dl yielded the best balance between A1C results and the amount of severe hypoglycemia.

Notes:

RO #04

BONE MARROW CHANGES IN PATIENTS WITH HIV

Neverova, Maria, MD, Liles, Darla, MD, Gagnon, Gregory, MD

Bone marrow aspirate and biopsy are often requested in HIV patients for worsening of patient condition, peripheral blood abnormalities, search for possible opportunistic pathogens, unexplained fever, or confirmation of lymphoma.

We reviewed our local experience to determine if useful information that can affect patient management can be obtained. Bone marrow biopsies from 33 patients (2003- 2005) with HIV infection were examined in attempt to assess the diagnostic value of the procedure Our review revealed that common histopathological features usually found in HIV are not very pathognomic They were hypercellularity in six patients (18%), hypocellularity in eight patients (24%), plasmacytosis in one patient with AIDS and monoclonal gammopathy without multiple myeloma. Clinical diagnosis of B-cell lymphoma was confirmed by bone marrow in one patient and of multiple myeloma in another patient. In one patient with known Hodgkin's lymphoma, bone marrow demonstrated benign lymphoid aggregates. One patient had granulomatous inflammation with non-caseating granulomas. In one patient with Burkitt's lymphoma, chemotherapy-induced marrow hypoplasia with severe myeloid hypoplasia was present.

Bone marrow cultures for opportunistic infection were obtained in 14 patients and none were positive. Peripheral blood cytopenias well correlated (at least in 60% of the cases) with marrow hypoplasia. In conclusion, bone marrow aspiration and biopsy appearances in patients with HIV were generally non-specific. Bone marrow biopsy may be useful for evaluation of HIV patients with lymphomas and worsening of clinical condition. No patient was found to have lymphoma without strong clinical suspicion before the procedure. Bone marrow biopsy for opportunistic infection was not shown to be helpful in diagnosis in our series of patients.

Notes:

LOPINAVIR/RITONAVIR MONOTHERAPY FOR HIV PATIENTS

Ahmed O. Farooq, MD Paul P. Cook, MD

Background Conventional therapy of HIV consists of a combination of at least three different medications. Taking a large number of medications increases the risks of side effects and decreases compliance. Lopinavir/ritonavir, a potent protease inhibitor has been used as monotherapy in treatment-naïve patients and treatment experienced patients.

Objectives To assess the efficacy of lopinavir/ritonavir as monotherapy for HIV infected patients and to identify patients who may be candidates for this novel form of HIV therapy.

Methods This was a retrospective analysis involving patients at the HIV clinic at Brody School of Medicine. Twelve patients were identified on lopinavir/ritonavir monotherapy. Treatment response was assessed by measuring CD4 count and viral load before and after instituting lopinavir/ritonavir therapy. Average wholesale price of lopinavir/ritonavir was calculated for the duration of treatment for each individual patient and was compared to the average wholesale price of the previous regimens.

Results Twelve patients were identified to be on lopinavir/ritonavir monotherapy. The reasons for switching therapies were: lipoatrophy(4 patients); cost advantage(2 patients); patient preference(2 patients); intolerance or non-compliance with previous regimen(4 patients). The mean age of the patients was 43(range 32 – 53). All but one patient was treatment experienced. Mean CD4 count at the start of lopinavir/ritonavir was 563 cells/mm³(range 230 –1020). Six patients had undetectable viral loads, and other 6 patients' viral loads were 114 to 5555 copies/ml of plasma prior to making the switch in therapy. Mean duration of treatment with lopinavir/ritonavir was 18 months (range 7 - 27 months). All patients had undetectable viral loads on lopinavir/ritonavir. Mean CD4 count on lopinavir/ritonavir increased an average of 200 CD4 cells from the baseline. Total cost of lopinavir/ritonavir was \$78,117 compared to \$184,134 on conventional treatment regimen with cost savings of \$106,000.

Conclusions Lopinavir/ritonavir is an effective treatment regimen for selected patients with HIV infection. Compared to conventional HIV therapy, lopinavir/ritonavir has several advantages including lower cost, reduced toxicity and simplicity of regimen.

Notes:

ULTRAFINE PARTICULATE MATTER EXPOSURE AUGMENTS ISCHEMIA REPERFUSION INJURY IN MICE

E Cozzi, S Hazarika, HW Stallings III, WE Cascio, RB Devlin, RM Lust, CJ Wingard, MR Van Scott

Background: Epidemiological studies have linked ambient particulate matter (PM) levels to an increased incidence of adverse cardiovascular events, yet little is definitively known about the mechanisms underlying these events.

Methods: To test the hypothesis that ultrafine PM exposure increases ischemia reperfusion (IR) injury, mice were exposed to 100µg of PM (n = 16) or vehicle (n = 14) by tracheal instillation. 24 hr later, the left anterior descending coronary artery (LAD) was ligated for 20 min, flow was restored for 2 hr, and the resulting myocardial infarct (MI) size was measured.

Results: PM doubled the size of the MI compared to vehicle control (48 ± 4 vs 23 ± 3 % area at risk (AAR), p < 0.001). No difference was observed in the size of the AAR (33 ± 1vs 31 ± 1 % left ventricle (LV), p = 0.4). PM increased oxidative stress (196 ± 48 vs 111 ± 28 µmol/malondialdehyde/mg LV protein, p = 0.04) and neutrophil density (392 ± 23 vs 270 ± 32 cells/mm²/AAR, p = 0.01) in the myocardium after IR. Blood leukocytes were reduced in the PM compared to vehicle control (2959 ± 216 vs 4298 ± 473 ml/blood, p = 0.02). **Conclusions:** These results demonstrate that exposure to PM increases oxidative stress in the myocardium and augments injury after IR. This abstract does not necessarily reflect EPA policy. Supported by Philip Morris Foundation #567881.

Notes:

RP #02

ACUTE EXPOSURE TO AMBIENT ULTRAFINE PARTICULATE MATTER INCREASES THROMBOGENIC POTENTIAL
 E Cozzi, CJ Wingard, WE Cascio, RB Devlin, RM Lust, MR Van Scott, RA Henriksen

Background: Epidemiological studies link the levels of particulate matter in ambient air to cardiovascular mortality, and hospitalizations for myocardial infarction and stroke. Thrombus formation plays a key role in precipitating the majority of human acute cardiovascular events. Therefore, the present study was performed to determine if direct pulmonary exposure to ultrafine particulate matter (UFP) enhanced systemic thrombogenic potential.

Methods: UFP was collected from the Chapel Hill, NC airshed. Mice were exposed to 100 µg of UFP by intratracheal instillation, and 24 hours later, blood was collected by cardiac puncture and analyzed. **Results:** UFP induced a 30% increase in the number of circulating platelets and a 29% increase in the plasma level of fibrinogen compared to the blood of vehicle control animals (p = 0.041 and 0.037, respectively). Plasma concentration of soluble P-selectin, a glycoprotein released by activated endothelium and platelets, was also increased 3-fold following UFP exposure (p = 0.018). Preliminary data from both cDNA microarray and 2D DIGE analyses of myocardial tissue indicated that expression of Tissue Factor Pathway Inhibitor (TFPI) was reduced by UFP. **Conclusions:** The combined increase in platelets in the circulation, endothelial activation, and reduction of TFPI expression in the heart may be of particular significance in the initiation of thrombosis in coronary and possibly cerebral vessels after UFP exposure. This research does not necessarily reflect EPA policy. Research supported by Phillip Morris US International Inc.

Notes:

RP #03

VIABILITY OF MESENCHYMAL STEM CELLS LABELED WITH QUANTUM DOT NANO PARTICLES
 PR Gunst, M Collins, BJ Burrows, AP Kypson, BJ Muller-Borer

Background: Quantum dots (QDs) have been introduced as fluorescent labels for *in vitro* and *in vivo* cellular imaging. Our laboratory is interested in using QDs to label and track mesenchymal stem cells (MSCs) in a cardiac co-culture and cell transplantation model. Advantages to using these 10-15nm semiconductor nanocrystals are strong luminescence and long term photostability. However, the toxicity of QDs in MSCs and cardiac myocytes is not currently available. Here we report on a preliminary study to evaluate MSCs labeled with a low (LC) and high concentration (HC) of Cell tracker 605nm QDs. **Methods:** MSCs were isolated from the femoral and tibial bones of 6 wk old male Fisher rats. MSC cultures were replated twice after reaching ~80% confluency. Cells were divided into Control (No-QDs), LC (8.5ug/ml) and HC (34 ug/ml) groups. QDs were added to MSC cultures, at 37°C for 1 hour. Cells were analyzed at 24, 72 and 120 hours. QD labeling was quantified with confocal microscopy and flow cytometry. An annexin assay, performed with flow cytometry, identified apoptosis in QD labeled MSCs. Single strand DNA breaks were identified with a comet assay. Levels of MCP-1, IL-1β, IL-6 and TNFα were measured with a cytokine assay. **Results:** At 24 hrs, 90% of the HC-MSCs were QD⁺ vs. 39% of the LC-MSCs. The percentage of QD⁺ cells decreased to 39% (HC-MSCs) and 12% (LC-MSCs) by 120 hrs. Similar measurements were observed in the confocal images. The HC-MSCs and LC-MSCs determined to be QD⁺ and annexin⁺ increased from 8% to 12% and 9% to 15% from 24hr -120 hr. 6% and 4% of Control MSCs were annexin⁺ at these time points. At 72 hrs single strand DNA breaks increased in both LC-MSCs and HC-MSCs. Release of MCP-1 and IL-6 increased at 24 hrs, no change in IL-1β or TNFα was recorded. **Conclusion:** This preliminary data suggests that MSCs labeled with QDs can be used for short term cell tracking *in vitro*. MSCs should be used immediately after labeling and not allowed to proliferate in culture. If allowed to proliferate, a loss in fluorescence and increased cell death is expected. We anticipate using QD labeling to track transplanted MSCs in a rodent cardiac injury model to evaluate cell delivery methods and engraftment.

Notes:

CONTINUING LATENT TUBERCULOSIS INFECTION TREATMENT WITH RIFAMPIN ALONE AFTER DEVELOPING MILD TO MODERATE HEPATITIS DURING SHORT REGIMEN WITH PYRAZINAMIDE AND RIFAMPIN

RA Maldonado, PP Cook

Background: Current completion rates of treatment of latent tuberculosis infection (LTBI) are close to 60% with the isoniazid regimen for nine months. Improving compliance in the treatment of LTBI is a major component of the strategy of the United States to eradicate tuberculosis. The short regimen (i.e., two months) with pyrazinamide and rifampin (PZA-RIF) offers better completion rate but is associated with increased liver toxicity that may affect the completion rate by dropping patients. Rifampin for four months is an acceptable regimen to treat LTBI.

Objective: To evaluate patients who continued therapy with rifampin alone to complete four months of therapy after developing mild to moderate liver toxicity with the short regimen of PZA-RIF.

Methods: Observational study of all patients that continued therapy with rifampin alone to complete four months of therapy after developing mild to moderate hepatotoxicity (grades 1 to 3) with the regimen of PZA-RIF. Patients were followed at the Pitt County Health Department and returned to the health department for blood tests until their liver functions returned to normal.

Results: Treatment was completed by 100% (13 of 13 patients) of patients. The marker for hepatitis (alanine aminotransferase) returned to normal in all patients in an average of 5.9 ± 5 weeks and a median of 4 weeks. None of the patients had symptoms of hepatitis (i.e., nausea, vomiting, anorexia, jaundice) during the course of the therapy with either PZA-RIF or rifampin alone.

Conclusions: Patients who develop mild to moderate liver toxicity (grades 1 to 3) with the short regimen of PZA-RIF for treatment of LTBI can be safely switched to rifampin alone therapy to complete four months. After discontinuing pyrazinamide the markers for liver toxicity returned to normal in all patients. The combination of PZA-plus rifampin for four months on those patients who develop grades 1 to 3 liver toxicity would improve the overall completion rate of the treatment for LTBI.

Notes:

IS 10,000 UNITS OF INSULIN/HR TOO MUCH? – A CASE STUDY OF EXTREME INSULIN RESISTANCE

Sebastian Abadie, MD, Christopher A Newton, MD

Introduction: Medications and several illnesses are known causes of insulin resistance. We present an atypical case in which the patient required over 10,000 Units of Insulin per hour.

Case Study: The patient was a 34 year old woman admitted to the hospital with a diagnosis of pancreatitis at ~ 13 weeks gestation. Despite a family history of Type 2 Diabetes Mellitus, she had no Diabetes herself and a negative 50 gram Glucola Screening Test completed at ~ 8 weeks of gestation. The patient weighed 99.9 Kg and her BMI was 37.6 Kg/m². Shortly after hospitalization, she had a spontaneous abortion with partial placenta retention. Subsequently she developed septic shock as a complication around day 9 and multi-organ failure as evidenced by a peak white blood cell count of 41.7, a serum creatinine of 5.1 mg/dL and AST 889 U/L. She required treatment with vasopressors and steroids. She was intermittently on IV Insulin beginning day 1, transitioning off by day 10 for a short period of time. Table 1- summarizes the glucose level and IV Insulin infusion rates around the time of the extreme rise in insulin doses.

Due to limitations in insulin availability, the rate was empirically reduced from 10,400 to 500 Units/hr. The glucose at this rate ranged from 205 to 224 mg/dl. Postulating that insulin was acting as its own inhibitor, it was empirically stopped for 1 hr and then restarted at 3.6 Units/hr. The infusion was restarted 6 more times before it was maintained at <50 Units/hr. Within 7 days, the infusion rate had stabilized at ~ 3.5 U/Hr with glucose of 71 - 102 mg/dL. Insulin antibodies were negative. After transitioning to subcutaneous insulin she developed hypoglycemia and all insulin was discontinued with maintenance of euglycemia.

Conclusions: Sepsis, steroids and vasopressors increase insulin resistance, but not usually to this level. Disruption of receptors and post-receptor signaling may cause insulin resistance and may explain the findings in this case. Although there should be no fear with using insulin to whatever doses are required to achieve euglycemia, limits might occur at extreme insulin doses.

Notes:

VP #02

A FARMER'S DEADLY HARVEST: AN ISOLATED CASE OF MULTIPLE ENDOCRINE FAILURE SECONDARY TO CHRONIC HERBICIDE POISONING
B. Lawal M.D., I. Carouba M.D., J. Gibbs M.D., S. Odeke, MD

This is an unusual case of multiple endocrine failures as a result of long term exposure to the herbicide paraquat. A 79 y/o retired farmer with a history of type II diabetes mellitus well controlled on dietary management (HgbA1C of 5.8), presented with a 4 month history of intermittent episodes of right sided weakness, dizziness, falls & seizure like symptoms. He also complained of dysarthria. Further questioning revealed a history of orthostatic hypotension, cardiac arrhythmias & 4 months previously he had a permanent pacemaker placed for symptomatic sinus pauses, right bundle branch block & left anterior hemi-block. A careful social history revealed that the patient was a farmer who handled herbicides including **paraquat** without the adequate protection of gloves or gowns, included siphoning of the herbicide with his mouth. Lab tests showed a TSH & free T4 levels of 0.08 and 0.6 respectively. An ACTH stimulation test came back with a baseline of 4.2, 12.0 & 12.8 at 30 minutes & 1 hr respectively. Aldosterone level was 1.5 while a testosterone level check came back undetectable with an LH level of 4.0. A CT scan of the abdomen revealed bilateral adrenal atrophy; however a head CT did not show any lesions of the pituitary gland. Patient was found to have CRF with a baseline creatinine level of 2.2 & creatinine clearance of 29 cc/min. Endocrinology evaluation made a diagnosis of paraquat induced hypopituitarism w/ central hypothyroidism, secondary adrenocortical insufficiency & hypogonadotropic hypogonadism. His presenting symptoms were due to orthostatic hypotension & not to atonic seizure activity. He started on replacement hydrocortisone, fludrocortisone, & synthroid, but declined testosterone replacement. His orthostatic hypotension & speech improved significantly. Discussion: Chronic effects of continuous **paraquat** exposure have not been studied due to the severe toxicity of acute ingestions. It is also inactivated by the natural constituents of the soil. We are convinced that this patient has suffered from multiple endocrine failure from long term exposure to this herbicide. Articles dedicated to the acute manifestations of paraquat poisoning document lung inflammation leading to eventual pulmonary fibrosis in severe cases. Acute glomerulonephritis, acute renal failure, adrenal cortical necrosis & transient liver damage have all been associated with paraquat toxicity. Also, rare cases of ventricular arrhythmias, hypotension & cardiorespiratory arrest have been reported. The patient has no other medical history that could explain all of our current findings & has been exposed to decades of minute concentrations of this herbicide due to his occupational hazard.

Notes:

VP #03

ATRIAL FIBRILLATION DURING ADENOSINE PHARMACOLOGICAL STRESS TESTING
MS Cummings, J Raza, A Movahed

Learning Objectives: To discuss the importance of and possible mechanism of adenosine induced atrial fibrillation.

Case Information: We present four patients who developed atrial fibrillation during adenosine pharmacological stress testing.

Summary: Adenosine is a useful diagnostic and therapeutic agent in clinical cardiology, commonly used in the management of supraventricular tachycardia and during pharmacological stress testing. Adenosine's adverse effects have been well described, the most common of which are minor and include flushing, chest pain, and shortness of breath. Adenosine is generally considered to have an excellent safety profile, and serious adverse effects such as hypotension, bradycardia, and atrioventricular block are uncommon. Atrial fibrillation is a rare, but serious adverse effect most commonly reported with adenosine administration for the treatment of supraventricular tachycardia. Though not generally recognized, atrial fibrillation may also occur during adenosine administration for pharmacological stress testing. In fact, atrial fibrillation is not listed as a side effect of adenosine in the American Society of Nuclear Cardiology's guidelines for myocardial perfusion imaging. This manuscript describes four patients who developed atrial fibrillation during adenosine myocardial perfusion scintigraphy and discusses the possible mechanism of this overlooked, but important adverse effect of adenosine.

Notes:

VP #04

METASTATIC SKIN MELANOMA TO THE STOMACH: AN UNUSUAL CAUSE OF UPPER GI BLEEDING

JE Khoury, D Ramasamy, M Haque

Background: Malignant melanoma is the most common cancer to metastasize to the gastrointestinal tract with an unusual predilection to the small bowel (50 – 70 % of SB metastasis). Symptoms include bowel obstruction, upper or lower, occult or overt gastrointestinal bleed. **Case:** Mr. AC is a 66 year old Caucasian male who was referred for evaluation of anemia and a 20 lbs unintentional weight loss over a couple of months. He has a history of CAD, HTN, type-2 diabetes mellitus, and a locally resected superficial spreading type melanoma of the right popliteal region diagnosed five years prior to his current presentation. No altered bowel habits, and no abdominal pain, hematemesis, melena or hematochezia. Abdominal exam was benign. Laboratory work was remarkable for anemia (hemoglobin of 7 gm/dL) with iron deficiency. Colonoscopy showed three small polyps that were tubulovillous adenomas on histology. EGD showed a 5 cm ulcerated gastric body mass that was oozing blood. Biopsies showed a poorly differentiated metastatic malignant melanoma (ENDOSCOPY VIDEO). He then underwent an exploratory laparotomy with distal gastrectomy and Billroth II reconstruction. At the time of surgery diffuse implants were noted and a large lesser curvature mass was excised. He was started on chemotherapy by enrolling in a clinical trial with a poor response. He expired few months after his initial presentation. **Discussion:** Despite being a rare malignancy, skin melanoma is the most common cause of cancer metastasis to the GI tract. With a high predilection to the small bowel, we presented a metastatic melanoma to the stomach that is less common. **Conclusion:** Our case highlights the importance of including metastatic disease in the differential diagnosis of an upper gastrointestinal bleeding in a patient with previous history of skin melanoma.

Notes:

VP #05

MAN'S BEST FRIEND OR FOE? A CASE OF PULMONARY BLASTOMYCOSIS

Bayo Lawal M.D., Franklin Nwachukwu M.D

Abstract: Case history: A 31 year old avid outdoorsman and hunter presented with a 3 week history of productive cough, shortness of breath and malaise. Two months prior to presentation patient had participated in a dog training exercise in Northern Wisconsin. Requirements of this expedition involved exploring large caves. Shortly after this trip the patient's dog became ill and a diagnosis of blastomycosis was made. The dog subsequently died and an autopsy confirmed the diagnosis. One week later the patient developed fevers and a cough initially treated for a community acquired pneumonia. Despite a lack of improvement, the patient traveled to eastern North Carolina to hunt black bears but was admitted for worsening symptoms and general malaise. On examination he was febrile, with bibasilar crackles. Pertinent labs included WBC of 20.70, negative PPD, sputum AFB negative. Chest X ray revealed bilateral airspace disease and a computed tomography scan showed extensive areas of consolidation within the lower lobes bilaterally. A bronchoscopy and bronchio-alveolar lavage (BAL) showed erythematous inflammatory changes. Backed with a strong suspicion from the history, the patient was empirically begun on treatment for blastomycosis. The patient clinically improved and two weeks after his bronchoscopy, his BAL cultures grew *Blastomyces Dermatidis*.

Discussion: Pulmonary blastomycosis should always be considered in the differential diagnosis of an atypical pneumonia especially with a very unique history as in this case. We should also be cognizant of the fact that household animals can be the source of infection through respiratory secretions. The internist's tradition of obtaining a careful and detailed history could have reduced patient morbidity and medical expense at the initial presentation, and was pivotal in beginning empiric treatment.

Notes:

VP #06

ADRENOCORTICOTROPIC HORMONE INDEPENDENT MACRONODULAR ADRENAL HYPERPLASIA (AIMAH)
Claudine Meyer, MD
 Preceptor: Sylvester Odeke, MD; Almond Drake, MD.

Learning Objective: Adrenocorticotrophic Hormone Independent Macronodular Hyperplasia is a rare and often unrecognized cause of Cushing’s syndrome accounting only for less than 1% of all cases. It has typical histological findings and has been reported to exhibit aberrant expression of gastric inhibitory peptide, vasopressin, catecholamine, luteinizing hormone, Human Chronic Gonadotropin, leptin and/ or 5-OH tryptamine receptors.

Case Information: A 44 year old African American male presented with signs of chronic heart failure and symptoms of proximal muscle weakness, easy bruising, and poor wound healing for a prolonged period. He also gave a history of progressive swelling of his abdomen, weight gain, decreased libido, persistent fatigue and depression for over a year. He had no typical symptoms of a pheochromocytoma, no palpitations, syncopal episodes or diaphoresis.

Summary: The diagnosis was confirmed by biochemical screening with elevated 24 h Urinary free cortisol of 369.0µg/dl with morning ACTH level less than 5.0 pg/ml, and a cortisol level that was not suppressed by high dose dexamethasone suppression test. He had a negative catecholamine screen and plasma aldosterone concentration was normal. CT scan of his abdomen and pelvis showed multiple bilateral lobular adrenal masses causing diffuse enlargement of adrenal glands with benign appearance. Histopathological examination following a bilateral adrenalectomy revealed marked enlargement of both adrenal glands with macronodular hyperplasia.

Cost restrictions limited our ability to perform receptor analysis.

Notes:

VP #07

SPINAL CORD INFARCTION WITH MULTIPLE ETIOLOGIC FACTORS
John Millichap, MD, Bernie Sy, MD

Abstract: Spinal cord infarctions are uncommon and usually present with sudden onset of paralysis of the extremities, bladder and rectum, and loss of pain and temperature sensation below the level of the lesion. Known causes of spinal vascular lesions include rupture, thrombosis, embolism, trauma, hemorrhage, inflammation, and compression by tumors, granuloma, or abscess. Arteriosclerosis with thrombosis of spinal vessels is a rare occurrence, even in the elderly. We report a case of a 63 year-old male with a history of diabetes mellitus type 2, hypertension, and osteoarthritis, who was transferred to our tertiary-care facility after an acute onset of chest pain, numbness and weakness, while recovering from a mild ileus. He experienced sudden substernal pain while standing that did not radiate to extremities, lasted 10 minutes, and was relieved by sitting down. His blood pressure initially was elevated. Over the next several hours, he developed urinary retention followed by sudden onset of numbness and weakness in the upper and lower extremities. Systolic blood pressure was recorded at 60 mmHg. On admission to our hospital, a neurologic examination revealed normal speech, cognition, and cranial nerve function. He was quadriplegic and areflexic. His sensation for touch and temperature was absent in the right lower extremity and chest, to the nipple line bilaterally. Proprioception was absent in the right lower extremity. Magnetic resonance imaging of the spinal cord showed cervicothoracic anterior infarction, spondylosis of C5-6, and narrowing of the right spinal foramina. Computed tomography of the aorta showed no dissection. Cardiac embolic source was ruled out by transthoracic echocardiography. The neurologic deficits persisted unchanged, and the patient was transferred to rehabilitation. No single cause for the spinal infarction was identified. This case report illustrates 1) an unusual onset of spinal infarction with acute chest pain, and 2) the compounding of multiple risk factors including diabetes, hypertension, episodic hypotension with ischemia, and spondylosis.

Notes:

VP #08

UNUSUAL CAUSE FOR ABDOMINAL PAIN & CONSTIPATION IN AN AFRICAN-AMERICAN WOMAN

Laura Moore, MD, Dan Ramasamy MD, Mamun Shahrier, MD, PhD, Christopher Lochmuller, MD

Abstract: Background: Celiac disease traditionally is considered a malabsorption syndrome among Caucasians with diarrhea as the predominant symptom

Case Report: A 48 year old African-American female presented with chronic abdominal pain associated with constipation, nausea, and bloating. Her constipation required laxatives on a regular basis. Labs revealed iron deficiency anemia. Hydrogen breath test was positive for H.pylori infection, and her symptoms persisted despite eradication with triple therapy. Upper endoscopy revealed mild gastritis with absence of H.pylori infection and normal endoscopic appearance of the duodenal mucosa. She was placed on oral lansoprazole once daily. Ultrasound and CT scan of her abdomen as well as colonoscopy were unremarkable. In view of persistent abdominal pain, a repeat upper endoscopy was performed a year later. Despite the normal endoscopic appearance of her duodenum, four random biopsies were performed to rule out enteropathy. Histology revealed villous atrophy with crypt hyperplasia suggestive of celiac disease. IgG endomysial antibody and IgG antihuman tissue transglutaminase were markedly elevated at >100 (ULN <5 U/mL) and 55 (ULN <7 U/mL) respectively. Capsule endoscopy revealed serrated folds with severe villus blunting of the small bowel mucosa.

Discussion: Studies have shown celiac disease to be common among Caucasians and is widely known to have diarrhea as being the predominant symptom. A high index of suspicion is needed to diagnose the disease promptly in order to reduce the patient morbidity and unnecessary investigations, especially in view of the availability of simple and effective therapy i.e. gluten free diet.

Conclusion: Our case highlights not only the importance of recognizing the atypical manifestations of celiac disease but also the need to recognize its occurrence among non Caucasians.

Notes:

VP #09

ABNORMAL COAGULATION TESTS IN PATIENT WITH MULTIPLE MYELOMA

Hayan Moualla, MD; Gregory Gagnon, MD

Abstract: Multiple Myeloma (MM) can cause coagulopathy by interfering with clotting factors like von Willebrand's and fibrinogen. **Case:** 85 yo female was admitted for SAH after a fall. Patient was evaluated for surgery, but was found to have abnormal coagulation studies: PT>100 sec(9.6-12.0), PTT 25.4 sec(23-29), 1:1 PT mix – 12.7 sec, TT 35.3 sec(17.5-21.5). Factor levels were as follows: II – 76%, V – 89%, VII – 75%, X – 75%. A Russell Viper venom test was abnormal, but corrected to normal with 1:1 mixing. These were performed on an instrument w/ optical clot detection methodology. Patient was not on anticoagulants. Repeat CT scans showed a stable SAH with no additional bleeding, but the patient became progressively lethargic. The PT continued to show marked prolongation with no evidence of either inhibitor or factor deficiency. Her total protein was noted to be 12.5 g/dl (6.2-8.3), & a subsequent serum protein electrophoresis showed IgG lambda paraprotein, which was quantified at 8.3 g/dl. Patient's blood viscosity was 3.2 cs/sec (1.2-2.0). A diagnosis of Multiple Myeloma (MM) was established. Performance of the PT on the original specimen using an alternative instrument with mechanical clot detection methodology showed PT 14.8 sec (8-11). The patient underwent plasmapheresis w/ a reduction in serum IgG from 8 g/dl to 2 g/dl & reduction in viscosity from 3.2 cs/sec to 1.8 cs/sec. PT performed on optical methodology instrument after pheresis was 12.5 sec. Concluding that the original PT performed w/ optical methodology was falsely abnormal due to high plasma paraprotein levels, which interfered w/ accurate detection of the clot endpoint by the instrument. Mechanical methodology showed no significant interference. Dilution of plasma, which are routine steps in the mixing studies & factor assays lowered paraprotein concentrations so there was no significant interference w/ optical clot detection. Patient's mental status normalized, the SAH remained stable, & the patient never experienced bleeding during the admission. **Conclusion:** MM with high plasma paraprotein levels can lead to coagulopathy & bleeding through many mechanisms. When screening coagulation studies are significantly abnormal in a patient with high plasma paraprotein, & there is no evidence of significant bleeding, spurious results of the clot based coagulation assays should be considered, especially if an instrument using optical clot detection methods is in use. Rerunning of the assay on an alternative instrument with mechanical clot detection methodology will usually yield accurate results.

Notes:

VP #10

OSTEOMALACIA INDUCED BY SEVERE HYPOPHOSPHATEMIA SECONDARY TO TENOFOVIR

Hayan Moualla, MD; Almond J. Drake, MD; Fiona J. Cook, MD

Abstract: Drug-induced urinary phosphorus wasting is an under-appreciated cause of osteomalacia. We report a case of severe osteomalacia associated with tenofovir therapy. **Case:** A 52 yo AAF with HTN, Hgb C disease, & HIV seropositivity for 14 years, on HAART for the past 17 months, presented with generalized bone pain & severe weakness. Patient's pain & weakness progressively worsened over the 6 months prior to presentation, to the point she was completely immobile. On exam, she had diffuse tenderness to palpation over all her bones with severe lower extremity weakness. Otherwise, exam was unremarkable except for cachectic appearance. Medications included TMP-SMX, azithromycin, DDI, nelfinavir & tenofovir. There was no family or personal history of bone diseases. CBC showed mild anemia. BMP was normal w/ creatinine of 0.7 mg/dL & calcium of 8.2 mg/dL; however, she had an isolated elevation in alkaline phos (ALP) at 490 units/L. A 25-OH vitamin D was low (11 ng/mL), & serum phos was <1 mg/dL, while urine phos was inappropriately high at 11.1 mg/dL with a urine creatinine of 33 mg/dL (Fractional Excretion of phos of 23.5%). Urine was diffusely positive for aminoaciduria. Intact PTH was normal at 53 pg/mL. HIV viral load was < 400 copies/mL & the CD4 count was 90/mL. Workup for MAC was negative. DXA showed markedly low bone mineral density (BMD) of 0.709 g/cm2 at the lumbar spine (T score = -4.1). ALP had been normal 2 months prior to starting tenofovir. Patient's clinical worsening & elevation of ALP temporally correlated. Phos & vitamin D replacement were begun. Serum phos remained low despite replacement therapy. Tenofovir was discontinued. Patient showed markedly improved clinically & ALP & serum phos approached normal. Repeat DXA 10 weeks after initiating treatment showed a 12% increase in the spine BMD, with resolution of the bone pain, marked improvement in the motor tone, & resumption of ability to walk.

Conclusion: Patient had severe hypophosphatemic osteomalacia, with marked weakness & immobility, secondary to urinary phos wasting, in the setting of tenofovir-associated Fanconi's syndrome, perhaps aggravated by vitamin D deficiency. Despite aggressive replacement therapy, urinary phos wasting persisted, w/o clinical improvement, until tenofovir was discontinued. In this setting, discontinuation of tenofovir along with replacement of phosphorus & correction of any underlying vitamin D deficiency may result in dramatic improvement in clinical status & BMD.

Notes:

RO #06

FACTORS PREDICTING TUMOR SIZE AT PRESENTATION IN BREAST CANCER PATIENTS.

A. Rosenberg, L. Burke, P. Vos, M. Brinson

Background: Early diagnosis of breast cancer improves prognosis. A high percentage of women at our institution present with large breast cancers. Using tumor board records, we investigated the potential covariates associated with tumor size at presentation, including age, race, marital status, and insurance status in order to identify populations at risk for presenting with late stage disease. **Methods:** Data were obtained from tumor board records of University Health Systems, Greenville, NC, a regional referral center in rural Eastern North Carolina. We analyzed data from patients presenting between 1999 and 2005. Relationships between tumor size at diagnosis and explanatory variables (marital status, age, ethnicity, and insurance status) were explored. **Results:** 1568 patients with breast cancer were identified of which 32% were African American (AA), 67% were White (W), and 0.6% other. 8.3% of patients had Medicaid; 27%, Medicare; 53.5%, private insurance; 3.4%, HMO; and 6.1% were uninsured. Tumor size was 0.01 to 25 cm and highly skewed so that statistical inferences were conducted on the log of tumor size. Tumors of >5 cm were found in 13.8% of AA women as compared to 6.4% of W women. Overall tumor size in AA women was larger than in W women (p-value= .0000). Marital status was not statistically significant (p-value = .5148). A linear regression model for log tumor size at time of diagnosis using explanatory variables marital status, age, ethnicity, and insurance status showed that only race (p-value = .0000) and age (p-value = .0004) were statistically significant. Older patients presented with somewhat smaller tumors. Most of the variability in log tumor size remained unexplained (r-squared= 4%). **Conclusion:** AA women were more likely to present with large tumors. While Medicaid patients had larger tumors, insurance status was not statistically significant in the linear regression model due to partial confounding of insurance and race: 20.8% of AA women were on Medicaid compared to 2.6% of W women.

Notes:

RO #07

ESTIMATION OF LEFT VENTRICULAR EJECTION FRACTION IN PATIENTS WITH ATRIAL FIBRILLATION A COMPARISON BETWEEN 2 DIMENSIONAL ECHOCARDIOGRAPHY AND GATED SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY

J Young, S Ahmed, J Raza, A Movahed

Background: Atrial fibrillation is a result of multiple foci in the atria stimulating a chaotic array of electrical impulses that are arbitrarily conducted to the ventricles. These erratic impulses of the cardiac conduction system lead to varying diastolic filling of the left ventricle and hence the ejection fraction. Conventional two dimensional echocardiography, (2DE) has been used predominantly in clinical cardiology to assess LVEF. In addition to perfusion imaging, ECG gated SPECT evaluates LVEF by analysis of 8 or more cardiac cycles to determine a more reliable assessment of LVEF. This study sought to answer the question of whether ECG gated SPECT may be utilized to estimate LVEF as effectively as 2DE in patients with atrial fibrillation. **Methods:** A retrospective record review of 40 patients 21 male and 19 female in atrial fibrillation who had both ECG gated SPECT and 2DE examinations were reviewed. The mean duration between SPECT and 2DE was two weeks. Evaluation of LVEF by 2DE was conducted utilizing the Simpson bi-plane formula, (SSM) in the apical two and four chamber views according to the recommendations of the American Society of Echocardiography. The LVEF calculated by ECG gated SPECT utilized QGS software. **Results:** Results of the data utilizing the Pearson Correlation Coefficient reveal that a moderate correlation exists between the LVEF as calculated by gated SPECT and the LVEF determined by 2DE, (r = .511, p<.001). Utilizing the absolute value of the difference, the mean difference between the gated SPECT image LVEF and the SSM LVEF was noted to be 10.75%. **Conclusion:** There is a moderate correlation between the calculated LVEF with 2DE utilizing the Simpson's Bi-plane formula and the LVEF as determined by ECG gated SPECT imaging in patients with atrial fibrillation

Notes:

VO #01

SEVERE CORONARY SPASM REFRACTORY TO MEDICAL THERAPY

Velappan, P, Kaul, S, Babb, JD

We present a very interesting case of chest pain due to refractory coronary vasospasm in a patient who ultimately required surgical revascularization.

DS was a 43 year old female of Philippino origin who presented to her internist with a three year history of chest pain. Her evaluation was remarkable for the absence of traditional risk factors, a benign physical exam and rather atypical features (no relation to exercise, relief with ibuprofen, etc).She was treated with NSAIDs, but she was ultimately referred to a community cardiologist for a stress test due to increasing frequency and severity of symptoms.

The stress test was remarkable for inferolateral ST elevations and the patient was transferred to our institution for cardiac catheterization. This revealed an 80% lesion in the left main coronary artery which was reduced to 30% with nitroglycerin. The remainder of the coronary tree was free of angiographic disease. Intravascular ultrasound of the LMCA was normal. A diagnosis of coronary vasospasm was made and medical management was initiated with cardizem. Long-acting nitrates were added later. A repeat stress test was ordered to assess the adequacy of therapy. Exercise nuclear stress testing revealed reversible defects in the LAD territory, ST segment elevations in aVR, V1 and V2 along with clinical hypotension and chest pain. On account of persistent symptoms correlating with objective evidence of ischemia despite appropriate medical therapy, we elected to consult cardiothoracic surgery. After lengthy consideration, the patient underwent coronary artery bypass graft surgery with reversed saphenous vein grafts to the LAD and first obtuse marginal.

The postoperative course was complicated by a "code blue" characterized by bradycardia, hypotension and inferior ST elevations with a troponin leak. She was resuscitated successfully with no permanent sequelae. It was hypothesized that right coronary spasm was etiologic. A few days later, she was discharged home on continued calcium blockade and nitrates and continues to do well.

Notes:

VO #02

DYSPHAGIA IN YOUNG ADULTS SECONDARY TO AN EMERGING PROBLEM WITH UNIQUE FEATURES: THREE CASE REPORTS
Dan Ramasamy M.D., Mahfuzul Haque M.D., F.R.A.C.P.

BACKGROUND: Dysphagia with food impaction is most commonly associated with gastroesophageal reflux disease, schatzki's ring and esophageal stricture. **OBJECTIVES:** Young adults are increasingly presenting with dysphagia secondary to eosinophilic esophagitis. Prompt recognition of this disorder is important to prevent serious complications. **CASE INFORMATION:** We report the diagnosis and management of three patients who presented with unexplained symptoms of solid food dysphagia. **Case 1:** A 17 year old male with history of asthma presented to the ED with acute dysphagia after eating a sandwich. Urgent upper endoscopy revealed food impacted in the mid esophagus. The esophageal mucosa had a ringed appearance with mucosal tears (Video available). Biopsies from mid esophagus confirmed eosinophilic esophagitis. Patients symptoms resolved after starting swallowed fluticasone. **Case 2:** A 21 year old male with history of asthma presented to the ED with acute dysphagia after eating a sandwich. Urgent upper endoscopy revealed food impacted in the mid esophagus. Repeat endoscopy a month later showed ringed appearance of the esophageal mucosa with mucosal tears secondary to easy friability. Biopsies confirmed eosinophilic esophagitis. **Case 3:** A 25 year old male with history of intermittent solid food dysphagia and seasonal allergies was seen for further evaluation of his dysphagia. Upper endoscopy revealed ringed appearance of the esophagus with partial obstruction in the lower esophagus that required balloon dilatation. Biopsies confirmed eosinophilic esophagitis and his symptoms resolved with swallowed fluticasone. **SUMMARY:** Eosinophilic esophagitis is rapidly emerging as a distinct disease entity. The typical clinical presentation includes solid food dysphagia in young men who have an atopic predisposition. Diagnosis is confirmed when biopsies reveal more than 20 eosinophils per high power field. All our patients had atopic predisposition with long standing intermittent solid food dysphagia that went unrecognized. Our cases highlight the importance of recognizing this entity with its distinct endoscopic findings and unique management. **CONCLUSION:** Diagnosis of eosinophilic esophagitis requires a high index of suspicion for prompt diagnosis and appropriate management.

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VO #03

NON STEROIDAL ANTI-INFLAMMATORY DRUG INDUCED GASTROINTESTINAL STRICTURES: TWO CASE REPORTS
Dan Ramasamy M.D., Joe Khoury M.D., Mahfuzul Haque M.D., F.R.A.C.P.

BACKGROUND: Non steroidal anti-inflammatory medications (NSAIDs) are commonly taken for a variety of conditions. They cause adverse effects in the GI tract including ulceration, bleeding, and bowel perforation. **OBJECTIVES:** NSAIDs can cause strictures in both large and small intestine and their prompt recognition is important to effectively manage with endoscopic techniques, thereby avoiding surgical intervention. **CASE INFORMATION:** We report the diagnosis and endoscopic management of two patients who presented with unexplained symptoms of chronic abdominal pain. **Case 1:** A 49 year old female with a history of chronic abdominal pain was admitted to an outside hospital with exacerbation of her symptoms. EGD revealed a pyloric channel ulcer. CT scan revealed distended bowels with multiple air-fluid levels suggestive of bowel obstruction. Exploratory laparotomy revealed diffuse ileus without mechanical obstruction. She was transferred to our hospital for further evaluation. Repeat EGD revealed severe stenosis at the pylorus. Colonoscopy revealed an ascending colon diaphragm with "pin-hole" luminal stricture (Video available). Her symptoms improved dramatically after endoscopic dilatation of the pyloric stenosis and the colonic stricture. **Case 2:** A 44 year old female with history of arthritis underwent colonoscopy for chronic abdominal pain. Severe circumferential stenosis was found in the ascending colon. The colonoscope could not be passed beyond the stenosed area. Dilatation was avoided in view of acute ulceration. Repeat colonoscopy with balloon dilatation of the stenosed area is planned. **SUMMARY:** NSAID related strictures cause chronic disabling symptoms. Endoscopic balloon dilatation of these strictures is an effective and safe mode of treatment, thereby avoiding surgical intervention. Both our patients recalled using NSAIDs for chronic headache and arthritis. Extensive workup in the past for their symptoms were unrevealing. Our cases highlight the importance of obtaining careful history of medication usage and the need for patient education about the complications of NSAIDs. **CONCLUSION:** Diagnosis of NSAID related strictures requires a high index of suspicion for prompt diagnosis and appropriate management.

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RP #05

CONTRIBUTIONS OF GM-CSF DEFICIENCY AND SURFACTANT EXCESS TO PULMONARY LIPID GENE DYSFUNCTION.

A Malur, M Febbraio, C Swaisgood, TL Bonfield, CF Farver, BP Barna, MS Kavuru, MJ Thomassen.

Introduction: Pulmonary alveolar proteinosis (PAP) is a rare autoimmune disease, in which surfactant clearance is defective and neutralizing granulocyte-macrophage colony stimulating factor (GM-CSF) autoantibodies result in a GM-CSF deficiency. In PAP lungs, alveolar macrophages develop a foam cell appearance due to excess intracellular lipid, and are deficient in peroxisome proliferator-activated receptor γ (PPAR γ), a regulator of lipid metabolism. An analogous animal model is the GM-CSF knock-out (KO) mouse, which exhibits a PAP-like syndrome. **Methods:** We investigated lipid regulatory pathways in: 1) bronchoalveolar lavage (BAL) cells from PAP and healthy controls, and 2) BAL and peritoneal cells from GM-CSF KO and wild type mice. Expression of genes regulated by PPAR γ was analysed by real time PCR. PPAR γ protein was evaluated by immunofluorescence. **Results:** The GM-CSF KO alveolar macrophage displayed decreased PPAR γ gene (10 fold less than wild type) and almost no nuclear PPAR γ protein expression similar to PAP. In addition, BAL cells of both PAP patients and GM-CSF KO mice showed significantly decreased ATP-binding cassette transporter G1 (ABCG1) and increased liver X receptor (LXR α) and ABCA1 expression (p<0.05). In peritoneal macrophages of GM-CSF KO mice, PPAR γ , ABCG1, ABCA1, and LXR α gene expression were all significantly decreased (p<0.05). **Conclusion:** These differences between gene expression of peritoneal and alveolar macrophages indicate that the reduction of PPAR γ and ABCG1 expression observed in PAP alveolar macrophages results from GM-CSF deficiency. However, the elevation of alveolar macrophage LXR α and ABCA1 appears to be secondary to a deranged pulmonary environment caused by surfactant accumulation. Data support the hypothesis that PPAR γ and ABCG1 are part of a GM-CSF activated pathway that is unique to the lung and is required for alveolar macrophage catabolism of surfactant. HL67676

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RP #06

QUALITY OF COMMUNICATION FOR TRANSFERS FROM EXTENDED CARE FACILITIES TO THE EMERGENCY DEPARTMENT

JR Shiber, ZL Kiker, KL Brewer

Objective: Previous studies have shown that vital information is often not provided to the emergency department (ED) when patients are transferred from extended care facilities (ECF). The current study was designed to describe the impact of any deficiency in information on the ability of emergency physicians to care for patients from ECFs and the potential effects on patient outcomes. **Methods:** Data was collected prospectively via a convenience sample over a one month period (7/1/05 – 7/31/05) at Pitt County Memorial Hospital ED, an academic tertiary facility seeing approximately 65,000 visits yearly. At the time of transfer, each patient's paperwork was reviewed and a standard one-page form was used to record the presence or absence of 15 data elements necessary for patient care. The "reason for transfer to the ED" and "baseline mental status" was specifically recorded. The ED physician caring for each patient was asked three questions to determine if he/she felt the information provided to them at the time of transfer was adequate, and if it was not, how impeded were they in caring for the patient. Upon discharge, information on each patient's time in the ED and discharge disposition (admission versus return to the ECF) was recorded. **Results:** The 61 patients enrolled in this study had a mean of 9.5 of the 15 data elements recorded. Only 13 patients (21%) had both "reason for transfer to the ED" and "baseline mental status" successfully recorded, while 17 patients (28%) were missing both of these items. ED physicians were significantly more impeded by patients lacking both "reason for transfer" and "baseline mental status" than those who had both items present (p=0.046, 95% CI = .018 to 1.97). There was no difference between groups in the total time in the ED or disposition. **Conclusions:** Documentation of "reason for transfer" and "baseline mental status" is most often absent in the transfer of patients to the ED from ECF. This information is also particularly important to ED physicians caring for these patients, but did not alter the disposition or length of time in the ED.

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RP #07

ACTIVIN A DEFICIENCY: ASSOCIATION WITH AUTOIMMUNE LUNG DISEASE

MJ Thomassen, H Dalrymple, TL Bonfield, BP Barna, A Malur, N John, and MS Kavuru

Rationale: Because pulmonary alveolar proteinosis (PAP) is an autoimmune lung disorder characterized by neutralizing autoantibodies to granulocyte-macrophage colony stimulating factor (GM-CSF), we searched for autoimmunity-related genes in bronchoalveolar lavage (BAL) cells by global microarray. **Methods:** Total RNA was isolated from BAL cells of PAP patients and healthy controls and analyzed by microarray and real-time PCR. Proteins in BAL fluids and conditioned media from BAL cultures were examined in ELISA assays. Proliferation and secretion of anti-GM-CSF antibodies were evaluated in PAP peripheral blood B cells by Cylex and Luminex microplate assays, respectively. **Results:** Activin A, a cytokine implicated in B cell regulation was severely deficient in PAP BAL cells; microarray results indicated a >1000-fold reduction in PAP compared to controls ($p = 0.001$). Real time PCR confirmed activin A mRNA deficiency. BAL fluid protein level and BAL cell protein synthesis were also markedly reduced. In PAP or control BAL cells cultured for 24 hours with GM-CSF, activin A secretion increased. Treatment of PAP B cells with activin A in vitro suppressed B cell proliferation in a receptor-dependent manner and decreased secretion of anti-GM-CSF autoantibody. **Conclusions:** Deficiency of the B cell regulatory cytokine, activin A may contribute to chronic autoantibody production in PAP.

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RP #08

A NOVEL NON-INVASIVE DEVICE TO ASSESS ACOUSTIC WAVEFORMS IN CAROTID DISEASE

Velappan, P., Pravica, D., Day, O., Johnson, T.A., Nanjundappa, A., Miller, M.J., Powell, C.S., Kaul, S., Cascio, W.E.

Objective: To assess the utility of the Cardiovascular Resonator (CVR), an innovative non-invasive device, in the assessment of carotid disease. We postulated that the CVR detects disruptions in laminar flow, which generate low frequency oscillations in the column of blood in addition to the well-known high frequency sound associated with turbulent flow detected with standard clinical ultrasound technology.

Methods: The CVR consists of three non-emitting, closed-gel interfaced piezo-electric sensors placed over the carotid arteries and the precordium. It detects infrasonic frequencies (1-60 Hz) generated by altered flow patterns in atherosclerotic disease and digitizes them to generate interpretable data within 20 sec. The waveform analyses from the CVR were compared to the flow velocities and the estimated percent stenosis obtained from a standard carotid duplex ultrasound exam. We studied 20 consecutive patients referred for carotid duplex exam, excluding patients with prior carotid endarterectomy or known aortic valve disease, and 4 normal controls.

Results: The variables obtained from the device, included heart to carotid time delay, power spectral analysis (peak power, frequency of peak power, percentage of power above 40Hz and below 20Hz, etc.) and wavelet analysis. An independent grading of the severity of stenoses using a five-point scale for both techniques is shown. By linear regression analysis a slope of 0.684 and an R^2 coefficient of 0.45 were obtained.

Conclusion: Acoustic energy generated by flowing blood can be detected and analyzed in the low-frequency sound spectrum. We have demonstrated an association in the grading of carotid stenoses using the two methods. Interestingly, the association seems strongest in the clinically significant stenosis range (>80%) and in the normals (0%). The CVR may detect low frequency sounds generated by flow disruptions in clinically significant atherosclerotic arterial disease.

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RP #09

IDENTIFICATION OF BORDER ZONES IN SWINE CARDIAC TISSUE WITH THE USE OF A TYPHOON VARIABLE MODE IMAGING SYSTEM

BJ Burrows, PR Gunst, BJ Muller-Borer, WE Cascio, TA Johnson

Background: The Typhoon Variable Mode Imaging system is designed to scan and analyze gels, blots and microarrays through storage phosphor, chemiluminescence and fluorescence detection. We investigated whether heart tissue sections containing fluorescent microspheres could be effectively analyzed to view cardiac perfusion border zones using the Typhoon system. It is known that swine cardiac vasculature is more analogous to a human's than other mammals. Comparable to human cardiac tissue, swine cardiac tissues are predominantly perfused by a single source. Other models, such as the canine, are known to have multiple perfusion sources. Our goal was to establish the techniques necessary to quantitatively assess collateralization for normal and modified perfusion states. **Methods:** Catheterization of the swine LAD with a Voyager[®] Coronary Dilation device established a myocardial ischemic zone. One hour post-ischemia, 10^6 15 μ m yellow-green fluorescent microspheres were perfused through the center port of the balloon, distal to the occlusion. Also, 10^6 15 μ m red fluorescent microspheres were perfused at the opening of each of the left and right ostia. A block of tissue encompassing the border zone was removed from the heart, fresh frozen, sliced into 10, 50, and 100 μ m sections and subsequently scanned with the Typhoon Fluorescence Imager. Images were analyzed and assembled with *Image J* software to visualize and reconstruct the border zone. **Results:** The Typhoon system allowed clear identification of tissue sections containing fluorescent microspheres. 100 μ m sections were found to be most useful as one can acquire more data without relinquishing quality. Minimal collateralization of the section of tissue was observed and 93% of the microspheres counted in the border zone were supplied from one source. Sections of tissue more distal to the perfusion source showed a decrease in single microsphere concentration possibly due to increasingly mixed perfusion sources. **Conclusions:** These findings suggest that the Typhoon Imaging system can effectively analyze cardiac border zones in fixed tissue. With the use of the system we were able to successfully count total number of microspheres in the tissue sections and extract quantifiable data from the images.

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VP #11

ACQUIRED FACTOR VIII INHIBITOR IN ASSOCIATION SU11248 (SUTUN[®])

Hayan Moualla, MD; Darla Liles, MD; Mikhael Vinogradov, MD

Background: Acquired factor VIII inhibitor can develop in autoimmune disorders, postpartum states, malignancy and secondary to drugs. **Case:** We present a case of a 72 yo male with a history of metastatic renal cell carcinoma who presented with an extensive hematoma that extended from his shoulder to the mid-forearm. There was no neurovascular compromise of his extremity on exam. The patient had also noted some mild oral bleeding during this same period. His renal cell carcinoma was treated initially with nephrectomy 4 years prior to his presentation. At the time of diagnosis of metastatic disease he was initially treated with Interferon Alfa. Interferon which was discontinued 3 months prior to his presentation to our institution and compassionate use of SU11248 was started three 3 week prior to presentation. The patient did not have any personal history or family history of a bleeding disorder or easy bruising. His only other medical history was type IV IgG deficiency for which he received a single IgG infusion 15 years previously. Admission laboratory workup revealed hemoglobin of 6.5 gm/dl; platelets were 260,000/dl; white cells and peripheral smear were normal. The PT was normal, but the aPTT was prolonged at 75 seconds and corrected on a 1:1 mixing study. His factor VIII activity level was less than 1%; factor XI was 27% and factor IX was 53%. The patient was started on recombinant factor VIII infusions but his aPTT remained high and no detectable plasma factor VIII level was obtained. Factor VIII BIA was elevated at 9 Bethesda units. His bleeding was controlled with Factor VIIa. After stabilization, he was treated with oral cyclophosphamide and high dose prednisone. On discharge, his Bethesda titer decreased to 2 Bethesda Units. **Conclusion:** We report this case as a previously undescribed case of acquired factor VIII inhibitor after recent institution of SU11248. While acquired factor VIII inhibitors are often times associated with malignancy, this patient had a history of renal cell carcinoma for 4 years and therefore it seems more likely that this newly acquired inhibitor could be associated with the recent institution of the SU11248 just three weeks previously. Future patient treated with this drug should be observed closely for the development of an acquired inhibitor though in light of the rarity of these inhibitors a causal relationship may be difficult to ascertain.

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VP #12

LEMIERRES SYNDROME IN A PREVIOUSLY HEALTHY 28 YEAR OLD MALE

Ogi Ndili-Obi, MD, Yu Liu, MD, Tahir Farooq, MD, Dawd Siraj, MD, MPH

Abstract: Recognize the common clinical manifestations of an extremely rare disease.

CASE: 28 year old previously healthy Caucasian male, who presented to our emergency department with a 2 day history of sudden onset sore throat, fever, chills and cough. Inital evaluation significant for pharyngeal erythema and enlarged cervical lypmh nodes. He was given oral penicillin and sent home. He subsequently represented 3 days later in severe sepsis with internal jugular vein thrombosis and rapidly progressed to septic shock with multi-organ failure (respiratory failure, acute renal failure, pulmonary septic emboli with empyema, persistent hyperbilirubinemia and pericardial effusion with cardiac tamponade). Bronchoalveolar lavage cultures and pleural fluid cultures were positive for Arcaneobacterium hemolyticum and Fusobacterium Necrophorum respectively. He was treated with antibiotics and required multi-organ support in the intensive care unit. He subsequently improved and has now been transferred to a general medicine floor after 24 days in the Medical Intensive Care Unit.

DISCUSSION: Lemierres syndrome also known as post anginal sepsis was first described in 1900. The first case series was published in 1936 by Prof Andre Lemierre. Since then, there have been less than 120 cases reported and the disease has become very rare since the introduction of antibiotics. The common causative agent is Fusobacterium Necrophorum. Till date, there has been only one case report of Lemierres disease secondary to co-infection of Arcanobacterium hemolyticum and Fusobacterium necrophorum described by Younus F, Chua A et al (J Infect. 2002 Aug;45(2):114-7). Lemierres disease is characterized by Suppurative thrombophlebitis, Anaerobic septicemia and septic emboli following an oropharyngeal infection. Physicians presented with this symptom complex should recognize this rare but very serious disease entity.

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VP #13

VIBRIO VULNIFICUS SEPSIS IN A RENAL TRANSPLANT PATIENT SUCCESSFULLY TREATED WITH ANTIBIOTICS, SURGICAL DEBRIDEMENT AND DROTECOGIN ALFA

J. Sepich, MD, C. Scott, MD, E. Rabaa, MD, C. Brown, MD

Vibrio vulnificus is a marine bacterium present in warm salt-water environments. Infections secondary to ingestion of raw shellfish have primarily been reported in relation to molluscan shellfish (oysters). Infection of wounds resulting in cellulitis has also been reported when contact with contaminated water occurs. Infection from either route may result in skin lesions, usually worse with wound contamination, as well as septicemia. Risk factors for such infection include liver cirrhosis, chronic hepatitis, hemachromatosis, chronic renal failure, malignancy, human immunodeficiency virus and immunosuppressive medications. We report a case, diagnosed by wound culture, of cellulitis progressing to septic shock. The patient wounded himself on a crab net while in brackish water and had a rapid decline consisting of hypotension, fever and respiratory failure. The patient's risk factor was immunosuppressive therapy secondary to renal transplantation. *V. vulnificus* sepsis carries a very high mortality rate (>50% in some literature). Our patient was treated with doxycycline, surgical debridement and drotrecogin alfa resulting in a good outcome. We feel these results were obtained by rapid diagnosis and treatment prior to lab confirmation. Also of importance were two difficult decisions in care made by the MICU team; the use of drotrecogin alfa in acute on chronic renal failure (a relative contraindication) and the continuation of immunosuppressive therapy during the treatment of septic shock. Of note our patient was discharged after a four month hospital stay with a functioning renal transplant.

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VP #14

PATIENT WITH RETROPERITONEAL FIBROSIS WITH ACQUIRED FACTOR VIII AND IX INHIBITORS TREATED WITH FACTOR VIIA SUCCESSFULLY FOR POSTOPERATIVE BLEEDING.
Satvir Singh, MD, Darla K. Liles, MD, Charles Knupp, MD

Factor VIIa has been used successfully for treatment of acquired factor VIII inhibitors in patients with hemophilia A. We present a case of 40 years old female with idiopathic retroperitoneal fibrosis treated with prednisone who was admitted for pelvic pain and right ovarian cyst. She underwent salpingo-oophorectomy and appendectomy which was complicated by large pelvic hematoma. She had prolonged aPTT at 45 with normal PT. aPTT partially corrected with 1:1 mix. Bethesda titer was high at 60, factor VIII was 11% and factor IX was 25% and factor XI was also low at 30%. Factor XII was normal. Lupus anticoagulant, anti-cardiolipin antibody and SPEP work up was negative and vWF was normal. She then received a cycle of cyclophosphamide, vincristine and prednisone. Patient required urgent surgery due to bowel perforation and developed massive post operative bleeding not controlled by plasma, cryoprecipitate and calcium one week later. She then received Factor VIIa at 120mcg/kg q 2 hrs with aminocaproic acid with prompt control of bleeding which was lifesaving for her. This was then tapered over two weeks.

This illustrates that factor VIIa can be used in massive post operative bleeding due to acquired inhibitors of factor VIII, IX and XI successfully.

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VP #15

AMYLOIDOSIS WITH FACTOR X DEFICIENCY PRESENTING AS MASSIVE GI BLEEDING TREATED SUCCESSFULLY WITH FACTOR VIIA
Satvir Singh, MD, Darla K. Liles, MD, Charles L. Knupp

Acquired deficiency of factor X occurs in amyloidosis due to adsorption of factor X to amyloid fibrils deposited primarily in the liver and spleen. Massive GI bleeding is a life threatening complication in patients with factor X deficiency. We describe a case of a 55 yrs old male who presented with uncontrollable GI bleed. Pt had a prolonged PT at 28 seconds (normal 10.1-12.1) and PTT at 38 seconds (normal 22-30) which corrected with 1:1 mixing. Factor X level was 5% and other factors were normal. Bone marrow biopsy was positive for congo red stain. SPEP was normal and UPEP revealed faint biclonal spike of Kappa light chain. Patient's renal biopsy was also consistent with amyloid kidney. Patient received several units of plasma, PRBC and cryoprecipitate without improvement in his bleeding. EGD and colonoscopy did not show any active bleeding site. Pt then received factor VIIa at 90mcg/kg q 4 hrs along with aminocaproic acid with rapid control of bleeding. Patient's PT and PTT improved during the duration of factor VIIa treatment to 14/34 seconds, respectively. Factor VIIa was discontinued after stabilization of patient's condition in 3 days. Patient was subsequently admitted on two more occasions with GI bleed and was again successfully treated with factor VIIa.

This case adds to the body of evidence that factor VIIa may be successfully used in patients with severe bleeding due to factor X deficiency in amyloidosis.

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VP #16

AIDS ASSOCIATED LYMPHOMA OR PRIMARY HIV ASSOCIATED THROMBOCYTOPENIA OR TTP?

Andre Talantov, MD; Thomas Kerkering, MD

Abstract: Introduction: Cytopenias of all major blood cell lines are increasingly recognized in HIV patients. This case highlights the importance of particular tests in establishing some life-threatening causes of thrombocytopenia plus anemia in an HIV patient.

Case Presentation: 39 yr AAM HIV patient (CD4 count 200) with thrombocytopenia and anemia presented to our institution for mental status changes. PMH was significant for HIV, Hep C, and noncompliance with the treatment, anemia, and thrombocytopenia. Initial CT scan of the head showed a CNS process and MRI of the head was "suggestive for lymphoma in an HIV patient". Bone marrow biopsy showed no evidence of a lymphoproliferative disorder, but was suggestive of TTP or DIC or primary HIV-associated thrombocytopenia (PHAT) plus hemolytic anemia (Evans syndrome?). Meanwhile PET scan of the head favored the diagnosis of CNS Toxoplasmosis. LDH and Haptoglobin levels as well as schistocytes on peripheral smear made the diagnosis of TTP more likely and directed the treatment toward plasmapheresis. After several plasmapheresis sessions, the thrombocytopenia significantly improved and the patient's confusion resolved.

Discussion: Thrombocytopenia and anemia are common findings in individuals infected with HIV, affecting 40% and up to 80% of patients, respectively - in late stage of this disease. The list of the causes of thrombocytopenia and anemia in an HIV patient is extensive, including bone marrow infiltration by disseminated viral, fungal or bacterial infections, lymphoma or sarcoma, hypersplenism, and medications. However only a few of these etiologies require immediate intervention. Thrombotic thrombocytopenic purpura is a rare and potentially fatal cause of thrombocytopenia that must also be considered in the initial evaluation of HIV-infected patients with reduced platelet counts and anemia.

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VP #17

AN ABDOMINAL FLUID COLLECTION IN A NON-HIV PATIENT WITH CD4 + T-LYMPHOCYTOPENIA

Lakshmi Turlapati, MD

Abstract: 56 y/o AAM was admitted complaining of 2 months of progressive fatigue, fevers, night sweats, & decreased appetite w/ subsequent 15 lb weight loss, intermittent diarrhea, abdominal distension & shortness of breath w/ dry cough. Past medical history was notable for hypertension. A chest X ray showed bilateral small pleural effusions but no infiltrates. A CT of chest revealed that the pleural effusions were significant in size w/ enlarged & calcified mediastinal lymph nodes. Abdominal CT demonstrated a large fluid collection that extended from the bladder to the liver measuring 21 x 10 cm, with enhancing thick walls. Extensive edema or soft tissue infiltration was seen within the mesentery. Lab evaluation confirmed anemia & leucopenia. HIV serology was negative. However CD4 count of 100 suggested a diagnosis of idiopathic CD4+T-lymphocytopenia. At that time, an ultrasound guided paracentesis was performed. Peritoneal Fluid analysis showed high protein w/ SAAG ratio of less than 1.1 but WBCs were elevated w/ 90% lymphocytes. Peritoneal fluid samples were negative for AFB stain, gram stain showed only white blood cells. Bacterial, fungal & AFB cultures were negative. Additional history revealed that patient had an exposure to a patient with active tuberculosis 3 years prior. Due to high suspicion for peritoneal Tuberculosis, Surgery did a biopsy of the abdominal fluid collection wall. A mini laparotomy was performed & tissue biopsy showed granulomatous inflammation w/ necrosis. Acid fast bacilli were identified. The diagnosis of peritoneal Tuberculosis was established & the patient was treated w/ Isoniazid, Rifampin, Pyrazinamide & ethambutol. 4 weeks later the patient demonstrated clinical improvement. This illustrates that Tuberculosis peritonitis should be considered in the differential diagnosis of all patients presenting w/ unexplained lymphocytic ascitis. Most cases of peritoneal tuberculosis reported occurred as ascites; however, in this case it was presented as an intraabdominal fluid collection. There was no evidence of active pulmonary tuberculosis. Diagnosis of peritoneal tuberculosis is difficult given the low sensitivity & specificity of lab tests including peritoneal fluid analysis. Peritoneal biopsy is recommended to help early diagnosis given the high mortality of peritoneal tuberculosis. Data also suggests that Tuberculosis must be considered in patients w/ idiopathic CD4 lymphocytopenia & unexplained illness.

Notes:

VP #18

NOCARDIAL INFECTION PRESENTING AS CEREBRAL ABSCESS

Pauravi Sanghadia, MD, MPH, Chirag Desai MD, Harry Adams, MD

CC: "Right Sided Weakness"

HPI: Patient is a 55 yr old male with history of hypertension, chronic obstructive pulmonary disease, and alcoholism who presented with 2 day history of altered mental status. In the emergency department, the patient was found to have slurred speech, right sided weakness, and a left sided facial droop. Initial exam revealed the patient was alert and awake, but not oriented to place or time. He exhibited a poor gag reflex and 2/5 strength on the right side. The remainder of neurological exam was found to be within normal limits. Pulmonary exam revealed bibasilar crackles and cardiac exam was within normal limits.

Hospital Course: On admission, the patient was found to be afebrile without leukocytosis on the complete blood count. Chest xray showed a right lower lobe pneumonia with a parapneumonic right pleural effusion. A CT scan of the head revealed a 4.0 x 5.7 cm ring enhancing, low density, space occupying lesion of the left temporal lobe, with perifocal edema, and a 10 mm left to right midline shift with left sided uncal herniation. An MRI scan confirmed a 4.1 x 5.1 x 4.5 cm low T1, high T2 weighted lesion. At this time, empiric antibiotic treatment with IV rocephin, metronidazole, and solumedrol was started. Neurosurgery was consulted for a left temporal craniotomy with drainage and biopsy. Microbiology of the fluid showed many WBCs and partially acid fast filamentous branching rods suggestive of Nocardia. Patient was started on oral trimethoprim-sulfamethoxazole for 6 months.

Discussion: The purpose of this case is to illustrate a presentaion of nocardial infection. Nocardiosis is an uncommon Gram positive bacterial infection caused by aerobic actinomycetes in the genus Nocardia. Nocardiosis occurs in immunocompetent patients, but the majority of patients have various immune deficiencies, particularly cell-mediated abnormalities. The therapy of choice is trimethoprim sulfamethoxale for at least six weeks or until clinical improvement.

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VP #19

ATYPICAL PRESENTATION OF CARDIAC TAMPONADE

Jordan Young, MD, William Johnson, MD, William Wood, MD

HPI: 43 y/o AAF w/ a PMH of hypertension, depression, & poly-substance abuse presented w/ complaints of abdominal pain w/ associated nausea & vomiting. The patient's bp measured 235/163. Patient admitted to crack cocaine use 4 hours prior to admission. Patient was preferentially leaning forward while seated in the upright position. In no acute distress although exhibited mildly labored respirations. PE significant for bilateral jugular venous distension to 10cm above the clavicle while seated at 90 degrees. Cardiovascular examination revealed a normal chest wall w/o heave; the PMI was faint & laterally displaced. Auscultation revealed diminished heart sounds w/ a normal rate & regular rhythm, there was normal splitting of S1 & S2, no S3 or S4 gallop was auscultated. Pulsus paradoxus was absent on exam & peripheral pulses were symmetrical in the upper & lower extremities. Patient's bp was first treated w/ IV nitroglycerin w/ subsequent conversion to a diltiazem drip secondary to hypotension. Evaluation began w/ a 12 lead ECG showing low voltage & prolongation of the QT interval (QTc 532msec) w/o evidence of electrical alternans. Assessment of abdominal pain involved a CT scan of the abdomen & pelvis discovering a severe circumferential pericardial effusion. A 2 dimensional echo revealed cardiac tamponade based on established echo criteria including evidence of right atrial & right ventricular diastolic collapse, paradoxical ventricular septal wall motion & plethora of the inferior vena cava. Patient had pericardiocentesis resulting in nearly 2 liters of a greenish-straw colored fluid being removed. A concomitant right heart cath revealed equalization of diastolic pressures in 3 of 4 chambers of the heart, confirming the diagnosis of cardiac tamponade. Fluid was sent for analysis revealing an exudative effusion w/ total protein of 7.2 (nl.2-.4), & glucose of 66. Etiology of the effusion was evaluated w/ labs pending 4 days after the procedure. **Discussion:** This illustrates an atypical presentation of cardiac tamponade in which pulsus paradoxus was not present. Estimates of the incidence of pulsus paradoxus in cardiac tamponade vary widely, w/ reports ranging from 12-75% of cases; also pulsus is typically absent in low pressure or regional tamponade. This case emphasizes the varied presentations of cardiac tamponade & how integration of the PE, echo & cardiac cath data may be required for accurate diagnosis in the absence of pulsus paradoxus.

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OPTIMIZING TACROLIMUS THERAPY IN MAINTENANCE RENAL ALLOGRAFTS: 6 MONTH RESULTS

P. Bolin Jr, F Shihab, L Mulloy, A Henning, J Gao, the OPTIMA Study Group, M Bartucci, J Holman Jr and MR First

Background: A prospective, randomized, multi-center, open-label study compared cyclosporine (CsA) to two different whole blood trough level ranges of tacrolimus (TAC) to evaluate renal function, optimal dose/blood level of TAC, and changes in cardiovascular risk factors.

Methods: 323 patients, ≥ 6 months post-transplant on a CsA-based regimen, were randomized to remain on CsA (n=111), convert to TAC with trough levels 3.0-5.9 ng/mL (n=100) or 6.0-8.9 ng/mL (n=112). There was no difference in demographics, patient/graft survival, or acute rejection among treatment groups.

Results: Results at 6 months are reported below.

Parameter	TAC 3.0-5.9 ng/mL	TAC 6.0-8.9 ng/mL	CsA 50 -250 ng/mL	P-value
Serum Creatinine (mg/dL)	1.40	1.45	1.50	0.300
Cystatin C (mg/L)	1.40	1.36	1.51	0.373
Cockcroft/Gault (mL/min)	53.55	57.05	51.70	0.121
Median SBP - BL	130.0	134.0	136.0	0.570
Median SBP - 6 mos.	129.0	129.0	134.0	0.019
Total Cholesterol (mg/dL)	173.0	176.0	193.0	<0.001
LDL (mg/dL)	88.0	93.0	104.0	0.004
Triglycerides (mg/dL)	121.0	134.0	159.0	0.041

Renal function assessed by serum creatinine, cystatin C, and Cockcroft-Gault estimate of creatinine clearance were similar at 6 months; however, change from baseline for all three parameters was significantly greater in the TAC groups. All lipid values were significantly lower in both TAC groups 6 months after conversion.

Conclusion: In conclusion, conversion to TAC in stable renal transplant recipients is safe and results in improvement in renal function and lipid values when compared to CsA.

Notes:

TEACHING AND MEASURING PROFESSIONALISM USING THE CLINICAL SKILLS EXAM: IMPACT OF FEEDBACK

Lane, H, Larsen, P, Merricks, P, Barchman, MJ, and Preville, K

Professional behavior comes closest to defining the art of medicine. M3 clerks in the Pediatric and Medicine Clerkships have participated in two different types of feedback interventions focused on professional behavior over the past four years. The Pediatric Clerkship used a self-analysis model: Students reviewed a completed clinical skills exam (CSE) videotape using a guided form which allowed self analysis of professionalism and communication skills. The Medicine Clerkship used a focus-group feedback model: At mid clerkship, the entire cohort with faculty input reviewed snippets of a "practice" CSE case and the CSE professionalism instrument. These sessions focused on self-analysis, peer review, feedback scores from standardized patients, and faculty feedback. Individual Professionalism Scores (IPS) were extracted from CSE data. IPS data were grouped into two categories: no intervention versus interventions by either the self analysis or the focus-group feedback model. Of the 317 IPS extracted, 40 experienced only the Pediatric intervention and 138 experienced only the Medicine intervention. Analysis of variance was calculated.

The focus-group model significantly improved (p value 0.042) the clerk's IPS. The self-analysis model used in Pediatrics however did not improve the clerk's IPS (p value 0.031)

Because of the significant IPS improvement using the focus-group feedback model, the Pediatric and Surgery Clerkships have implemented this model in 2004 and 2005. All six Clerkships will be implementing focus-group feedback to improve professionalism by the end of 2006.

Notes:

RO #10

EFFECT OF REDUCTION IN CIPROFLOXACIN USE ON PREVALENCE OF METHICILLIN-RESISTANT *Staphylococcus aureus* RATES WITHIN INDIVIDUAL UNITS OF A TERTIARY-CARE HOSPITAL

PP Cook, P Catrou, M Gooch, D Holbert

Background: Previous studies have shown a correlation between fluoroquinolone use in hospitals and rates of methicillin-resistant *Staphylococcus aureus* (MRSA) infection.

Objectives: We examined the effect on MRSA infection rates within individual adult units of a tertiary-care teaching hospital after instituting a program to decrease ciprofloxacin use.

Methods: Non-duplicate clinical specimens positive for *Staphylococcus aureus* were determined on all adult inpatient units between January 1, 2004 and December 31, 2005. Rates of MRSA infection for all adult units having more than 10 isolates of *Staphylococcus aureus* were included in the analysis. Ciprofloxacin use, measured in defined daily doses per 1000 patient days (DDD/1000 PD), was determined for each of these individual units during the same time period. Ciprofloxacin use and MRSA rates in 2005 were compared to use and MRSA rates in 2004. Pearson's correlation was used to evaluate the relationship between ciprofloxacin use and MRSA rate. Student's t-test was used to compare means.

Results: Of seventeen adult units of the hospital with 10 or more *Staphylococcus aureus* isolates, ciprofloxacin use decreased by 31.2% ($p < 0.0001$). The rate of MRSA in these units decreased from 59.6% to 54.2% ($p = 0.122$). There was a correlation between ciprofloxacin use and MRSA ($r = 0.70$; 95% CI -0.01 to 0.94 ; $p = 0.053$). Within individual units, there was a variable response. In seven of the units, there was an increase in MRSA rate despite a reduction in ciprofloxacin use suggesting that other factors (length of stay, infection control, and community-acquired MRSA) may have contributed to the MRSA rate.

Conclusions: Although there are many reasons associated with high MRSA rates, ciprofloxacin use appears to be a contributing factor. Reduction in ciprofloxacin use may be a means of controlling MRSA in the hospital setting.

Notes:

RO #11

HYPERUTILIZATION IN THE EMERGENCY DEPARTMENT

JR Shiber, KL Brewer, MB Longley.

BACKGROUND: Emergency Department (ED) overcrowding is a significant issue across the U.S. Recent studies attempting to identify frequent utilizers of the ED have set the threshold very low (2-3 visits/year). We have coined a novel term, *Hyperutilizer* (HU) to define that population that averages 1 or more visits/month. Our purpose was to describe this population, and compare this group to the general ED population to determine if there are identifiable risk factors associated with hyperutilization.

METHODS: A retrospective cohort study conducted in a university tertiary level 1 trauma center with 65,000 visits/year. A review of the ED database between 1/1/01 and 12/31/04 identified all patients with >35 visits. This HU cohort ($N=49$) was compared to a second randomly selected group of non-HU patients ($N=50$) on the following measures: age, gender, insurance status, association with a PMD, dwelling location, chief complaint, co-morbidities, and disposition (admission versus discharge home). **RESULTS:** The HU group was significantly older (mean 49.45 years) than the non-HU group (37.32 years) with a $P < .0001$. Using a frequency distribution analysis, there were no differences between the groups in gender, insurance status, association with a PMD, dwelling location, and ED disposition. There were more than twice as many HU than non-HU sent to psychiatric units, but this trend was not statistically significant. The HU group had significantly more chief complaints in the musculoskeletal, neurological, pulmonary, psychiatric, and substance abuse categories, while the non-HU group had significantly more in the cardiovascular (CV), genitourinary (GU), HEENT, and traumatic categories. A univariate logistical regression found that previous CV, GU, or psychiatric disease were predictors of HU.

CONCLUSIONS: The HU group is older, and is more likely to have a history of CV, GU, and psychiatric disease, but is similar to the non-HU group in other measured parameters. The HU cohort has equal access to health care, does not appear to be more ill based on disposition, but has more associated psychiatric disease than the non-HU cohort.

Notes:

RO #12

ULTRAFINE PARTICULATE MATTER EXPOSURE ATTENUATES MOUSE AORTIC RELAXATIONS

Christopher J Wingard, Emily Cozzi, Brian Tuttle, April Bofferding, Wayne E Cascio, Robert B Devlin, Robert M Lust and Michael R Van Scott

Particulate air pollution (PM) contributes to adverse cardiovascular events by yet unknown mechanisms. We tested the hypothesis that PM exposure altered endothelial regulation of systemic vascular tone. 6-10 week old male ICR mice were exposed to a single dose of 10, 30 or 100 μg of ultrafine PM or vehicle by intratracheal instillation. 24 hours later aortas were isolated and exposed to phenylephrine (PE), acetylcholine (ACH) or adenosine to probe their vascular responses. Constrictor responses to PE were not different between PM exposed and control aortas. PM exposure attenuated ACH relaxation in a dose-dependent manner. In endothelial-denuded aortas PM exposure increased the maximal contractile response (mN/mm^2) to $10\mu\text{M}$ adenosine (control 1.39 ± 0.02 vs. PM-exposed $1.79 \pm 0.11^*$). These results indicate that PM exposure altered endothelial-dependent and independent vascular responsiveness and may contribute to cardiovascular complications. This abstract dose not necessarily represents EPA policy. Supported by Phillip Morris USA and International.

		Control	PM-exposed
10 μg	%ACH Relaxation	64.6 ± 11.8	68.5 ± 7.0
	EC ₅₀ (μM)	1.2 ± 0.6	$0.3 \pm 0.1^*$
30 μg	%ACH Relaxation	62.8 ± 8.5	1.1 ± 0.7
	EC ₅₀ (μM)	$77.8 \pm 6.5^*$	$0.4 \pm 0.1^*$
100 μg	%ACH Relaxation	49.5 ± 6.5	$63.3 \pm 10.1^*$
	EC ₅₀ (μM)	1.4 ± 0.9	$0.5 \pm 0.1^*$

(*statistical significance from control , $P < 0.05$, $n = 4-8$)

Notes:

RO #13

SYSTEMIC LUPUS ERYTHEMATOSUS ASSOCIATED WITH ANTI-SU ANTIBODIES IN AFRICIAN AMERICANS

E.L. Treadwell, I. Marshall and G.S. Cooper

BACKGROUND AND OBJECTIVES: Previous studies, primarily from our laboratory, have identified anti-Su antibodies (Abs) as being associated with Systemic Lupus Erythematosus (SLE) and undifferentiated connective tissue disease or early SLE. In order to better define the clinical and serological associations of anti-Su Abs with SLE, the frequency of anti-Su Abs and the clinical parameters of patients with and without Su Abs were determined in an SLE multicenter study. This study included 243 ANA (+) lupus patients and 298 controls from eastern North and South Carolina comprising 60 contiguous counties, 4 universities and 30 private rheumatology practices.

METHODS: Laboratory analysis of blood samples was performed by using standard immunofluorescent antinuclear antibody (FANA) testing and double immunodiffusion for Sm, RNP, SS-A (Ro), SS-B (La) and anti-Su, enzyme-linked immunosorbent assay for anti-cardiolipin, and Crithidia luciliae immunofluorescence for anti-native deoxyribonucleic acid (nDNA) Abs. Logistic regression was used for statistical analysis.

RESULTS: Of all the SLE patients, 26/243 (11%) were Su positive (+) versus 3/298 (1%) of the controls. 24/26 (92%) were females, 3/26 (12%) were white, and 22/26 (85%) were Black. Of Su + patients, 14/26 (54%), were 30-49 years of age and 9/26 (35%) were <30 years of age. Su Abs were significantly associated with anti-nDNA Abs ($p=0.001$). Of the 22 Su + Black patients tested for other SLE auto-Abs, 12/22 (55%) had anti-RNP, 11/22 (50%) had anti-Ro, 6/22 (27%) had anti-Sm, and 1/22 (5%) had anti-La. Significant clinical and serological associations found among the 26 Su-positive patients with SLE included less frequent malar rash-5 (19%) and leukopenia-1 (4%), increased presence of neurologic-5 (19%), anti-nDNA-13 (50%) and anti-Ro-15 (58%) Abs; p -value of ≤ 0.05 . Less arthritis-15 (58%) and lymphopenia-3 (12%) were closely associated to Su positivity with p -values of 0.06 and 0.08, respectively.

CONCLUSION: Su Abs were significantly associated with Black females with SLE, anti-nDNA and anti-Ro Abs, and specific clinical parameters. These associations are currently not understood.

Notes:
