

The Department of
Internal Medicine
Presents

UT Southwestern
Medical Center



The 1st Annual
Donald W. Seldin, M.D.
Research Symposium
May 27, 2016



Dr. Seldin was born in New York City. He received his BA degree from New York University and his MD from Yale University School of Medicine. His residency in Internal Medicine was at New Haven Hospital. He was appointed to the faculty at Yale from 1944 – 1951 when he was recruited to UT Southwestern Medical School. He was appointed Chairman of Internal Medicine from 1952 – 1988, at which time he became Chairman Emeritus. He continues to be active in teaching and writing.

Dr. Seldin's primary research focus has been in Renal Physiology, particularly the mechanisms of regulating salt and water homeostasis. In connection with this area, he has been President of the American Society of Nephrology as well as the International Society of Nephrology. He served as the President of the American Society for Clinical Investigation (ASCI) and the Association of American Physicians (AAP). He has received honorary degrees from six universities, including the University of Paris and Yale University.

Several years ago, the ASCI began to develop the Donald Seldin-Holly Smith Award for Pioneering Research with the goal of connecting the legacies of two heroes of the physician-scientist community with exceptionally creative early-career physician scientists. In 2016, the ASCI will announce the first recipient of the Award, who will receive an unrestricted grant, be provided with focused mentoring through the ASCI, and deliver a highlighted lecture at the 2017 ASCI/AAP Joint Meeting.

Dr. Seldin is widely revered as one of the greatest chairs of Internal Medicine in American medical history. He has trained literally thousands of medical students and residents, and many of his students occupy high academic positions. He is considered the intellectual father of UT Southwestern Medical School.

Symposium Schedule

- 8:00-8:30 am D1.502 – Keynote Speaker: Donald W. Seldin, M.D.
- 8:30-10:00 am D1.502 and Atrium – Poster Display
- 12:00-2:00 pm D1.502 and Atrium – Poster Presentation and Judging
- 4:00-5:30 pm Faculty Club – Liver Rounds and Awards

# 1, Basic Science Research Donghai Wen PGY1	A Micropuncture Study of the Net K Secretion in the Thick Ascending Limb of Mice on a Low Na High K Diet
# 2, Basic Science Research Danniel Zamora, PGY2	Peptide-conjugated phosphorodiamidate morpholino oligomers (PPMOs) and their potential use against <i>Pseudomonas aeruginosa</i> biofilms
# 3, Basic Science Research Richard C Wu, PGY3	Identification of a Novel T-cell Biomarker (BTLA, B- and T- Lymphocyte Attenuator) and the Mechanism of Its Association with Positive Clinical Responses in a Phase II Adoptive T-cell Therapy (ACT) Trial for Metastatic Melanoma
# 4, Clinical Research Ami DeWaters, Fellow	Sad white blood cells? The association of major depressive disorder and mortality in older veterans hospitalized for pneumonia
# 5, Clinical Research Julie Kim, Fellow	Recurrence of Chronic Urticaria: Incidence and Associated Factors
# 6, Clinical Research Javier Neyra, Fellow	Acute kidney injury recovery at 90 days and subsequent CKD in critically ill sepsis survivors
# 7, Clinical Research Sheenal Patel, Fellow	Success of Alternative Therapies in Chronic Urticaria Patients Failing Omalizumab
# 8, Clinical Research Steve Dorman, Fellow	Baked Egg Oral Immunotherapy (OIT) Accelerates Desensitization to Unbaked Egg (UBE) in Severely Egg Allergic Children

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# 9, Clinical Research Yu (Ray) Zuo, Fellow	Comparative Analysis of a Novel Antiphospholipid Assay Utilizing a Mixture of Negatively Charged Phospholipid Antigens and Criteria Antiphospholipid Immunoassays in Lupus Patients
# 10, Clinical Research Anurag Mehta, PGY1	Regional Differences in Outcomes of Heart Failure Hospitalization in the United States: A Contemporary Nationwide Analysis
# 11, Clinical Research Bryan R Wilner, PGY1	Changes in generalized and central adiposity are dynamically associated with left ventricular remodeling
# 12, Clinical Research Carolina De La Flor, PGY1	Direct-Acting Antiviral Therapy for Hepatitis C Improves FIB4 and APRI Scores in Both Cirrhotic and Non-Cirrhotic Patients
# 13, Clinical Research Christina Yek, PGY1	Success of Direct-Acting Antivirals for Hepatitis C in an Indigent Population
# 14, Clinical Research Sarah Kiani, PGY1	Adverse Cardiovascular Outcomes in Individuals with Diabetes Mellitus after Stenting for Lower Extremity Peripheral Arterial Disease
# 15, Clinical Research Timothy J Brown, PGY1	Examining extent of resection and progression-free survival in glioblastoma: a systematic review and meta-analysis
# 16, Clinical Research Timothy J Brown, PGY1	Extensive resection improves survival in glioblastoma: a systematic review and meta-analysis
# 17, Clinical Research Usman Akhtar and Nitin Kondamudi PGY1, PGY2	Visceral Adiposity Calculator from Dallas Heart Study: Population based risk estimator for visceral adipose tissue and associated cardiovascular risk

# 18, Clinical Research Arjun Gupta, PGY2	A Prospective Analysis of Individual Body Fat Depots and Risk of Developing Cancer: Insights from the Dallas Heart Study
# 19, Clinical Research Arjun Gupta, PGY2	Obesity and mortality in patients with esophageal cancer: A systematic review and meta-analysis
# 20, Clinical Research Arjun Gupta, PGY2	Racial and sex disparities in changing trends of squamous cell cancer of the anus (SSCA)
# 21, Clinical Research Arjun Gupta, PGY2	Effect of premorbid body mass index on mortality in patients with lung cancer: A systematic review and meta-analysis
# 22, Clinical Research Daniel I Sullivan, PGY2	Associations between Donor Specific Antibodies and Lung Transplant Outcomes
# 23, Clinical Research Daniel I Sullivan, PGY2	Associations between Donor Specific Antibody Treatment and Lung Transplant Outcomes
# 24, Clinical Research Fernando Woll, PGY2	A Retrospective Evaluation of Clinical Outcomes of Patients Treated with Outpatient Parenteral Antimicrobial Therapy (OPAT) for Liver abscess in a Resource Limited Setting
# 25, Clinical Research Htet Khine, PGY2	Familial Hypercholesterolemia, Statin-Induced Myopathy, and SLCO1B1 rs4149056
# 26, Clinical Research Htet Khine, PGY2	Effects of Prolonged Space Flight on Left Atrium Size and Risk of Atrial Fibrillation

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# 27, Clinical Research Htet Khine, PGY2	Association of the Serum Myeloperoxidase/High-Density Lipoprotein Particle Ratio and Incident Cardiovascular Events in a Multi-Ethnic Population: Observations from the Dallas Heart Study
# 28, Clinical Research Jeanney Lew, PGY2	Understanding the Venus and Mars Effect: Sex-Based Differences Across a Spectrum of Cardiovascular Biomarkers
# 29, Clinical Research Mark Weinreich, PGY2	Pneumonia Readmission Risk Prediction Models: A Systematic Review Of Model Performance
# 30, Clinical Research Mark Weinreich, PGY2	Risk Factors for Thirty-day Readmissions Among Sepsis Survivors at a Safety Net Hospital
# 31, Clinical Research Mark Weinreich, PGY2	Beyond Surviving Sepsis: Thirty-day Readmission Rates and Patient Characteristics at a Safety Net Hospital
# 32, Clinical Research Mark Weinreich, PGY2	Restricting Back Pain and Subsequent Disability Among Community-Living Older Adults
# 33, Clinical Research Micah Eades, PGY2	Coronary artery calcium percentile stability in the Dallas Heart Study
# 34, Clinical Research Stephen Dickson, PGY2	Changes In Valvuloarterial Impedance One Month After Transcatheter Aortic Valve Replacement In Patients With Severe Aortic Stenosis
# 35, Clinical Research Stephen Dickson, PGY2	Using intracoronary Near-Infrared Spectroscopy (NIRS) to show differences in lipid core burden of plaques in uncontrolled diabetics

# 36, Clinical Research Usman Akhtar, PGY2	Meta-Analysis of Radial and Femoral Catheterization: Patient and Procedural Characteristics Contributing to The Radiation Exposure Difference
# 37, Clinical Research Wally Omar, PGY2	The Effects of High Intensity Aerobic Exercise on Aortic Age
# 38, Clinical Research Wally Omar, PGY2	Association of Leukocyte Telomere Length With High Sensitivity Troponin T in the General Population
# 39, Clinical Research Ariel Vinas, PGY3	Significance of an Abnormal Ankle- Brachial Index in Patients With Established Coronary Artery Disease With and Without Associated Diabetes Mellitus
# 40, Clinical Research Jedrek Wosik, PGY3	Echocardiogram Interpretation via Google Glass
# 41, Clinical Research Ragisha Gopalakrishnan, PGY3	Extra nodal Natural Killer T cell Lymphoma: A retrospective Analysis at a single academic center
# 42, Clinical Vignette Carlos Cardenas, PGY2	A Case of Sporadic Lymphangioliomyomatosis Confirmed by Thoracentesis
# 43, Clinical Vignette Ayad Alkhatib, Fellow	Scleromyxedema: Importance of Keeping a Broad Differential
# 44, Clinical Vignette Li Jiang, Fellow	'I can't walk or swallow!' Myositis as a rare initial presentation of SLE with high titre striated muscle antibody in a 33 year old Hispanic male

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# 45, Clinical Vignette Li Jiang, Fellow	'I have bubbles over my body!' A rare case of bullous systemic lupus erythematosus in a 26 year old African American female
# 46, Clinical Vignette Li Jiang, Fellow	Be a good internist first, to be a good rheumatologist: Insights into a rare case of blastic plasmacytoid dendritic cell leukemia mimicking autoimmune diseases
# 47, Clinical Vignette Muhammad Shaharyar Siddiqui, Fellow	Conflicting Therapies: Management of a Patient with Concurrent Diagnosis of Schizophrenia and Prolactinoma
# 48, Clinical Vignette Saira Bilal, Fellow	Stroke of bad luck
# 49, Clinical Vignette Emily Bowen, PGY1	Lessons from PCIM
# 50, Clinical Vignette Nicholas Hendren, PGY1	Medical management for newly diagnosed Marfan syndrome
# 51, Clinical Vignette Okeefe Simmons, PGY1	Sickle Cell Disease and Malaria: Clinical and Therapeutic Considerations
# 52, Clinical Vignette Spencer Carter, PGY1	A Cold Hearted Image Challenge
# 53, Clinical Vignette Timothy J Brown, PGY1	Trastuzumab monotherapy producing a complete clinical response in salivary gland duct adenocarcinoma

# 54, Clinical Vignette Douglas Darden, PGY2	Persistent Dyspnea on Exertion: A Case of "Stiff Left Atrial Syndrome"
# 55, Clinical Vignette Douglas Darden, PGY2	Cardiac Troponin Assays: Interpreting Discordant Values in Patients with Skeletal Muscle Disease
# 56, Clinical Vignette Meredith Greer, PGY2	Cavitation and Confusion: A Puzzling Presentation of Granulomatous Disease
# 57, Clinical Vignette Natalia Rocha, PGY2	Two rare birds of a feather can sometimes flock together: An intriguing case of abnormal coronary anatomy as an incidental finding in a patient with a large atrial myxoma
# 58, Clinical Vignette Thali Sangha, PGY2	Hepatic Glycogenosis: An underrecognized and reversible cause of liver disease
# 59, Clinical Vignette Thalvinder Sangha, PGY2	Initial Presentation of Polyarteritis Nodosa as ischemic colitis
# 60, Clinical Vignette Timothy Krill, PGY2	A Virulent Case of Streptococcus Bovis Endocarditis
# 61, Clinical Vignette Ben Jenny, PGY3	Complements Kill
# 62, Clinical Vignette Brian C Davis, PGY3	Heat Stroke Leading to Acute Liver Failure: Case Series from the Acute Liver Failure Study Group

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# 63, Quality Improvement Justin Chen, Fellow	Beneficial Outcomes of an Inpatient Penicillin Allergy Testing Protocol
# 64, Quality Improvement Omair Atiq, Fellow	Prevalence of musculoskeletal injuries in gastroenterology trainees and knowledge of endoscopy ergonomics
# 65, Quality Improvement Yvonne Covin, Fellow	Checking In on Check-Out: Perceptions and Expectations of Residents during the Continuity Clinic Check-Out Process
# 66, Quality Improvement Elizabeth McGehee, PGY1	Then and Now: The financial impact of providing outpatient antineoplastic medications at the VANTHSC
# 67, Quality Improvement Mehwish Ismaily, PGY1	Implementation of High Risk Osteoporosis Consult (HiROC) for Treatment of Osteoporotic Fractures
# 68, Quality Improvement Mark Weinreich, PGY2	A Novel Early Mobilization Program In The ICU: A Quality Improvement Project
# 69, Quality Improvement Jeong-hee Ku, PGY3	Improving Bone Health for Prostate Cancer Patients on Androgen Deprivation Therapy

Basic Science Research**Abstract #1**

Presenter: Donghai Wen

Authors: Donghai Wen, Bangchen Wang, Ryan Cornelius, Yang Yuan, Huaqing Li² Jun Wang-France, and Steven Sansom

Title: A Micropuncture Study of the Net K Secretion in the Thick Ascending Limb of Mice on a Low Na High K Diet

Abstract:

Understanding the effect of a cardio- and reno-protective low Na high K diet (LNaHK) on renal K handling is crucial to choosing diuretics and anti-hypertensives for patients on such diets. We previously showed that furosemide, an inhibitor of the Na-K-Cl cotransporter (NKCC2) in the thick ascending limb (TAL), increased urinary K excretion (UKV) in mice on a control diet but decreased UKV in mice on LNaHK. We hypothesized that there is a net K secretion in the TAL of mice on LNaHK. Male C57BL/6 mice were given either a control diet or LNaHK for 7–14 days. Mice were anesthetized and received modified saline (140mM NaCl, 5mM KHCO₃, 2% mannitol) intravenously. Free-flow micropuncture was performed using K-selective micro-electrodes to measure the K concentration in the early distal tubule (EDT) before and after intravenous administration of vehicle (60μL 0.9% NaCl) or furosemide (60μL, 2mg/mL). Urine was collected via a bladder catheter. Urine Na concentration was measured by a flame photometer. Within 10 minutes of administration, furosemide increased [K] in the EDT of mice on a control diet ($\Delta = 1.88 \pm 0.45$ mM; N = 3) but decreased that of mice on LNaHK ($\Delta = -3.52 \pm 0.85$ mM; N = 4). Vehicle did not affect [K] in the EDT of mice on either diet. The increase in urinary Na excretion after furosemide was much greater in mice on LNaHK. These results indicate that there is a net K secretion in TAL of mice on LNaHK, and it is associated with increased NKCC2 activity.

Basic Science Research
Abstract #2

Presenter: Dannel Zamora

Authors: Dannel Zamora MD, David Greenberg MD

Title: Peptide-conjugated phosphorodiamidate morpholino oligomers (PPMOs) and their potential use against *Pseudomonas aeruginosa* biofilms

Abstract:

Pseudomonas aeruginosa (Pa) is a major human pathogen responsible for a variety of clinical infections. It has become increasingly antibiotic resistant and in addition has the ability to form biofilm further complicating treatment. Novel therapeutic approaches include the use of antisense technologies (peptide-conjugated phosphorodiamidate morpholino oligomers (PPMOs)) that are designed to target pathogens in a sequence-specific way. We tested whether PPMOs could be effective against Pa biofilms. A PPMO directed against the essential gene AcpP, was compared to piperacillin-tazobactam (TZP) and a scrambled-sequence control PPMO. Biofilms were exposed to multiple concentrations of each at 24, 32 and 40 hours and the amount of residual biofilm was assessed using crystal violet staining. TZP at concentrations ranging from 0.5 to 10 ug/mL were used while AcpP and Scr PPMOs were at concentrations from 0.5 to 20 uM were used. Analysis of the data was performed using Tukey comparison of means. AcpP showed extremely significant decrease in biofilm up to 10 uM compared to negative control ($p < 0.0001$). TZP showed decreased biofilm up to 4 ug/mL ($p 0.01-0.05$). Scramble showed no significant decrease in biofilm. Combination of AcpP and TZP showed decrease biofilm but unclear whether a synergistic response exists. The results illustrate the potential of PPMOs in biofilm inhibition and their potential use in conjunction with traditional antibiotics in combating drug resistant organisms.

Basic Science Research

Abstract #3

Presenter: Richard C Wu

Authors: Richard Wu MD PhD, Cara Haymaker PhD, Hiu Liu, Ena Wang MD, Patrick Hwu MD, Laszlo Radvanyi PhD

Title: Identification of a Novel T-cell Biomarker (BTLA, B- and T-Lymphocyte Attenuator) and the Mechanism of Its Association with Positive Clinical Responses in a Phase II Adoptive T-cell Therapy (ACT) Trial for Metastatic Melanoma

Abstract:

Melanoma is difficult to treat once metastases occur. Adoptive T-cell therapy (ACT), which uses autologous tumor-infiltrating lymphocytes (TIL) expanded ex vivo with high-dose IL-2 with infusion into lymphodepleted patients, has emerged as a powerful treatment approach. However, it is not known which T-cell biomarkers are associated with positive clinical responses to ACT. In a phase II clinical trial, 31 patients of both genders with Stage IIIc/IV melanoma over the age of 18 were treated with ACT. Expanded TIL from these patients were analyzed using flow cytometry with a comprehensive panel distinguishing the main T-cell subsets. Overall 15/31 patients (48.4%) responded (PR/CR) to TIL therapy with objective tumor regression. The clinical responses were quite durable, with many responders having a >12 month progression-free survival. By comparing the TIL biomarkers, we observed that responders received significantly higher numbers of CD8+ T cells ($p = 0.0007$). Unexpectedly, PD-1 expression on CD8+ TIL did not impact clinical response ($p = 0.995$), whereas higher BTLA expression on CD8+ TIL was significantly associated with positive clinical response ($p = 0.002$). Microarray analysis revealed CD8+BTLA+ TIL were less-differentiated than BTLA- TIL, and exhibited superior proliferation in response to IL-2. We also found that unique T-cell clones from CD8+BTLA+ TIL persisted longer in vivo. Moreover, BTLA could mediate a strong pro-survival signal via Akt by binding to HVEM.

Clinical Research
Abstract #4

Presenter: Ami DeWaters

Authors: Ami DeWaters MD, Eric Mortensen MD MSc

Title: Sad white blood cells? The association of major depressive disorder and mortality in older veterans hospitalized for pneumonia

Abstract:

Major depressive disorder has been identified as an independent risk factor for mortality for many comorbid conditions. However, the association between major depression and a common global fatal infection, pneumonia, has not been examined. The aim of this study was to examine the association between major depressive disorder and mortality in patients hospitalized with pneumonia.

We conducted a retrospective study using administrative data of patients hospitalized at any VA hospital. We included patients greater than 65 years old hospitalized with pneumonia in 2002-2012. Major depressive disorder was defined with ICD-9 codes filed in the 12 months prior to admission. We used generalized linear mixed effect models to examine the association of major depressive disorder with mortality after controlling for confounders, including sociodemographics, Charlson comorbidity scores, and severity of illness.

Of 103,997 patients who met the inclusion criteria, 9,247 had major depressive disorder. In the multilevel models, patients with depression had a significantly higher 30-day (odds ratio, 1.22; 95% confidence interval 1.15-1.29) and 90-day (odds ratio, 1.20; 95% confidence interval 1.12-1.29) mortality.

For older veterans hospitalized with pneumonia, a diagnosis of major depressive disorder was associated with high mortality. This study highlights that major depressive disorder is potentially an independent risk factor for mortality for older adults hospitalized with pneumonia.

Clinical Research

Abstract #5

Presenter: Julie Kim

Authors: Julie K. Kim, MD; David A. Khan, MD

Title: Recurrence of Chronic Urticaria: Incidence and Associated Factors

Abstract:

Background: Chronic urticaria (CU) is urticaria that has been present for at least 6 weeks. CU affects both children and adults, and the characteristics of recurrent CU are not well established. Knowledge about factors that may help predict recurrence would be useful.

Objective: We hypothesize that in recurrent CU, the use of alternative (non-antihistamine and non-antileukotriene) agents is more prevalent.

Methods: A retrospective review was performed of the electronic medical charts of 167 adult patients diagnosed with CU in the allergy/immunology clinic at UTSW Medical Center for subtypes of CU and medication usage. Recurrence was defined as urticaria occurring at or greater than 6 months after cessation of therapy and resolution of symptoms. Descriptive statistics were used.

Results: Of the 167 patients, 31 (19%) met criteria for recurrent CU. Fifteen (48%) of recurrent CU patients had a history of treatment with alternative agents compared to 46 (34%) of 136 CU patients without recurrence. The prevalence of steroid dependency was similar in both groups (16% in the recurrent CU group vs. 17%). Chronic idiopathic urticaria (CIU) was the most common diagnosis in both groups, while physical urticarias were more prevalent in CU patients without recurrence (15% vs. 0%).

Conclusions: Chronic urticaria may recur in 1 in 5 patients. There appears to be a higher rate of alternative agent use in recurrent urticaria. Physical urticaria appears to recur less frequently than CIU.

Clinical Research
Abstract #6

Presenter: Javier Neyra

Authors: Javier A. Neyra, MD, Xilong Li, PhD, MS, Beverley Adams-Huet, MS, Orson W. Moe, MD, Robert D. Toto

Title: Acute kidney injury recovery at 90 days and subsequent CKD in critically ill sepsis survivors

Abstract:

Background: Acute kidney injury (AKI) is a frequent complication of sepsis and is associated with an increased risk for subsequent chronic kidney disease (CKD). The purpose of this study was to investigate whether incomplete 90-day AKI recovery increases the risk of CKD in sepsis survivors.

Methods: We conducted a retrospective cohort study of patients admitted to the ICU with a diagnosis of severe sepsis or septic shock from May 2007 to December 2011. We excluded patients with eGFR <15 ml/min/1.73 m² or receiving chronic renal replacement therapy (RRT) prior to ICU admission. Baseline serum creatinine (SCr) was defined as the most recent SCr within the 3-month period before ICU admission. The highest SCr during ICU admission was used to diagnose AKI (KDIGO criteria). The independent variable, AKI recovery, was determined by the ratio of 90-day post-discharge SCr / baseline SCr in RRT-free survivors: <1.1 indicated complete AKI recovery; ≥1.1 to <1.5 incomplete (mild) AKI recovery; and ≥1.5 incomplete (severe) AKI recovery. The primary outcome measure was incident or progressive CKD based on relative or absolute glomerular filtration rate (eGFR) changes during the follow-up period. A Cox proportional hazard regression analysis adjusting for age, sex, race, baseline eGFR, diabetes, AKI severity, and the ICU admission Sequential Organ Failure Assessment (SOFA) score was performed.

Results: Of 6290 ICU patients included in the study, 3642 (58%) suffered from AKI and 741 (12%) required acute RRT. The 90-day mortality rate was 26%. Among survivors, we identified 1249 patients that suffered from AKI, were RRT-free at 90 days following hospital discharge, and had available follow-up data. Incident or progressive CKD occurred in 319 of these 1249 patients: 54% of those with incomplete (severe) AKI recovery; 29% of those with incomplete (mild) AKI recovery; and 13% of those with complete AKI recovery, median follow-up 2.5 years. 90-day AKI recovery

status was an independent predictor of CKD (adjusted HR 4.73, 95% CI 3.54 – 6.32 for incomplete (severe) vs complete AKI recovery; 2.26, 1.65 – 3.10 for incomplete (mild) vs complete AKI recovery; and 2.09, 1.58 – 2.77 for incomplete (severe) vs incomplete (mild) AKI recovery. Other independent predictors of CKD post-AKI were older age, black race, anemia, and higher ICU admission SOFA score.

Conclusions: Incomplete AKI recovery within 90 days following hospital discharge is a strong and independent predictor of CKD in sepsis survivors. The timely evaluation of AKI recovery may serve to risk-stratify sepsis survivors and implement more vigilant surveillance for CKD in this susceptible population.

Clinical Research
Abstract #7

Presenter: Sheenal Patel

Authors: Sheenal V. Patel MD, David A. Khan, MD

Title: Success of Alternative Therapies in Chronic Urticaria Patients Failing Omalizumab

Abstract:

Introduction: Since omalizumab's approval in 2014 for refractory chronic urticaria (CU), more patients are being treated for this indication. However, studies looking at therapeutic failures with omalizumab are lacking.

Objective: To describe omalizumab treatment failures in refractory CU patients and report alternative therapies that may be considered in these patients.

Methods: A retrospective chart review was conducted in the authors' clinic from October 2005 to July 2015 to identify adults with refractory CU who had either partial or lack of response to at least three doses of omalizumab. Baseline characteristics, treatment course, duration of treatment, and alternative therapies used and their response were evaluated.

Results: A total of forty patients were treated with omalizumab for refractory CU. Sixteen patients were identified who had partial or lack of response to at least three doses of omalizumab. Three patients improved on tacrolimus (2/3 with complete response), 1 had complete response on sirolimus, 1 had complete response on cyclosporine, and 1 had partial response on mycophenolate mofetil. Two have continued need for oral corticosteroids.

Summary: This case series describes a group of patients who had partial or lack of response to omalizumab therapy. Other alternative therapies should be considered in these patients.

Clinical Research

Abstract #8

Presenter: Steve Dorman

Authors: Steve Dorman, MD; April Clark, RD, CSP, LD; J. Andrew Bird, MD

Title: Baked Egg Oral Immunotherapy (OIT) Accelerates Desensitization to Unbaked Egg (UBE) in Severely Egg Allergic Children

Abstract:

BACKGROUND: Regular ingestion of baked egg (BE) may accelerate desensitization to UBE for egg-allergic individuals. Treatment lacks for severely egg allergic children reacting to both BE and UBE.

HYPOTHESIS: We hypothesized that BE OIT desensitizes severely egg allergic children to UBE.

METHODS: Subjects reacting to a BE product containing 3.8g of egg protein per serving or with ovomucoid IgE>50kU/L were included. OIT dosing started with ingestion of a 125mg BE product, then home up-dosing at 2 and 4 weeks and 3, 6, and 9 months to a daily dose of 3.8g BE. Egg white (EW)-, ovomucoid-, and ovalbumin-specific IgE, and EW SPT were obtained at 0, 6, 12, 18 and 24 months. At 12 months subjects were challenged to 3.8g of BE and after at least 24 months were challenged to UBE. Matched data was compared using Wilcoxon rank-sum test.

RESULTS: Four of 12 subjects have completed therapy. Six subjects withdrew secondary to non-compliance with BE ingestion, 1 subject began eating UBE at home and was removed from the study, and 1 is awaiting UBE challenge. Reaction rate was 1.3%. All adverse events were mild. Six of 7 subjects passed BE challenge at 12 months. At 24 months, all subjects (4) challenged to UBE passed. Mean EW IgE significantly decreased by 20.47 kU/L ($p=0.0313$). Ovomucoid- and ovalbumin-specific IgE, and EW-SPT did not change significantly.

CONCLUSIONS: BE OIT desensitizes severely egg allergic children to UBE. In our cohort, after one year of BE OIT 6/7 children passed a BE challenge. After two years of BE OIT all challenged to UBE passed, and EW-specific IgE significantly decreased.

Clinical Research
Abstract #9

Presenter: Yu (Ray) Zuo

Authors: Yu Zuo MD, Rohan Willis, EB. Gonzalez, Allan R Brasier , Elizabeth Papalardo, Michelle Petri, Hong Fang², E. Nigel Harris, Karel De Ceulaer, Monica Smikle, Luis M Vilá, John D Reveille, Graciela S Alarcón, Silvia S. Pierangeli

Title: Comparative Analysis of a Novel Antiphospholipid Assay Utilizing a Mixture of Negatively Charged Phospholipid Antigens and Criteria Antiphospholipid Immunoassays in Lupus Patients

Abstract:

Background: While essential for the classification of antiphospholipid Syndrome (APS), aCL assays lack specificity and anti- β 2GPI assays lack sensitivity in this regard. Our aim was to perform a comparative analysis of the APHL assay and criteria antiphospholipid immunoassays in identifying APS related clinical manifestations in a large group of SLE patients.

Methods: Serum samples from 1178 patients from the Hopkins (n=543), LUMINA (n=588) and Jamaican SLE cohorts (n=47) were examined for criteria abs assays and APHL assays. Correlation of assay positivity with clinical manifestations and sensitivity, specificity, positive and negative predictive values and likelihood ratios were evaluated. A case series analysis was also performed in patients for whom there was isolated positivity in one of the more specific assays.

Results: Both IgG APHL and IgM APHL were significantly correlated with thrombosis, while only IgG APHL was significantly correlated with pregnancy morbidity. The IgG APHL assay had the greatest performance value as measured by positive likelihood ratio, increased sensitivity as compared to anti- β 2GPI, and improved specificity compared to aCL assays. Approximately 2% (23/1178) of our patients tested positive for APHL and negative to criteria assays. Of these, 47.8% (11/23) had APS clinical manifestations, including thrombotic and pregnancy related morbidity.

Conclusions: APHL antibodies represent a promising biomarker for the classification of APS patients.

Clinical Research

Abstract #10

Presenter: Anurag Mehta

Authors: Anurag Mehta, MD; Nilay Kumar, MD; Ambarish Pandey, MD

Title: Regional Differences in Outcomes of Heart Failure Hospitalization in the United States: A Contemporary Nationwide Analysis

Abstract:

Background and Objectives: Regional differences in outcomes of HF hospitalization have important health policy implications. There is a paucity of contemporary data on regional differences in HF hospitalization outcomes in a nationally representative sample in the US.

Methods: We used the 2011 - 2012 National Inpatient Sample to include HF hospitalizations (primary diagnosis code ICD9 428.xx). Outcomes included in-hospital mortality, length of stay (LOS) and cost. Logistic models adjusted for patient characteristics and illness severity were used to test differences in outcomes.

Results: There were 1.8 million hospitalizations with a primary diagnosis of HF in 2011 - 2012. Mean age was 72.6 years and 50.1% were women. Patients in the NE were older (mean 74.6 y, $p < 0.05$ for NE vs. MW, S or W) and more likely to receive intensive life-sustaining therapies compared to other regions. Case fatality was 3.8% in NE vs. 3% MW, 3% S and 2.9% W ($p < 0.05$ in pairwise

comparison). This difference became non-significant for NE vs. MW and NE vs. S after adjusting for patient characteristic and illness severity. LOS was highest in the NE while costs were highest in the West after adjusting for confounders.

Conclusions: Significant regional differences exist in outcomes of HF hospitalization in the US. These differences are partially explained by differences in patient characteristics and illness severity. Further investigation is warranted to understand the reasons for these differences.

Clinical Research
Abstract #11

Presenter: Bryan R Wilner

Authors: Bryan R Wilner MD, Sonia Garg MD, Colby R Ayers MS, Satyam Sarma MD, Anand Rohatgi MD, Sandeep R. Das MD MPH, Darren K. McGuire MD, James A. de Lemos MD, Mark H. Drazner MD, Ian J. Neeland MD

Title: Changes in generalized and central adiposity are dynamically associated with left ventricular remodeling

Abstract:

Introduction: Obesity is linked to an adverse cardiac structural phenotype. However, the effects of longitudinal changes in generalized and central adiposity on left ventricular (LV) remodeling are unknown.

Methods: Dallas Heart Study participants without baseline cardiovascular disease or LV dysfunction underwent assessment of anthropometry and cardiac structure by MRI at baseline and 8 years later. Associations between change in weight and waist circumference (WC) with alterations in LV structure and function were assessed using multivariable linear regression.

Results: The study cohort (n=1262) had a mean age of 44 years with 43% male, 44% black, and 36% obese at baseline. Those who gained >10% weight were younger, had lower BMI and LV mass at baseline, and had greater increases in blood pressure, glucose, and triglycerides at follow-up (p<0.05). In multivariable models, adjusted for age, sex, race, baseline adiposity and cardiac variables, and baseline and interim development of comorbidities, increases in weight and WC were associated with higher LV mass ($\beta=0.09$ and 0.07 , p<0.0001), LV wall thickness ($\beta=0.12$ and 0.09 , p<0.0001) and concentricity ($\beta=0.06$ for both, p=0.002); but not associated with LV end-diastolic volume or ejection fraction.

Conclusion: Increasing weight and WC over time are associated with pathologic cardiac remodeling, characterized by concentric remodeling. Our findings have potential implications for the prevention and treatment of heart failure.

Clinical Research

Abstract #12

Presenter: Carolina De La Flor

Authors: De La Flor C, Yek C, Chen TY, Singal AG, Adams-Huet B, Zoellner C, Casey L, Mayorga C, Jain MK

Title: Direct-Acting Antiviral Therapy for Hepatitis C Improves FIB4 and APRI Scores in Both Cirrhotic and Non-Cirrhotic Patients

Abstract:

Background: The AST to Platelet Ratio Index (APRI) and Fibrosis 4 score (FIB4) are non-invasive measures of liver fibrosis in chronic hepatitis C (HCV). Here we examined the changes in both scores in cirrhotic and non-cirrhotic patients with HCV after direct acting antiviral therapy.

Methods: We analyzed a cohort of patients (n=81) with chronic HCV who completed treatment and achieved sustained viral response (SVR) at Parkland Memorial Hospital. Samples were obtained at baseline, week 4, end of treatment (EOT) and 12-weeks post (SVR).

Results: Of 81 patients, 60 had cirrhosis and 21 did not. At baseline, cirrhotics had higher ALT (p=0.03), AST (p<0.001), APRI (p<0.001), and FIB4 (p<0.001) and lower platelet counts (p<0.001) and viral loads (p=0.03) compared to non-cirrhotics. APRI and FIB4 declined in both groups, with the greatest decrease between baseline and week 4 (cirrhotics APRI p<0.001, FIB4 p<0.001 and non-cirrhotics APRI p<0.001, FIB4 p<0.001). Finally, FIB4 and APRI were not different in cirrhotics versus non-cirrhotics after SVR (FIB4 p=0.27, APRI p=0.72).

Conclusion: We found that both scores decreased in cirrhotics and non-cirrhotics, suggesting that they may indicate a reduction in liver inflammation rather than a true decrease in fibrosis. Moreover, APRI and FIB4 were not significantly different in cirrhotics as compared to non-cirrhotics after treatment, implying that these markers may no longer have a role in predicting cirrhosis after viral clearance.

Clinical Research
Abstract #13

Presenter: Christina Yek

Authors: Christina Yek, Carolina De La Flor, Ting-Yi Chen, Amit Singal, Cindy Zoellner, Lisa Casey, Christian Mayorga, Mamta Jain

Title: Success of Direct-Acting Antivirals for Hepatitis C in an Indigent Population

Abstract:

Direct-acting antivirals (DAAs) have revolutionized the management of chronic hepatitis C (HCV). The aim of our study was to examine the impact of coordinating limited resources to treat HCV-infected patients at a large urban safety-net hospital.

Our cohort included all patients who started interferon-free DAA-based HCV therapy at Parkland Memorial Hospital. Available clinic resources and staff included 0.4 FTE infectious disease/hepatology physician champions, 0.5 FTE nurse navigator, and 0.25 FTE mid-level provider that met once weekly for liver clinic.

During a 20-month period, 280 patients were started on DAAs, representing a 350% increase in the rate of HCV treatment initiation from historical rates achieved with interferon-based regimens. Sustained viral response was achieved in 76% (n=135), an improvement from outcomes with interferon-based regimens (viral response in only 34%). A further 6% (n=11) had viral relapse, 2% (n=4) stopped treatment due to serious adverse events and 16% (n=28) were lost to follow-up. Risk factors for viral relapse were: infection with genotypes 1a or 2 (9% relapse in genotype 1a, 10% in genotype 2, vs 0% in infection with other genotypes), presence of cirrhosis (8% relapse vs 3% in non-cirrhotics) and prior treatment failure (9% relapse vs 5% in treatment-naïve patients).

Our model of care increased treatment initiation and achieved exceptional effectiveness, suggesting that favorable outcomes can be achieved in limited resource settings.

Clinical Research

Abstract #14

Presenter: Sarah Kiani

Authors: Sarah Kiani, Usman Salahuddin, Haekyung Jeon Slaughter, Atif Mohammad, Emmanouil S. Brilakis, Subhash Banerjee

Title: Adverse Cardiovascular Outcomes in Individuals with Diabetes Mellitus after Stenting for Lower Extremity Peripheral Arterial Disease

Abstract:

There is equivocal data on outcomes of percutaneous Endovascular Intervention (EVI) for lower extremity Peripheral Artery Disease (PAD) in patients with diabetes mellitus (DM).

1,006 patients with primary stent implant procedures between 01/2005 and 10/2015 enrolled in the observational XLPAD registry (NCT01904851) were analyzed for 12 month major adverse cardiovascular events (MACE; all-cause death, myocardial infarction, and stroke) and major adverse limb events (MALE; target limb repeated endovascular intervention, surgical revascularization, and major amputation). Cochran-Mantel-Haenszel statistics and Cox proportional regressions and Kaplan-Meier curves were used for analysis.

At baseline, patients with DM had higher prevalence ($p < 0.05$) of underlying Cardiovascular Disease and advanced disease at presentation (Rutherford category and CLI) in comparison to patients without DM. Adjusted Cox models for baseline characteristics and medical therapy of interest showed that risk of mortality and MACE in 12 months increased by 390% and 215% in patients with DM compared to those without DM, respectively (Mortality: HR= 3.92, 95% CI 1.70-9.04, $p < 0.0001$; MACE: HR=2.15, 95% CI 1.21-3.82, $p < 0.0001$), while there was no significant DM group difference found in 12-month MALE (HR=0.96, 95% CI 0.76-1.21, $p = 0.7281$).

Conclusion: Lower extremity PAD EVI in individuals with DM is associated with significantly higher mortality and major adverse cardiovascular events.

Clinical Research
Abstract #15

Presenter: Timothy J Brown

Authors: Timothy J. Brown MD, Matthew C Brennan MD, Michael Li MD, Ephraim W Church MD, Nicholas J. Brandmeir MD, Kevin Rakszawski MD, Akshal S. Patel MD, Elias B. Rizk MD, Dima Suki Ph.D, Raymond Sawaya MD, Michael Glantz MD.

Title: Examining extent of resection and progression-free survival in glioblastoma: a systematic review and meta-analysis

Abstract:

background: Glioblastoma multiforme (GBM) remains almost invariably fatal despite optimal surgical and medical therapy. The relationship between extent of tumor resection (EOR) and progression-free survival (PFS) is ill-defined notwithstanding many relevant studies. We present the results of a quantitative systematic review addressing the effect EOR on PFS in patients with GBM.

Methods: Search engines were systematically reviewed with the guidance of an expert librarian. Additional articles were included after consultation with experts and evaluation of bibliographies. Data were analyzed to assess PFS following gross total resection (GTR), subtotal resection (STR), and biopsy (Bx). The body of evidence was evaluated according to GRADE criteria and PRISMA guidelines.

Results: Our search yielded 1055 articles, of which 9 articles were included. The meta-analysis revealed decreased likelihood of one-year progression for GTR compared to STR (RR=0.66, 95% CI=0.43-0.99) decreased likelihood of six-month progression for STR compared to biopsy (RR=0.72, CI=0.51-1.00 p=0.05), and decreased likelihood of progression at 6 months with any EOR compared to Bx (RR=0.61, CI=0.44-0.84 p=0.003). The quality of the body of evidence was moderate to low.

Conclusion: This is the largest quantitative systematic review performed on this subject. In GBM, PFS appears to be improved in a dose-dependent manner with increasing EOR.

Clinical Research

Abstract #16

Presenter: Timothy J Brown

Authors: Timothy J. Brown MD, Matthew C Brennan MD, Michael Li MD PhD, Ephraim W Church MD, Nicholas J. Brandmeir MD, Kevin Rakszawski MD, Akshal S. Patel MD, Elias B. Rizk MD, Dima Suki PhD, Raymond Sawaya MD, Michael Glantz MD.

Title: Extensive resection improves survival in glioblastoma: a systematic review and meta-analysis

Abstract:

Introduction: Glioblastoma multiforme (GBM) remains almost invariably fatal despite optimal surgical and medical therapy. The relationship between extent of tumor resection (EOR) and outcome remains undefined notwithstanding many relevant studies.

Methods: Pubmed, CINAHL, and Web of Science were systematically reviewed with librarian guidance. Data were extracted from the text or Kaplan-Meier curves and analyzed to assess mortality following gross total resection (GTR), subtotal resection (STR), and biopsy. The body of evidence was evaluated according to GRADE criteria and PRISMA guidelines.

Results: Our search yielded 37 articles suitable for inclusion. The meta-analysis revealed decreased one- and two-year mortality, for GTR compared to STR (RR=0.62, 95% CI=0.56-0.69 p<0.001, NNT=9; RR=0.84, CI=0.79-0.89 p<0.001 NNT=17) and one-year risk of mortality for STR compared to biopsy (RR=0.85, CI=0.80-0.91 p<0.001). One- and two-year risk of mortality was similarly decreased for any resection compared to biopsy (RR=0.77, CI=0.71-0.84 p<0.001; RR=0.94, CI=0.89-1.00, p<0.001). The quality of the body of evidence by GRADE criteria was moderate to low.

Conclusion: Our analysis represents the largest and only quantitative systematic review to date performed on this subject. GTR substantially improves the overall survival compared to STR, but the quality of the supporting studies is only moderate to low.

Clinical Research
Abstract #17

Presenter: Usman Akhtar and Nitin Kondamudi

Authors: Usman Akhtar, Nitin Kondamudi, Colby Ayers, Ian Neeland

Title: Visceral Adiposity Calculator from Dallas Heart Study: Population based risk estimator for visceral adipose tissue and associated cardiovascular risk

Abstract:

Introduction: Current research has linked visceral adipose tissue (VAT) to increased morbidity and mortality for overall cardiovascular disease. Our objective was to create a predictive model of VAT utilizing the extensive phenotyping data available from the Dallas Heart Study (DHS).

Methods/Results: A cross-sectional study was performed, measuring the associations between demographic and biomarker data and the outcome dependent variable: VAT measured with abdominal MR. Exposure variables were initially filtered based on their utility in daily clinical practice. The analysis was performed separately for males and females in order to create sex-specific indices. A backwards, step-wise selection model found ten variables with the strongest associations with visceral adiposity that further underwent an R2 selection model. The adjusted R-square was 0.6386 for women, and 0.6864 for men ($P < .001$). The variables included in the final model were waist circumference, age, TG/HDL ratio, and black race. For women, the fifth variable was plasma glucose, and for men, uric acid.

Conclusion: Our study suggests that the above variables serve as a robust predictor of visceral adiposity based on the DHS data. This provides a practical tool to estimate visceral adiposity in the clinical setting, and can be invaluable in assessing and modifying associated cardiovascular risk.

Clinical Research

Abstract #18

Presenter: Arjun Gupta

Authors: Arjun Gupta, Ambarish Pandey, Colby Ayers, Muhammad S. Beg, Susan G. Lakoski, Gloria L. Vega, Scott M. Grundy, David H. Johnson, Ian J. Neeland

Title: A Prospective Analysis of Individual Body Fat Depots and Risk of Developing Cancer: Insights from the Dallas Heart Study

Abstract:

Background: Adiposity is associated with increased cancer risk; however BMI is an imprecise measure of adiposity. We examined the association of adipose tissue depots with the incident cancer in the Dallas Heart Study (DHS).

Methods: Individuals without prevalent cancer underwent quantification of adipose tissue depots: visceral (VAT), abdominal subcutaneous adipose tissue (SAT), liver fat and lower body subcutaneous fat (LBF), and were followed for the development of cancer using the Texas Cancer Registry. Multivariable Cox proportional hazards modeling was performed to examine the association between fat depots and incident cancer.

Results: Among 2,627 participants, 167 (6.4%) developed incident cancer during a 12 year follow up period. Each standard deviation increase in VAT was associated with 25% increased risk of cancer: HR 1.25 (95% CI 1.06- 1.47). The association was attenuated with the addition of age to the model. Each 1-standard deviation increase in LBF was associated with a reduced incidence of cancer; HR 0.93 (95% CI 0.87- 0.98) in the multivariable model.

Conclusions: In this study, adiposity-associated cancer risk was heterogeneous and varied by fat depot: VAT was associated with incident cancer but not independent of age and LBF appeared to protect against cancer development. Further studies of the adiposity-cancer relationship are needed to elucidate this relationship and to examine the association with prognosis and response to therapy.

Clinical Research
Abstract #19

Presenter: Arjun Gupta

Authors: Arjun Gupta, Kaustav Majumder, Nivedita Arora, Preet Paul Singh, Siddharth Singh

Title: Obesity and mortality in patients with esophageal cancer: A systematic review and meta-analysis

Abstract:

Background: Obesity influences incidence of esophageal cancer (EC) with contrasting impact on esophageal adenocarcinoma (EAC) and esophageal squamous cell carcinoma (ESC). However its influence on EC mortality remains unclear.

Methods: We searched major databases and conference proceedings, up to June 2015, and identified observational studies reporting the association between obesity (premorbid BMI ≥ 30 kg/m²) and EC-related mortality. We estimated summary adjusted hazard ratio (aHR) with 95% confidence intervals (CI), comparing highest BMI category with reference category in each study using random effects model; heterogeneity was measured using the inconsistency index (I²).

Results: We identified 8 studies with 2,784,027 people, of whom 18% were obese. On meta-analysis, compared with EC patients with reference BMI, obese EC patients had aHR for mortality of 0.97 (95% CI, 0.661.43), with high heterogeneity (I² = 88%). On analyzing patients with EAC alone (3 studies), aHR was 1.10 (95% CI, 0.432.82), with high heterogeneity (I² = 95%). Data to separately analyze ESC or to perform subgroup analysis by gender, smoking status or geographic location.

Conclusions: Obesity does not appear to be associated with mortality in patients with EC. However, high heterogeneity and limited data for subgroup analysis limits the interpretation of this analysis. Further prospective studies evaluating mortality in patients with established EC are needed to answer this question.

Clinical Research

Abstract #20

Presenter: Arjun Gupta

Authors: Arjun Gupta, Hong Zhu, Alana Christie, Jeffrey Meyer, Saad Khan, Muhammad Beg

Title: Racial and sex disparities in changing trends of squamous cell cancer of the anus (SSCA)

Abstract:

Background: Squamous cell carcinoma of the anus (SSCA) is one of few cancers with rising incidence. This is believed to represent changing epidemiology of HIV and HPV. We explored the racial and sex disparities in the incidence of SSCA.

Methods: The Surveillance, Epidemiology, and End Results (SEER) database was used to identify subjects with SSCA from 2000-2012. Age standardized incidence rates (IR) per 100,000 were generated for white males (WM), white females (WF), black males (BM) and black females (BF). The 2000 US standard population was used for age standardization. The trend of change of IR between groups was compared by testing the interaction between time and group in the linear regression model. SAS 9.4 was used for analysis

Results: Among 11,739 new cases of SSCA racial and sex distribution of cases was WM:32%, WF:54%, BM:5.4%, BF:5.4%. Median overall survival (OS) was WM:101 months (m), WF:139 m, BM: 71 m, BF 103 m ($p < 0.005$). The IR had the highest rate of increase for WF and BM (0.06/100,000 cases annually) while rates for BF and WM increased by 0.04 and 0.02/100,000 cases annually respectively. The overall test for difference in trend among WF, WM, BF and BM groups had a p value of 0.0099.

Conclusions: The rate of increase of SSCA IR is highest for WF and BM. Additionally WF have the highest age standardized incidence of SSCA as well as the highest OS compared to other groups. These data support disparities in epidemiology and survival of anal cancer.

Clinical Research
Abstract #21

Presenter: Arjun Gupta

Authors: Arjun Gupta, Kaustav Majumder, Nivedita Arora, Preet Paul Singh, Siddharth Singh, Ethan Halm, David H Johnson

Title: Effect of premorbid body mass index on mortality in patients with lung cancer: A systematic review and meta-analysis

Abstract:

Background: Obesity is associated with reduced risk of developing lung cancer (LC), but its effect on LC mortality remains unclear. We performed a systematic review and meta-analysis to assess the association between premorbid body mass index (BMI) and LC mortality.

Methods: Conducting a systematic search of MEDLINE and the Cochrane library through December 2015, we identified observational studies reporting the association between premorbid BMI, and LC-related mortality. We estimated summary adjusted hazard ratio (aHR) comparing obese (BMI > 30 kg/m²) and overweight (BMI 25-29.9 kg/m²) categories with reference category in each study, using random effects model.

Results: 11 studies (including 1 pooled cohort study) comprising 2,953,278 individuals at inception, in whom 27,282 LC deaths occurred were analysed.

Compared with LC patients with normal BMI, a reduction in mortality in both overweight [aHR, 0.83; 95% CI, 0.78-0.89] and obese [aHR 0.80, 95% CI; 0.74-0.87] individuals was seen, p-value between obese and overweight vs normal, 0.30). On subgroup analysis by sex and smoking status, no difference was noted between men vs women, and never smokers vs ever-smokers.

Conclusions: Based on meta-analysis, obese and overweight LC patients have reduced mortality compared to leaner individuals. The protective effect was seen across sexes and smoking status. Ideal body weight in LC patients should be reconsidered.

Clinical Research

Abstract #22

Presenter: Daniel I Sullivan

Authors: Daniel I. Sullivan, Fernando Torres, Amit Banga , Manish R. Mohanka, Srinivas Bollineni, Jessica Mullins, Usha Rao, Chantale Lacelle, Pavan Duddupudi, Dhiraj Surapaneni, Vaidehi Kaza

Title: Associations between Donor Specific Antibody Treatment and Lung Transplant Outcomes

Abstract:

Purpose: Development of donor specific antibodies (DSA) is common after lung transplantation (LT), and is a risk factor for bronchiolitis obliterans syndrome (BOS). The aim of our study was to evaluate the association of prevalence and strength of DSA on survival and time to BOS.

Methods: Records of patients receiving LT between 01/01/2010 and 6/30/2014 were examined to determine prevalence of DSA. Patients with cumulative mean fluorescence intensity (cMFI) greater than or equal to 4000 units at highest strength were defined as having DSA. This group was compared to those without DSA. Primary end points were survival and time to BOS grades 1, 2, and 3.

Results: In our cohort, 48% of patients developed DSA. Mortality was 35% in the DSA positive group and 26% in the DSA negative group. A statistically insignificant trend toward reduced survival was seen in the DSA positive group ($p = 0.14$). Mean time to onset of BOS was 2.6 years in the DSA positive group and 2.9 years in the DSA negative group ($p = 0.09$). A strong correlation was seen for time to BOS grade 3 among DSA positive patients with cMFI greater than 10000 units ($HR = 2.735, p = 0.001$).

Conclusions: The presence of DSA does not portend worse survival during our period of study. No statistical difference in time to BOS existed between groups with and without DSA. These preliminary findings need to be confirmed in larger multi-center, randomized, controlled trial with longer time to follow up.

Clinical Research
Abstract #23

Presenter: Daniel I Sullivan

Authors: Daniel I. Sullivan, Fernando Torres, Amit Banga, Manish R. Mohanka, Srinivas Bollineni, Jessica Mullins, Usha Rao, Chantale Lacelle, Pavan Duddupudi, Dhiraj Surapaneni, Vaidehi Kaza

Title: Associations between Donor Specific Antibody Treatment and Lung Transplant Outcomes

Abstract:

Purpose: Development of donor specific antibodies (DSA) is common after lung transplantation (LT), and is a risk factor for bronchiolitis obliterans syndrome (BOS). The aim of our study was to evaluate the association of DSA treatment on survival and time to BOS.

Methods: Records of patients receiving LT between 01/01/2010 and 6/30/2014 were examined to determine prevalence of DSA. Patients with cumulative mean fluorescence intensity (cMFI) greater than or equal to 4000 units at highest strength were defined as having DSA. Those who were treated for DSA were compared to those who were not. Primary end points were survival and time to BOS grades 1, 2, and 3.

Results: In our cohort, 48% of patients developed DSA. Within this group, 51% were treated for DSA and 49% were not. Mean time to BOS onset in the treatment group was 2.3 years compared to 3.0 years in the control group ($p = 0.003$). Overall mortality was 43% and 28%, respectively for treatment and control groups ($p = 0.18$).

Conclusions: No improvement in mortality was seen for patients who were treated for DSA during our period of study. Those who were treated had earlier onset of BOS. Despite the use of several available treatment options among patients with DSA, it remains unclear when to treat and how patients will respond to treatment. These preliminary findings need to be confirmed in larger multi-center, randomized, controlled trial with longer time to follow up.

Clinical Research
Abstract #24

Presenter: Fernando Woll

Authors: Chinemerem J. Okwara, MD; Fernando Woll, MD; Aurelia Schmalstieg, MD; Kavita Bhavan, MD, MHS

Title: A Retrospective Evaluation of Clinical Outcomes of Patients Treated with Outpatient Parenteral Antimicrobial Therapy (OPAT) for Liver abscess in a Resource Limited Setting

Abstract:

The aim of this study is to evaluate the clinical outcomes of patients with liver abscess who were treated in the PHHS OPAT clinic by retrospectively reviewing data on readmissions, mortality and duration of outpatient IV antibiotics.

This is a retrospective review of our OPAT database from 2010 – 2013.

Ten patients were identified from this database using the ICD-9 code for liver abscess who met our inclusion criteria.

Demographics of the patient:

Race: 5 Hispanic, 2 Caucasian, 2 African American and 1 Asian

Diagnostic modality: Ct abdomen: 6, MR abdomen: 2 and ultrasound: 2

Microbiology: Polymicrobial: 5, single agent: 4

Antibiotic regimen: Ertapenem: 6, Ceftriaxone: 5, Daptomycin: 1, Vancomycin: 1

Mean length of stay: 13 days. Range 9-18 days

Mean duration of intravenous antibiotics: 5.2 weeks. Range 2 – 6 weeks

Percutaneous drainage of the abscess: Performed in 6/10 (60%)

Mortality: 2/10 in 1 year

Conclusions: OPAT is a safe option for the management of liver abscesses that require long-term IV antimicrobial therapy. There were not any mortality or readmission events during our study period that were due to complications of self- administration of IV antimicrobials in our OPAT program or failure of antimicrobial therapy

Clinical Research
Abstract #25

Presenter: Htet Khine

Authors: Htet Khine, MD; Wei Cheng Yuet, PharmD; Beverley Huet, MS; Zahid Ahmad, MD

Title: Familial Hypercholesterolemia, Statin-Induced Myopathy, and SLCO1B1 rs4149056

Abstract:

Introduction: Patients with familial hypercholesterolemia (FH) may be at increased risk of statin-induced myopathy since they require long-term treatment with high-intensity statin therapy. We sought to determine 1) whether other predisposing factors, including the well-known genetic variant associated with statin-induced myopathy – solute carrier organic anion transporter family, member 1B1 (SLCO1B1) rs4149056 – also increase the risk of myopathy in FH patients, and 2) the natural history and management for FH patients with statin-induced myopathy.

Methods: We queried electronic records (2004-2014) of 278 genetically screened FH patients (113 men, 165 women) recruited from lipid clinics in the Dallas, TX area. Statin-induced myopathy was defined as muscle complaints (pain, weakness, or cramps) arising while taking a statin and resulting in an interruption in therapy. Genotyping of rs4149056 was performed by allelic discrimination using real-time polymerase chain reaction TaqMan assays.

Results: Statin-induced myopathy occurred in 36% (n=97). SLCO1B1 rs4149056 genotyping revealed 224 wild-type patients (TT), 48 heterozygotes (TC) and one homozygote (CC). The variant C allele was not associated with the risk of statin-induced myopathy (OR 0.70, [95% CI 0.37, 1.33]). The risk of myopathy was associated with age (OR 1.6, [95% CI 1.2, 2.2]), BMI in non-African-Americans (0.90 [0.83, 0.97]), and hypertension (0.4, [0.2, 0.9]).

Clinical Research

Abstract #26

Presenter: Htet Khine

Authors: Htet W. Khine, Katarina Steding-Ehrenborg, Jeffery L. Hastings, Michael W. Bungo, Jamie Kowal, James Daniels, Rick Page, Jeff Goldberger, Benjamin D. Levine

Title: Effects of Prolonged Space Flight on Left Atrium Size and Risk of Atrial Fibrillation

Abstract:

Introduction: Atrial fibrillation (AF) is the most common arrhythmia in the United States, and its prevalence increases with age. With the aging of current astronauts, AF is an increased concern. The prevalence of AF in astronauts is about 5%, similar to that of the general population but with younger age of presentation. A few documented risk factors for AF include left atrial size enlargement (in the elderly population and competitive athletes), and increased number of premature atrial complexes (in those with acute stroke). The aim of this study is to evaluate changes in atrial structure and the supraventricular beats to determine whether space flight increases risk for AF.

Methods: We studied 12 astronauts (8 men, 4 women) who underwent cardiac MRI with gadolinium contrast before and after 6 months in space and Holter monitoring for multiple 48-hour time periods before flight, during flight, and on landing day. Long-axis images in the 2chamber, 3chamber and 4chamber view were used to obtain left atrium volumes. The Holter data were analyzed blindly by two experienced electrophysiologists.

Results: Left atrium volume increased after 6 months (mean±SD 14±18ml, p=0.03). Five out of 12 astronauts displayed an increase larger than the coefficient of variation, 12.1%. Intraobserver variability for LA volume was -5±23ml, SEE 12.4. When compared to baseline data of supraventricular beats before flight, no changes were noted over time.

Clinical Research
Abstract #27

Presenter: Htet Khine

Authors: Htet Khine, MD, John F. Teiber, PhD, Robert W. Haley, MD, Amit Khera, MD, Colby Ayers, MS, Anand Rohatgi, MD

Title: Association of the Serum Myeloperoxidase/High-Density Lipoprotein Particle Ratio and Incident Cardiovascular Events in a Multi-Ethnic Population: Observations from the Dallas Heart Study

Abstract:

Introduction: Myeloperoxidase (MPO) promotes oxidation of lipoproteins whereas high-density lipoprotein (HDL) exerts anti-oxidative effects in part via paraoxonase-1 (PON1). MPO can induce dysfunctional HDL particles; however, the interaction of circulating levels of these measures in cardiovascular disease (CVD) has not been studied in humans. We hypothesized that increased serum levels of MPO indexed to HDL particle concentration would be associated with an adverse phenotype with increased CVD risk and tested this hypothesis in a large multiethnic population free of CVD at baseline.

Methods: Levels of MPO, HDL-C, and HDL particle concentration (HDLp) by NMR were measured at baseline in 2924 adults free of CVD (57% women, 49% black). The associations of the MPO/HDLp ratio with incident ASCVD (first nonfatal myocardial infarction, nonfatal stroke, coronary revascularization, or CVD death) and total CVD were assessed in Cox proportional-hazards models adjusted for traditional risk factors. The median follow-up period was 9.4 years.

Results: MPO/HDLp was associated directly with total cholesterol, C-reactive protein, interleukin 18, and body mass index, and inversely with PON1 arylesterase activity, HDL-C, and HDL size. In adjusted models, the highest versus lowest quartile of MPO/HDLp was associated with a 74% increase in incident ASCVD (α HR, 1.74, 95% CI 1.12-2.70) and a 91% increase in total CVD (α HR, 1.91, 95% CI 1.27-2.85).

Clinical Research

Abstract #28

Presenter: Jeanney Lew

Authors: Jeanney Lew MD, Monika Sanghavi MD, MSCS, Colby R Ayers MS, Darren K McGuire MD, MHSc, Maria O Gore MD, Jarett D Berry MD, MS, Amit Khera MD, MSC, Anand Rohatgi MD, James A de Lemos MD

Title: Understanding the Venus and Mars Effect: Sex-Based Differences Across a Spectrum of Cardiovascular Biomarkers

Abstract:

It is unknown whether sex-based differences in the prevalence and pathobiology of cardiovascular disease (CVD) can be informed by cardiovascular biomarker profiles.

Methods: A cross-sectional analysis was performed using data from the Dallas Heart Study, a multi-ethnic probability based cohort study. Associations between sex and 26 distinct biomarkers were evaluated using multivariable linear regression adjusting for age, race, traditional CVD risk factors, MRI and DEXA measures of body composition and fat distribution, kidney function, insulin resistance, LV mass by MRI, and menopausal status.

Results: The study included 3429 individuals, mean age 43, 56% women and 52% African American. Significant sex-based differences were seen in multiple categories of biomarkers, including lipids, adipokines, and biomarkers of inflammation, endothelial dysfunction, myocyte injury and stress, and kidney dysfunction. In fully adjusted models, women had higher levels of HDL-C and HDL-p, leptin, d-dimer, osteoprotegerin, and NT-proBNP, and lower levels of lipoprotein-associated phospholipase A2, monocyte chemoattractant protein-1, soluble endothelial cell adhesion molecule, symmetric dimethylarginine, hs-cTnT, and cystatin C.

Conclusion: Even after accounting for sex-based differences in traditional CVD risk factors, body composition and LV mass, important differences in biomarkers exist between women and men in the population. Future studies are needed to investigate causality.

Clinical Research
Abstract #29

Presenter: Mark Weinreich

Authors: Mark A. Weinreich, MD; Oanh K. Nguyen, MD, MAS; David Wang, MD; Helen G. Mayo, MLS; Eric M. Mortensen, MD, MSc; Ethan A. Halm, MD, MPH; and Anil N. Makam, MD, MAS

Title: PNEUMONIA READMISSION RISK PREDICTION MODELS: A SYSTEMATIC REVIEW OF MODEL PERFORMANCE

Abstract:

Rationale: Hospitals are financially penalized for higher than expected 30-day readmission rates among patients discharged with pneumonia. Predicting which patients are at highest risk for readmission could enable hospitals to proactively reallocate scarce resources to reduce 30-day readmissions. The objective of this review is to synthesize the available literature on pneumonia readmission risk prediction models and describe their performance.

Methods: We systematically searched Ovid MEDLINE, Embase, The Cochrane Library, and CINAHL databases from inception through July 2015.

Results: Of the 992 citations reviewed, 7 studies met inclusion criteria, which included 8 unique risk prediction models. Model discrimination (c-statistic) ranged from 0.59 to 0.77. The best performing model had a c-statistic of 0.77, but was from a single site so may be less generalizable and was not internally validated. Models derived from electronic health record data outperformed those derived from administrative data.

Conclusions: We found a limited number of validated pneumonia-specific readmission models and their predictive ability was modest. Future models should seek to include more detailed information from the EHR on clinical severity, course throughout the index hospitalization, and social factors that influence readmission risk.

Clinical Research

Abstract #30

Presenter: Mark Weinreich

Authors: Kim Styrvoky, Mark Weinreich, Carlos E. Girod, Rosechelle Ruggiero

Title: Risk Factors for Thirty-day Readmissions Among Sepsis Survivors at a Safety Net Hospital

Abstract:

Rationale: Sepsis is associated with increased morbidity, mortality and healthcare utilization. Thirty-day readmission rates are increasingly being used as a quality metric. The aim of this study was to identify factors associated with 30-day readmission rates of patients admitted with sepsis at a safety net hospital.

Methods: Retrospective chart review of all patients admitted with sepsis during fiscal year 2013 was performed to determine 30-day readmission rates and describe patient characteristics during the initial hospitalization for sepsis. Multivariate logistic regression was used to identify characteristics associated with 30-day readmission.

Results: At Parkland Hospital during fiscal year 2013 there were 1533 admissions for sepsis. Among the 1049 survivors, there were 306 readmissions within 30 days. Comorbid conditions associated with greater odds of 30-day readmissions included end-stage renal disease (OR, 1.26; 95% CI 1.17-1.36), malignancy (OR, 1.14; 95% CI 1.08-1.21), and cirrhosis (OR 1.11; 95% CI 1.02-1.20). Bacteremia during the initial hospitalization (OR 1.07; 95% CI 1.01-1.15) was associated with increased odds for 30-day readmission.

Conclusions: Among sepsis survivors at Parkland Hospital, 29.1% were readmitted within 30 days. Factors associated with increased odds of 30-day readmission included the presence of a comorbid condition (ESRD, malignancy, cirrhosis), bacteremia during the initial hospitalization or being discharged with a catheter.

Clinical Research
Abstract #31

Presenter: Mark Weinreich

Authors: Kim Styrvoky, Mark Weinreich, Carlos E. Girod, Rosechelle Ruggiero

Title: Beyond Surviving Sepsis: Thirty-day Readmission Rates and Patient Characteristics at a Safety Net Hospital

Abstract:

Introduction: Patients admitted with sepsis have increased morbidity, mortality and healthcare utilization. Little is known about patient's short-term morbidity following discharge. The aim of this study is to describe patients with sepsis who are readmitted within 30 days at a safety net hospital.

Methods: During fiscal year (FY) 2013, a retrospective chart review was performed of all patients with an index admission of sepsis who were readmitted to Parkland Hospital within 30 days. Primary outcome was the sepsis readmission rate.

Results: There were 1445 admissions for sepsis in FY 2013 at Parkland Hospital; 230 discrete patients accounting for 306 admissions were readmitted within 30 days. The mean age was 50.4 ± 14.4 years. Comorbid conditions included diabetes mellitus (35.0%), malignancy (25.8%), ESRD (20.9%), cirrhosis (11.4%), CHF (10.4%), and HIV (6.2%). A quarter of the readmissions occurred within 7 days, 47.0% were secondary to infection and 27.8% were readmitted with sepsis. Thirty-seven percent required ICU care during their initial hospitalization as compared to 25.1% during the readmission; mortality was 2.9%.

Conclusions: During FY 2013, 21.2% of patients admitted with sepsis were readmitted within 30 days at Parkland Hospital. Nearly half of the readmissions were secondary to infection. Morbidity was less than during the initial hospitalization but still notable, as 25.1% required an ICU stay during the readmission.

Clinical Research

Abstract #32

Presenter: Mark Weinreich

Authors: Mark Weinreich, MD; Ling Han, PhD; TM Gill, MD; Una Makris, MD

Title: Restricting Back Pain and Subsequent Disability Among Community-Living Older Adults

Abstract:

Introduction: Although back pain is common and costly, few longitudinal studies evaluate the association between back pain severe enough to restrict activity (restricting back pain) and the development of disability. The objective of this study was to evaluate the association between restricting back pain and subsequent essential(e) and instrumental(i) activities of daily living(ADL).

Methods: We evaluated the 754 participants (mean age 78 years, 64% women) of the Precipitating Events Project, a prospective study of community-living persons, all ADL independent at baseline, who completed monthly telephone assessments of restricting back pain and disability for 13 years. A recurrent events Cox model was used to evaluate the association between restricting back pain and subsequent disability. The model was adjusted for fixed-in-time (i.e., sex, ethnicity) and time-varying covariates (i.e., age, BMI, depressive symptoms, cognitive impairment, physical frailty) that were updated every 18 months.

Results: Over a median follow-up of 113 months the rate (95% CI) of eADL and iADL disability was 3.62 (3.37,3.89) and 8.5 (8.05,8.98) per 100-person months respectively. After adjusting for covariates, restricting back pain was strongly associated with subsequent eADL and iADL disability, with a HR (95% CI)=3.47 (3.01,3.99) and 2.33 (2.08,2.61) respectively.

Conclusions: In this longitudinal study, restricting back pain was independently associated with disability among older adults.

Clinical Research
Abstract #33

Presenter: Micah Eades

Authors: Micah T. Eades, Colby R. Ayers, Amit Khera

Title: Coronary artery calcium percentile stability in the Dallas Heart Study

Abstract:

Background: The 2013 ACC/AHA guidelines recommend upgrading risk classification for a coronary artery calcium (CAC) score ≥ 75 th percentile when risk-based decisions are unclear. We sought to characterize and understand the long-term stability of CAC ≥ 75 th percentile.

Methods and Results: We used quantile regression with CAC scores from a reference population of 968 Dallas Heart Study (DHS) participants to define the 75th percentile for age and sex. We then stratified CAC scores from 699 DHS participants with paired CAC scans 6.7 [6.2, 7.3] years apart according to the defined 75th percentile. Of those with CAC ≥ 75 th percentile, we found 60% had a pooled cohort risk less than the 7.5% treatment threshold and 76% had an absolute CAC score less than the 300 Agatston units (AU) guideline threshold. With reference to the benchmark 75th percentile, 76% remained above, and 91% remained below over the 6.7-year interval. A graded relationship was observed with 74% and 93% remaining above the 50th and 90th percentiles respectively. Those who moved from below to above the 75th percentile were more likely to have higher baseline CAC, diabetes, hypertension, smoking status, and antihypertensive medication use.

Conclusion: Because CAC scores ≥ 75 th percentile are a unique marker of cardiovascular risk that remain stable over time, they represent a reliable tool to guide long-term risk assessment.

Clinical Research

Abstract #34

Presenter: Stephen Dickson

Authors: Stephen Dickson, Internal Medicine; Sharon Reimold, Cardiology

Title: Changes In Valvuloarterial Impedance One Month After Transcatheter Aortic Valve Replacement In Patients With Severe Aortic Stenosis

Abstract:

Purpose: To noninvasively track the functionality of transcatheter aortic valve replacement (TAVR) and assess valvular disease burden by investigating the change in echocardiographic variables related to left ventricular (LV) strain including valvuloarterial impedance before and after TAVR.

Methods: Twenty patients with severe AS were retrospectively identified who 1) received a TAVR between 3/20/13 and 8/6/14, 2) had a complete transthoracic echocardiogram (TTE) within 10 weeks prior to TAVR and within 6 weeks after TAVR, and 3) had a pre-TAVR ejection fraction (EF) greater than 40%.

All echocardiograms were re-analyzed without knowledge of the original published report by one trained researcher.

Valvuloarterial impedance was calculated as $(SAP + MG)/SVi$, where systolic arterial pressure (SAP) was measured with a cuff sphygmomanometer and mean aortic gradient (MG) taken directly from the echocardiogram. Stroke volume index (SVi) was calculated as a function of stroke volume and body surface area.

Results: One month after TAVR, non-indexed stroke volume showed a non-significant trend towards increasing ($p=0.07$) while a significant increase in indexed flow was noted ($p=0.05$). More impressively, a significant decrease in valvuloarterial impedance was observed ($p<0.001$).

Conclusion: This study demonstrates a significant decrease in valvuloarterial impedance one month after successful TAVR, suggesting a potentially effective parameter for noninvasive assessment of TAVR functionality.

Clinical Research
Abstract #35

Presenter: Stephen Dickson

Authors: Stephen Dickson, MD; Barbara Danek, Emmanouli Brilakis, MD

Title: Using intracoronary Near-Infrared Spectroscopy (NIRS) to show differences in lipid core burden of plaques in uncontrolled diabetics

Abstract:

Purpose: To assess the lipid composition of coronary atherosclerotic plaques using intracoronary near-infrared spectroscopy (NIRS) in both diabetic and non-diabetic patients to allow a better understanding of diabetic coronary artery disease and improve outcomes in these patients.

Methods: Three hundred and fifty four patients received an intracoronary angiogram with NIRS at the North Texas Veterans Affairs Medical Center between 2009 and 2015. Of those 354 patients, 203 patients that had 1) NIRS completed prior to coronary stent placement; 2) did not have a history of coronary artery bypass grafting; and 3) had a hemoglobin A1c within three months of the NIRS angiogram. Plaque lipid content was estimated by NIRS lipid core burden index (LCBI) and associated with corresponding patient hemoglobin A1c, serum lipid, and serum creatinine values. Patients were then grouped together based on A1c values and compared.

Results: While there was no significant difference in LCBI scores between patients with a hemoglobin A1c greater than 7.0 and patients with a hemoglobin A1c less than 7.0, a meaningful but not significant ($p=0.07$) increase in LCBI was noted for patients with a hemoglobin A1c greater than 8.0.

Conclusion: This study demonstrates an increase in lipid core burden of coronary artery plaques in uncontrolled diabetics, an important difference that may change interventional strategies in these patients in the future.

Clinical Research

Abstract #36

Presenter: Usman Akhtar

Authors: Usman Akhtar, Emmanouil S. Brilakis

Title: Meta-Analysis of Radial and Femoral Catheterization: Patient and Procedural Characteristics Contributing to The Radiation Exposure Difference

Abstract:

Background: This meta-analysis serves to provide a comprehensive analysis to better understand the variables that interact with radial artery catheterization to increase patient radiation exposure.

Methods: A comprehensive search algorithm was applied to the PubMed Database to find greater than 65 trials, encompassing over 80000 procedures. Effect size was utilized to provide differences between radial and femoral catheterization with regards to fluoroscopy time, dose area product, air kerma, and to determine whether certain patient and procedural characteristics increase the risk of radial radiation exposure.

Results: The results showed that the small effect of increased radial radiation exposure for fluoroscopy time ($d+ = .0.10$) is amplified in certain subgroups studied including the DCA-only subgroup ($d+ = .38$), and in those subgroups of studies with increased women, and in those with patients that fit a metabolic syndrome phenotype with higher mean BMI, HLD, HTN, and Diabetes. The analysis of dose area product revealed a medium difference between radial and femoral catheterization ($d+ = .25$).

Conclusions: Overall, the analysis shows that there is a small difference between mean radial and femoral catheterization times, and this difference is highly sensitive to the type of procedure performed and the phenotype of the patient.

Clinical Research
Abstract #37

Presenter: Wally Omar

Authors: Wally Omar MD, Satyam Sarma MD, Erin Howden PhD, Justin Lawley PhD, Dean Palmer

Title: The Effects of High Intensity Aerobic Exercise on Aortic Age

Abstract:

Background: Physical activity during middle age decreases the risk for developing heart failure. Aortic age, a measure of the intrinsic stiffening of the central arteries, is one means by which heart health can be measured. Past studies have postulated that the mechanism by which aerobic exercise confers cardiovascular benefit is through a decrease in afterload. The objective of this study, therefore, is to determine the changes in aortic age that occur after a high aerobic training program (HAT) in previously sedentary middle age adults.

Methods: 61 healthy, middle-aged subjects were randomized to either yoga or HAT (2 moderate aerobic exercise sessions/week and 2 "4x4" aerobic interval sessions/week) for 6 months. Baseline and post-intervention aortic age was determined in the following manner: cardiac output (CO) was measured via the foreign-gas (C2H2) rebreathing method and stroke volume (SV) was determined from this measurement; a continuous finger arterial waveform was recorded, and normalized stroke volumes were generated from this waveform for ages 30 to 80; finally a linear regression analysis between the patient age and SV was constructed, the inverse function of which was used to determine aortic age.

Results: After 6 months, adherence to training sessions was >90%. Baseline aortic age was a mean of 55 years in both groups. Aortic age increased with a mean of 8.5 years in the yoga group, but only 0.7 years in the HIAT group (p =0.026).

Clinical Research

Abstract #38

Presenter: Wally Omar

Authors: Wally Omar, MD, James De Lemos MD, Colby Ayers

Title: Association of Leukocyte Telomere Length With High Sensitivity Troponin T in the General Population

Abstract:

Background: High-sensitivity troponin (hs-cTnT) assays have revealed that cardiac injury is indeed more prevalent than once thought. Approximately 15% of healthy individuals — i.e. those without cardiovascular disease, HTN, CKD or DM, will have elevated circulating troponins. We propose that the apparent gap between cardiac injury and its etiologies can be explained by telomere shortening, a process that is accelerated by oxidative injury and mutation. Telomere shortening has been shown to play a role in several fibrosing disease processes, but its role in cardiac injury is yet to be explored.

Methods: A retrospective analysis of the Dallas Heart Study 2 (DHS2) cohort identified 3302 patients between the ages of 18 and 85 with data for both cTnT and leukocyte telomere length (LTL). LTL was obtained via quantitative PCR on circulating leukocytes and subsequently log transformed to achieve normalization. Logistic regression was employed to analyze the relationship between LTL and cTnT while adjusting for age, sex, and race. A multivariable regression was then utilized to assess the same relationship in the presence of the above factors.

Results: We found a significant inverse correlation between age and LTL ($r = -0.15$, $p < 0.0001$). LTL and hs-cTnT were also inversely correlated ($r = -0.10$, $p < 0.0001$ unadjusted; $r = -0.07$, $p = 0.03$ when adjusted for age, sex and race), suggesting that telomere shortening may play a role in cardiac injury.

Clinical Research
Abstract #39

Presenter: Ariel Vinas

Authors: Subhash Banerjee, MD, Ariel Vinas, MD, Atif Mohammad, MD, Omar Hadidi, MD, Rahul Thomas, MD, Karan Sarode, MA, Avantika Banerjee, BS, Puja Garg, PhD, Rick Weideman, PharmD, Bertis Little, PhD, Emmanouil Brilakis, MD, PhD

Title: Significance of an Abnormal Ankle-Brachial Index in Patients With Established Coronary Artery Disease With and Without Associated Diabetes Mellitus

Abstract:

An abnormal ankle-brachial index (ABI) is associated with higher risk for future cardiovascular (CV) events; however, it is unknown whether this association is true in patients with established coronary artery disease (CAD) and associated diabetes mellitus (DM). We evaluated 679 patients with stable CAD enrolled in the Excellence in Peripheral Arterial Disease and Veterans Affairs North Texas Healthcare System peripheral arterial disease databases. ABI and 12-month major adverse CV events (MACEs, a composite of all-cause death, nonfatal myocardial infarction, need for repeat coronary revascularization, and ischemic stroke) were assessed. Cox proportional hazard models were used to assess the association of ABI and DM with subsequent CV events. An abnormal ABI (<0.9 or >1.4) was present in 72% of patients with stable CAD and 68% had DM. Using patients without DM and normal ABI as reference, the adjusted hazard ratio for 12-month MACE was 1.7 (95% confidence interval [CI] 0.71 to 4.06) for patients with DM and normal ABI; 2.03 (95% CI 0.83 to 4.9) for patients without DM with abnormal ABI; and 4.85 (95% CI 2.22 to 10.61) for patients with DM and abnormal ABI. In conclusion, in patients with stable CAD, an abnormal ABI confers an incremental risk of MACE in addition to DM and traditional CV risk factors.

Clinical Research

Abstract #40

Presenter: Jedrek Wosik

Authors: Jedrek Wosik, MD; Thao Duong, MD; Jose R. Martinez Parachini, MD; Erica Resendes, BS; Bavana V. Rangan, BDS, MPH; Michele Roesle, RN, BSN; Nicole Minniefield, MD; Laura Collins, MD; Jerrold Grodin, MD; Shuaib M. Abdullah, MD; Subhash Banerjee, MD; Emmanouil S. Brilakis, MD, PhD

Title: Echocardiogram Interpretation via Google Glass

Abstract:

Background: We evaluated the use of Google Glass for remote transthoracic echocardiography (TTE) video capture and interpretation.

Methods: Google Glass was used to record 17 TTE studies with 25 key findings. Ten physicians (3 faculty and 7 fellow cardiologists) interpreted recordings on a) desktop, b) iPhone, c) iPad, and d) Google Glass. Those interpretations were compared with those obtained by viewing the original studies on a desktop. One point was given for correct finding identification. Subjective rating of the user experience was also recorded.

Results: The mean TTE interpretation score (maximum: 25 points) for the original TTE study viewed on a desktop was 24.3 ± 0.7 . The scores for Google Glass recorded TTE images viewed on a desktop, an iPad, an iPhone and Google Glass were 21.3 ± 1.6 , 18.3 ± 1.6 , 18.8 ± 1.3 , and 17.1 ± 2.1 , respectively ($p < 0.001$). Significant differences ($p < 0.05$) were found between the original studies and all recordings for three findings: McConnell's sign, bicuspid aortic valve and apical aneurysm. Most (70%) of the physicians were satisfied with the video quality acquired by Google Glass, but 80% were neutral regarding giving recommendations based on the captured images.

Conclusion: Google Glass is able to capture hands-free videos of TTE studies, which can be viewed by specialists on a variety of devices; however, interpretation is less accurate than that of the original TTE viewed on a desktop computer.

Clinical Research
Abstract #41

Presenter: Ragisha Gopalakrishnan

Authors: RG, Naina

Title: Extra nodal Natural Killer T cell Lymphoma: A retrospective Analysis at a single academic center

Abstract:

In this retrospective study, we reviewed 25 patients with diagnosis of Extranodal natural killer T (NK/T) -cell lymphoma (ENKT). International prognostic index (IPI), performance status, regional lymph node involvement, bone marrow involvement, and proliferation index (high proliferation index, Ki67/MIB expression in > 50% cells) were assessed. Majority of patients in this study were Hispanic males (n=20, 80%) and median Patient's age was 46 (20-72). Ann Arbor staging was noted as: stage I (12), stage II (5), stage III (3), and stage IV (5). Patients were risk stratified into: IPI score < 2 (17), IPI > 2 (8), ECOG < 2 (19) and ECOG >2 (6). Nine were treated with RCHOP + radiation (XRT), ten were treated with hyper CVAD therapy + XRT and seven were treated with a non-anthracycline based approach: VIPD+ XRT (2), DEVIC + XRT (3), and SMILE+ XRT (2). An IPI score > 2 was noted to have poor prognosis with a median survival of 15 months versus 22 months (p< 0.001) for IPI < 2. Patients with a high proliferation index at diagnosis had a shorter median survival (15 months vs. 22 months, (p< 0.001)). Median survival in patients treated with RCHOP + XRT was noted be 12 months versus patients with HYPER-CVAD+ XRT (24 months) and non-anthracycline approach (28 months) (p< 0.001). Patients treated with RCHOP +XRT were noted to have increased incidence of disease progression compared to patients treated with HYPERCVAD+ XRT and non-anthracycline based therapy +XRT (p< 0.01). Preliminary data from this study suggests hyperCVAD or a non-anthracycline based chemotherapy approach with concomitant radiation are superior to RCHOP with concomitant radiation and results of this study also provided promising results for a prognostic model against ENKT.

Clinical Vignette

Abstract #42

Presenter: Carlos Cardenas

Authors: Carlos Cardenas MD, Cristhiaan Ochoa MD, Carlos Girod MD

Title: A Case of Sporadic Lymphangiomyomatosis Confirmed by Thoracentesis

Abstract:

Lymphangiomyomatosis (LAM) is a rare, progressive, multisystem disease characterized by lung cysts and proliferation of immature smooth muscle cells and perivascular epitheloid cells. LAM typically presents with progressive dyspnea on exertion (73% of patients) and/or spontaneous pneumothorax (57%), while lymphangiomas (29%) and chylous pleural effusions (12%) are less common. We describe a case of LAM diagnosed by thoracentesis in a patient that developed a chylothorax after a CT-guided transthoracic needle aspiration of a mediastinal lymphangioma. A 42 year old woman with no significant past medical history presented with acute chest pressure preceded by three months of dyspnea on exertion. A CTA revealed innumerable lung cysts and a 3x7 cm anterior mediastinal mass. CT-guided transthoracic needle biopsy and aspiration of the mass was performed and was complicated by a left sided hydrothorax. Thoracentesis revealed a chylothorax. The patient was diagnosed with LAM due to the presence of a chylous effusion and characteristic CT scan. A cytology cell block on the pleural fluid revealed bland spindle cells with positive human melanoma black-45 staining which confirmed the diagnosis of LAM. Since chylous effusions complicate about 12% of LAM cases, the diagnosis of LAM could be confirmed by pleural fluid cytology revealing bland spindle cells staining positive for HMB-45. This would avoid the need for bronchoscopic or surgical lung biopsies in atypical LAM presentations.

Clinical Vignette
Abstract #43

Presenter: Ayad Alkhatib

Authors: Ayad Alkhatib, Melissa Mauskar, Saira Bilal, Lesley Davila

Title: Scleromyxedema: Importance of Keeping a Broad Differential

Abstract:

Scleromyxedema, or generalized and sclerodermoid lichen myxedematosus, is a rare primary cutaneous mucinosis disease associated with a monoclonal gammopathy. Patients present with diffuse monomorphous skin colored papules typically overlying indurated, bound down skin. It is important to differentiate scleromyxedema from other sclerodermoid conditions like scleroderma and localized cutaneous mucinosis. Histology typically shows mucin deposition, increased fibroblast proliferation, and fibrosis. Classically scleromyxedema affects middle-aged adults between the ages of 30 and 80 without any race or gender predominance. Early recognition of this condition is imperative, as there are a myriad of extracutaneous manifestations including monoclonal gammopathy, GI, cardiac, and neurologic involvement. Patients can die unexpectedly from dermato-neuro syndrome, a rare sequelae of this condition where patients develop high fever, progress to a flu like illness, then fall into a coma. This clinical vignette describes a 26 years old African American male presenting to Parkland Memorial hospital with dysphagia and skin tightening who was ultimately diagnosed with scleromyxedema; It highlights the importance of keeping a broad differential for sclerodermoid conditions and benefits of early recognition.

Clinical Vignette

Abstract #44

Presenter: Li Jiang

Authors: Li Jiang MD, Bret Evers MD, Lesley Davila MD

Title: 'I can't walk or swallow!'

Myositis as a rare initial presentation of SLE with high titre striated muscle antibody in a 33 year old Hispanic male

Abstract:

Myositis as initial presentation of systemic lupus erythematosus (SLE) is rare. We present a 33 year old Hispanic male with 5 weeks of myalgia and progressively worsening proximal muscle weakness in upper and lower extremities, dysphagia and polyarthritis in MCPs and PIPs for 3 weeks. Lab work revealed pancytopenia, elevated ESR, CRP and CPK, + ANA (>1:2560), + RNP AB, + smith AB, +Ds DNA AB, low C3 and C4, negative ENA, RF, CCP, Myositis panel. Paraneoplastic and neuromuscular antibodies were negative except for striated muscle ab (1:15360). EMG and MRI of upper arms were consistent with myositis. No mass lesion was identified on CT and MRI of chest, abdomen and pelvis. A core needle biopsy of right biceps was grossly normal, most likely due to suboptimal sample collection from a core needle biopsy given the patchy nature of myositis. He responded well to pulse IV solumedrol for 3 days followed by prednisone 1mg/kg daily for 6 weeks. Upon follow up visit, he had normal muscle strength, CPK, ESR, CRP and complements. Prednisone was then tapered slowly. Azathioprine was started and being adjusted with toxicity monitoring. Our patient presented with myositis as initial manifestation and then rapidly evolved into full-blown SLE with arthritis and classic lupus serologies. Interestingly our patient was found to have a high titer striated muscle antibody which is associated with thymoma or myasthenia gravis, but has not been reported in either lupus or inflammatory myositis.

Clinical Vignette
Abstract #45

Presenter: Li Jiang

Authors: Li Jiang MD(Rheumatology), Travis Vandergriff MD (Dermatology), Roselynn Nguyen MD (Dermatology), Yousuf Qureshi MD (Dermatology), Una Makris MD (Rheumatology), David Karp MD (Rheumatology)

Title: 'I have bubbles over my body!'

A rare case of bullous systemic lupus erythematosus in a 26 year old African American female

Abstract:

Bullous systemic lupus erythematosus (BSLE) accounts for 0.4% of cutaneous lupus lesions and can be initial manifestation of lupus. We present a 26 year old AA female with bullous lesions after a course of cephalexin and prednisone taper for sinusitis. She was diagnosed with SLE 2012 by polyarthritis, serositis, discoid lupus skin rash, malar rash, alopecia, leucopenia, high titer + ANA, smith antibody, DS DNA antibody, SSA and SSB antibodies. Her lupus course has been complicated by noncompliance and she is only on Hydroxychloroquine and prednisone. Variable sizes of bullous lesions filled with clear-fluid were found on scalp, face, arms and thighs. Lab work revealed leucopenia, stable anemia, normal platelet counts, + DS DNA abs and low C3, C4 without kidney involvement. Shave biopsy of an intact blister was performed for H&E stain, revealed subepidermal blister with neutrophil-predominant infiltrate in the dermis and microabscesses in dermal papillae. Punch biopsy was performed for direct immunofluorescence studies, showed linear band of IgG and C3 deposit along the dermo-epidermal junction. Diagnose of BSLE was made and the patient was started on dapsone and prednisone taper. She responded well with complete resolution of bullous lesions. BSLE is a rare cutaneous lupus manifestation. Antibody-induced interference with interactions between type VII collagen and extracellular matrix ligands plays an essential role in its unique pathogenesis.

Clinical Vignette

Abstract #46

Presenter: Li Jiang

Authors: Li Jiang, MD, Travis Vandergriff, MD, Weina Chen, MD, David Minna, MD

Title: Be a good internist first, to be a good rheumatologist: Insights into a rare case of blastic plasmacytoid dendritic cell leukemia mimicking autoimmune diseases

Abstract:

Given the all-system/organ-involving nature of rheumatology, a subspecialty of autoimmune diseases and connective tissue diseases, rheumatologists often need to have solid overall medical knowledge of internal medicine and sometimes other specialties. Here we present a complex multi-specialty consulted rare case of blastic plasmacytoid dendritic cell leukemia mimicking autoimmune diseases such as lupus, IgG4 related disease and vasculitis. Through the investigation and management of this case, we had a taste of the essence of the beauty of rheumatology and its mothership internal medicine.

Clinical Vignette
Abstract #47

Presenter: Muhammad Shaharyar Siddiqui

Authors: Muhammad Shaharyar Siddiqui, Perihan Dimachkie,
Courtney Lane and Ildiko Lingvay

Title: Conflicting Therapies: Management of a Patient with
Concurrent Diagnosis of Schizophrenia and Prolactinoma

Abstract:

Background: Prolactinomas requiring medical management are treated with dopamine agonists; conversely, the mainstay of schizophrenia treatment is dopamine antagonism. Rare patients with both diseases present a distinctive challenge in management, requiring collaboration between their psychiatric and endocrinology teams for effective treatment.

Clinical Case: A 21-year-old male patient with past medical history of cannabis abuse was brought to the ED by his family for the evaluation of new-onset psychosis. At the time of presentation, the patient was having auditory hallucinations and paranoid delusions, which had worsened over several months. His evaluation included a CT brain w/o contrast that was significant for a pituitary mass causing global enlargement of the sella, extending into the suprasellar cistern and abutting the optic chiasm. Hormonal workup was significant for an elevated prolactin level (1558 ng/ml, male n 218 ng/ml), as well as reduced testosterone (84 ng/dL, male n 249-835 ng/dL) with inappropriately normal LH

Clinical Vignette

Abstract #48

Presenter: Saira Bilal

Authors: Saira Bilal, Syed Nilofar, Fatemeh Ezzati, Lesley Davila

Title: Stroke of bad luck

Abstract:

This is a case of 61 yo AAF who presented with recurrent strokes of unclear etiology. She reported sicca symptoms and labs showed positive Antinuclear antibody, positive Ro antibody. A minor salivary gland biopsy was consistent with lymphocytic infiltrates and patient was diagnosed with Sjogren's. The rest of her review of systems were negative for an underlying CTD such as SLE, scleroderma, etc. The question was raised whether her symptoms were due to CNS involvement related to primary Sjogren's versus another etiology. Extensive work up which also included IR angiography did not reveal any CNS vascular pathology, LP was not suggestive of inflammation and infectious etiologies were ruled out. Brain biopsy was considered but family refused. At that point ADAMTS 13 was found to be <5 %, indicating possibility of atypical TTP presenting as strokes in the absence of thrombocytopenia or hemolytic anemia. She was started on treatment with steroids and plasma exchange. Review of literature indicates that TTP can be seen in autoimmune diseases such as SLE but it has only been reported in a handful of cases in relation to primary Sjogren's. We present a very interesting case of a patient with multiple strokes where extensive work-up led to a diagnosis of primary Sjogren's syndrome and atypical TTP.

Clinical Vignette
Abstract #49

Presenter: Emily Bowen

Authors: Emily Bowen

Title: Lessons from PCIM

Abstract:

Ms. J is a 63 year old woman with T2DM; PVD with left AKA and right TMA; CAD with multiple MI's; HFPEF; multiple strokes; CKD4; HTN and HLD. I met her in July and have seen her every 5 weeks since. She has had three hospitalizations, two in the MICU, for GI bleeds and HFPEF exacerbation. My year has been an education in her chronic medical conditions. My eyes have been opened to the important role of a PCP. We perform a medication reconciliation at each visit to ensure that she actually implements the changes made by her specialists, and I communicate with her home health agency to ensure protection from poly-pharmacy. I have learned that a successful discharge may be the most important part of a hospitalization. Many visits have been spent explaining to Ms. J what transpired during her hospitalizations and what follow up is required. This is how we discovered her outpatient capsule endoscopy had never actually been ordered and contacted GI to arrange the procedure. I have learned the value in knowing a patient well. I diagnosed her most recent HFPEF exacerbation over the phone and sent her to the ED. I have felt the disappointment of realizing I didn't know my patient as well as I thought when a goals of care discussion did not go as planned. Ms. J has taught me more this year than any other patient I have cared for- both about medicine and about the challenges of navigating the healthcare system.

Clinical Vignette**Abstract #50**

Presenter: Nicholas Hendren

Authors: Nicholas Hendren MD

Title: Medical management for newly diagnosed Marfan syndrome

Abstract:

A 28 year old woman visiting from Honduras with a history of atrial fibrillation and mitral valve repair presented with one day of shortness of breath, orthopnea and palpitations. An echocardiogram was notable for a dilated aortic root, mitral valve prolapse and severe mitral regurgitation. Given her mitral valve prolapse, dilated aorta and scoliosis she was evaluated for Marfan syndrome (MFS) using the modified Ghent nosology. Her aortic root dilation resulted in a Z-score of 3.9 (>2 is positive) and her systemic score was 9 (>7 is positive). An FBN1 gene sequencing test revealed a mutation resulting in peptide truncation, confirming MFS. Optimal medical management and aortic root replacement has improved the mean survival for MFS patient's from 32 years old to an average life expectancy. Beta-blockers are a staple of therapy and are recommended regardless of aortic root size despite conflicting conclusions about their effectiveness. Angiotensin receptor blockers (ARBs) have been proposed to improve outcomes by attenuating transforming growth factor (TGF- β) pathway and matrix metalloproteinase (MMP) pathways that plays a role in aortic dilation. Several small studies have confirmed that ARBs do appear to reduce the rate of aortic dilation; however, efficacy in large randomized studies has not been demonstrated. Statins and peroxisome-proliferator-activated receptor gamma agonists have been theorized to have a role in treatment, but clinical efficacy remains unclear.

Clinical Vignette
Abstract #51

Presenter: Okeefe Simmons

Authors: Okeefe L. Simmons MD, Seja M. Abudiab BA, Scott W. Gorthey BS, Kelly Wu MD

Title: Sickle Cell Disease and Malaria: Clinical and Therapeutic Considerations

Abstract:

This is a case of a 25-year-old man with a known history of sickle cell disease (HbSS) and recent travel to Africa who presented in an acute sickle cell crisis with severe anemia due to Plasmodium falciparum infection. Antimalarials and simple blood transfusions were administered. His hospital course was complicated by multi-organ failure. The decision was made to forego a red blood cell exchange transfusion and instead proceed with five days of therapeutic plasma exchange, in addition to antimalarial pharmacotherapy. Though he met the clinical criteria for a red blood cell exchange transfusion, per American Society for Apheresis guidelines both his parasite density and HbSS % remained below exchange transfusion threshold throughout his hospital course. He was subsequently discharged and had continued clinical improvement at follow-up. Despite a favorable outcome in this case, more aggressive therapeutic strategies should be considered in cases of sickle cell disease patients who become infected with malaria, as these coexistent conditions are associated with significant morbidity and mortality.

Clinical Vignette

Abstract #52

Presenter: Spencer Carter

Authors: Spencer Carter MD, Fernando Woll, MD

Title: A Cold Hearted Image Challenge

Abstract:

This is a 52 year old female with past medical history of schizophrenia and non-insulin dependent type 2 diabetes found down on a sidewalk with confusion and agitation. Upon arrival patient to the ED she became progressively altered, cyanotic, and eventually pulseless with v-fib on telemetry. ROSC was obtained after one round of ACLS and one 200J shock. ECG at admission prior to ACLS is shown below (Image1).

On arrival the patient was noted to have a rectal temperature of 24.8 C and first ECG was obtained showing J waves. Attempts were made to warm the patient with bair hugger, warm blankets, and 2L warm IV fluid. 40 minutes after arrival she became progressively altered, cyanotic, and eventually pulseless with v-fib observed on telemetry. ROSC was obtained after one round of ACLS and one 200J shock, she was then intubated with warm bladder and OG irrigation used to further warm the patient, admission to the MICU was uneventful. A second ECG was obtained 3 hours after the first with a temperature of 28.4C (image 2). Her profound hypothermia was attributed to exposure after endocrine causes were ruled out. Temperature was normalized over 48 hours, at that point patient was extubated with no new neurologic deficits noted. She was discharged on hospital day 5 in baseline condition.

Though further investigation is needed to definitively establish the predictive value of J waves in humans, this case is a useful reminder of the serious complications associated with hypothermia.

Clinical Vignette
Abstract #53

Presenter: Timothy J Brown

Authors: Timothy J. Brown, MD; Jason A. Mull, MD; Venetia R. Sarode, MD and Saad A. Khan, MD

Title: Trastuzumab monotherapy producing a complete clinical response in salivary gland duct adenocarcinoma

Abstract:

Salivary duct carcinoma is a rare and aggressive tumor that occasionally overexpresses Her2. We describe a case of salivary duct carcinoma occurring in a 56-year old male with high level of HER2 gene amplification. The patient was treated with trastuzumab-based therapy, which showed dramatic response with no clinically detectable tumor after 8 cycles of therapy. He became symptom free and discontinued the treatment to take a treatment break. Unfortunately, four months later his cancer relapsed and trastuzumab monotherapy was reinitiated with similar dramatic response with resolution of the tumor. He is clinically disease free 43 months after the diagnosis.

Clinical Vignette
Abstract #54

Presenter: Douglas Darden

Authors: Douglas Darden, MD; Marcus Urey, MD; Vernon Horn, MD; Mark Drazner, MD; Satyam Sarma, MD; Benjamin Levine, MD.

Title: Persistent Dyspnea on Exertion: A Case of "Stiff Left Atrial Syndrome"

Abstract:

Introduction: Catheter ablation is a potentially curative option for atrial fibrillation (AF), however repeated ablations cause extensive scar tissue that can result in a non-compliant left atrium (LA).

Case Description: The patient is a 68-year-old male with a seven-year history of atrial arrhythmias. In a four-year span, he underwent cardioversion complicated by heart block requiring a pacemaker, reprogramming of pacemaker due to pacemaker-mediated tachycardia, recurrent atrial arrhythmia while on anti-arrhythmic medication and several ablations.

He then had progressive dyspnea on exertion despite largely unremarkable non-invasive stress testing, echocardiogram, cardiac CT, and VQ scan. After treating unsuccessfully with diuretics for possible HFpEF, he had repeat cardiopulmonary exercise testing with invasive hemodynamic assessment.

At baseline, he was in AF with normal cardiac output and filling pressures. The mean LA pressure was 8.5 mmHg with V wave up to 16 mmHg. During exercise, central venous pressure increased disproportionately more to left ventricular end diastolic pressure. Furthermore, LA pressure increased to 27 mmHg with V wave up to 50 mmHg.

Discussion: The diagnosis of "stiff LA syndrome" was confirmed by elevated V waves on LA pressure assessment in the absence of mitral regurgitation due to repeated ablations. Although the prevalence is low, awareness of "stiff LA syndrome" may account for previously unexplained exercise intolerance.

Clinical Vignette
Abstract #55

Presenter: Douglas Darden

Authors: Douglas Darden MD, Purav Mody MD, James de Lemos

Title: Cardiac Troponin Assays: Interpreting Discordant Values in Patients with Skeletal Muscle Disease

Abstract:

Cardiac Troponin T (cTnT) and cardiac troponin I (cTnI) are the biomarkers of choice for the diagnosis of acute myocardial infarction (AMI) with current recommendations assuming equivalent diagnostic accuracy.

We present a case series of three patients with neuromuscular disease who were found to have elevated levels of cTnT, but not cTnI. These included one patient with lupus with myositis and two with amyotrophic lateral sclerosis, who presented with a variety of complaints including fatigue, shortness of breath or chest pain. Given elevated troponins and possible symptoms representative of AMI, a detailed cardiac evaluation was pursued in each of these patients. All three patients had coronary angiograms were performed that confirmed the absence of significant epicardial coronary disease in all three patients.

Patients with skeletal muscle disease may have elevated cTnT, but not cTnI, in the absence of myocardial injury. This discordance can be explained by the re-expression of fetal isoforms of cTnT in diseased skeletal muscle undergoing regeneration that cross react with current generation cTnT assays, whereas cTnI is not expressed in skeletal muscle development. Awareness of this clinical finding may further help risk stratify patients with neuromuscular disease who present with elevated cTnT and low suspicion for AMI and prevent subjecting them to invasive testing.

Clinical Vignette

Abstract #56

Presenter: Meredith Greer

Authors: Meredith Greer MD, Udayan Shah MD

Title: Cavitation and Confusion: A Puzzling Presentation of Granulomatous Disease

Abstract:

A 32-year-old HIV-negative African American man presented with a 7-month history of altered mental status (AMS) and functional decline for which he underwent multiple rounds of hospitalizations and diagnostic testing before the correct diagnosis was made.

The patient presented for AMS in 11/2014 and was found to have cavitary lesions on CXR. After being treated for pneumonia he returned with worsening AMS in 12/2014 at which time he was thought to have disseminated fungal infection and treated with itraconazole. He presented again in 04/2015 with functional decline and was found to have a positive histoplasma compliment fixation test and a CSF ACE four times the normal limit. He was treated with amphotericin for six weeks followed by indefinite itraconazole again. He returned in 06/2015 with urinary incontinence and need for assistance with ADLs. After extensive workup revealing negative autoimmune, vasculitic, and infectious processes, lung and brain biopsy revealed granulomas - both necrotizing and non-necrotizing. Serum ACE level was elevated and, with prior elevated CSF ACE and granulomas on biopsy, sarcoidosis was diagnosed. The patient was treated with high dose steroids and his clinical status, along with lung and brain lesions, improved.

This case illustrates the hindrance of anchoring bias and the importance of ongoing diagnostic re-evaluation with consideration of atypical presentations when faced with discordant laboratory data or unexpected clinical progression.

Clinical Vignette
Abstract #57

Presenter: Natalia Rocha

Authors: Natalia A. Rocha MD, Ian Neeland MD, Berge Tasian MD

Title: Two rare birds of a feather can sometimes flock together: An intriguing case of abnormal coronary anatomy as an incidental finding in a patient with a large atrial myxoma

Abstract:

Anomalous origin of the left anterior descending artery (LAD) from the right coronary cusp is a rare finding among patients without congenital cardiac defects. We report an unusual case of anomalous coronary anatomy found incidentally in a patient with a large left atrial myxoma. A 55 year old Caucasian female with no past medical history was evaluated after acute onset of right sided weakness, dysarthria, and a right sided visual field defect. The physical exam on admission was significant for a right homonymous hemianopia and a tumor plop on chest auscultation. MRI of the brain showed multiple acute infarcts in the left occipital lobe, suggestive of an embolic etiology. Transesophageal echocardiography showed a large, multilobar mass in the left atrium attached to the interatrial septum. During preoperative coronary angiography, the LAD was found to originate from the right coronary cusp and course anteriorly. Coronary CTA confirmed the anatomic anomaly. The patient subsequently underwent excision of the left atrial mass. Pathology confirmed the mass to be a myxomatous tumor with focal benign-appearing lymphoid aggregates. Anomalous LAD from the right coronary cusp has been described in 0.01 to 0.07% of patients undergoing cardiac catheterization. This anomaly is considered potentially serious due to the risk of myocardial infarction, cardiac arrest, and sudden death in the absence of atherosclerosis when the LAD courses between the aorta and the pulmonary artery.

Clinical Vignette

Abstract #58

Presenter: Thali Sangha

Authors: Thali Sangha MD, Douglas Darden MD, Jan Petrasek MD, Shannan Tujuios MD (GI)

Title: Hepatic Glycogenosis: An underrecognized and reversible cause of liver disease

Abstract:

Hepatic glycogenosis (HG) is defined as excessive glycogen accumulation in hepatocytes that result in aminotransferase elevation. Considered a complication of poorly controlled type 1 diabetes (DM1), the diagnosis is often overlooked yet critical in preventing progressive hepatic damage.

Here we present a case of a 19 year old female with a history of uncontrolled DM1 complaining of nausea, vomiting and decreased oral intake consistent with diabetic ketoacidosis. On admission, she was noted to have an increased anion gap, lactic acidosis and dramatically elevated transaminases with normal synthetic function and ammonia. Transaminases downtrended with fluids and insulin infusion. Hepatitis serologies, autoimmune studies and IgG levels were unremarkable, CT chest unrevealing for malignancy, and there were no episodes of hypotension. Liver ultrasound with doppler revealed hepatomegaly and steatosis without thrombosis.

Given the transient elevation and improvement of transaminases with glycemic control, the most likely diagnosis is HG. Although difficult to distinguish from non-alcoholic fatty liver disease without biopsy, HG rapidly resolves with tighter glycemic control, whereas NAFLD may eventually lead to cirrhosis. This case highlights the need for clinicians to consider HG in the differential diagnosis of patients with hepatomegaly and signs of liver injury in patients with T1DM.

Clinical Vignette
Abstract #59

Presenter: Thalvinder Sangha

Authors: Sangha,T, MD, Samar, H MD

Title: Initial Presentation of Polyarteritis Nodosa as ischemic colitis

Abstract:

Here we present a case of Polyarteritis Nodosa (PAN) in a hepatitis B negative patient presenting as ischemic colitis with delay in diagnosis leading to renal failure. There have been less than 10 cases reported since 1979.

A 49 year old male with a history of hypertension and rheumatoid arthritis presented to the ER with fever, intractable nausea and vomiting for 2 weeks, night sweats, and 30lb weight loss over the previous few months. Labs were notable for an AKI, elevated WBC, and anemia. He was admitted for an infectious workup of diarrhea. Colonoscopy revealed multiple colonic masses and sigmoid ulceration with pathology revealing ischemic colitis. Eventual kidney biopsy revealed PAN. PAN usually presents as ischemic disease in the small bowel and much more rarely in the colon. Colonic presentation can be mistaken for IBD in younger patients and atherosclerotic ischemic colitis in older patients as in this patient. Unlike some other vasculitides such as Wegener granulomatosis, remission can be obtained with PAN if diagnosed early. This patient was started on an immunosuppression regimen, which suppressed recurrence of GI symptoms, however was too late to salvage kidney function.

In patients who present with a constellation of laboratory findings in the setting of ischemic colitis a broad differential should be obtained and repeat deep biopsies should be taken to confirm diagnosis of a vasculitis. Delay in diagnosis can lead to life changing consequences and even death.

Clinical Vignette

Abstract #60

Presenter: Timothy Krill

Authors: Timothy Krill, MD; Shivani Desai, MD

Title: A Virulent Case of Streptococcus Bovis Endocarditis

Abstract:

A 57 year old African American female with a history of chronic hepatitis C and prior IV drug use presented with a one week history of subjective fever, chills, back pain, and generalized malaise.

On admission, the patient was afebrile, tachycardic to 130, and hypotensive to the 80's systolic. Physical exam revealed a 3/6 systolic murmur over the apex radiating into the axilla, elevated JVD, and tenderness over the lumbosacral spine. The remainder of the physical exam was unremarkable.

Laboratory data on admission revealed a normal basic metabolic panel, INR, and slightly elevated transaminases. Blood cultures drawn on admission revealed 4/4 bottles positive for *S. bovis*. MRI of the Lumbar spine without IV contrast was unremarkable.

Broad spectrum antibiotics were promptly initiated. On the 4th day of hospitalization, the patient became febrile and increasingly hypoxic, which necessitated transfer to the ICU. Transthoracic echocardiogram revealed a mobile vegetation on the anterior mitral valve leaflet measuring 1.2 x 0.6 cm, flail of the anterior mitral leaflet, and severe mitral regurgitation. Chest x-ray revealed marked pulmonary edema. Due to the severity of the valvular infection and cardiogenic shock, the patient underwent urgent mitral valve replacement with a mechanical prosthesis. Subsequent colonoscopy later performed revealed a 3mm sessile tubular adenoma.

Clinical Vignette
Abstract #61

Presenter: Ben Jenny

Authors: Ben Jenny, MD

Title: Complements Kill

Abstract:

A 49 year-old male with a history of anemia, deep vein thrombus, nephrolithiasis and Roux-en-Y anastomosis presented with a one-week history of flu-like symptoms and dark colored urine. One day prior to admission, he reported anuria accompanied by shortness of breath. The patient had a history of painless, red tinged urine that began ten years ago during an upper respiratory infection and subsequently occurred sporadically thereafter. On exam, the patient was jaundiced with the following vitals: 78 bpm, 134/83 mmHg and 36.8 °C. Lab values was notable for: LDH 2700 U/L, haptoglobin <10 mg/dL, hemoglobin 10 g/dL, platelets 120 K/uL, reticulocyte index 0.5%, creatinine 7.8 mg /dL.

A renal biopsy was performed, which revealed acute tubular necrosis, mild interstitial fibrosis, red cell casts and hemosiderin deposition with negative immunofluorescence. Peripheral blood flow cytometry revealed 48% of total erythrocytes having abnormal CD55 and CD59 expression.

Paroxysmal nocturnal hemoglobinuria (PNH) is characterized by a defective anchoring protein on myeloid cells that leads to the absence or diminished expression of CD55 and CD59—surface proteins responsible for inhibiting complement-mediated destruction. PNH is often treated with eculizumab, a monoclonal antibody that inhibits the formation of the membrane attack complex. Our patient was prescribed eculizumab along with iron and folate supplementation, which produced a notable improvement in his anemia.

Clinical Vignette

Abstract #62

Presenter: Brian C Davis

Authors: Brian C. Davis, Holly Tillman, Robert J. Fontana, K. Rajender Reddy, Raymond Chung, Brendan M. McGuire, R. Todd Stravitz, and William M. Lee

Title: Heat Stroke Leading to Acute Liver Failure: Case Series from the Acute Liver Failure Study Group

Abstract:

In the United States, a small percentage of cases of acute liver injury (ALI) and failure (ALF) have been associated with heat stroke, defined as elevated body temperature $\geq 40^{\circ}\text{C}$ with central nervous system dysfunction. The aim of this study was to describe cases of ALI or ALF caused by heat stroke in a large ALF registry. Amongst 2,675 consecutive ALI and ALF subjects enrolled between January 1998 and April 1, 2015, there were 8 subjects with heat stroke, classified as having classical (CHS) or exertional heat stroke (EHS). Five patients had ALF and 3 patients had ALI. Six patients had EHS, one with CHS, and one was unclassified. Seven patients developed acute renal failure, 8 had lactic acidosis, and 6 had rhabdomyolysis. Six patients underwent cooling treatments, 3 received N-acetyl cysteine (NAC), 3 required mechanical ventilation, 3 required renal replacement therapy, 1 underwent liver transplantation, and 2 patients died—both within a day of presentation. All but one case occurred between June and August (May). No long-term sequelae were observed in survivors. In the US, heat stroke accounts for $<0.5\%$ of adults developing ALI or ALF, mainly occurring in healthy young men due to excessive exertion. Prominent clinical features at presentation included acute kidney injury with rhabdomyolysis and metabolic acidosis. Management of heat stroke and ALF should focus on cooling protocols and supportive care, with consideration of liver transplantation in refractory patients.

Quality Improvement
Abstract #63

Presenter: Justin Chen

Authors: Justin R. Chen MD, Scott A. Tarver, Kristin S. Alvarez, Trang Tran, David A. Khan MD

Title: Beneficial Outcomes of an Inpatient Penicillin Allergy Testing Protocol

Abstract:

Approximately 10% of the US population reports a history of penicillin allergy, however less 1% are actually allergic. We present the findings of a service aimed at evaluating penicillin allergy in hospitalized patients.

Our protocol employed a clinical pharmacist to test inpatients with penicillin allergy listed in the electronic medical record (EMR). Candidates were identified through the EMR or physician referral. A cohort deemed likely to benefit from penicillin therapy was prioritized for inpatient testing. These patients received skin prick and intradermal testing with benzylpenicilloyl polylysine and penicillin G followed by oral amoxicillin challenge. Those with negative tests had the penicillin allergy removed from their EMR.

Over 14 months 1049 applicable charts were detected leading to 206 completed tests. 201 / 206 subjects (97.5%) had their listed penicillin allergy removed. 4 patients (1.8%) had a positive penicillin skin tests and 1 (0.4%) reacted upon challenge. Our intervention enabled patients to receive β -lactam therapy totaling 425 inpatient days.

An inpatient penicillin skin-testing protocol utilizing the EMR as a screening tool removes the penicillin allergy label in the majority of patients, alters antibiotic choices and educates clinicians and patients. Widespread implementation of this practice may benefit healthcare systems by reducing the expense of alternative antibiotics and the risk of antimicrobial resistance.

Quality Improvement

Abstract #64

Presenter: Omair Atiq

Authors: Omair Atiq M.D., Sana Omair M.D., Deepak Agrawal M.D.

Title: Prevalence of musculoskeletal injuries in gastroenterology trainees and knowledge of endoscopy ergonomics

Abstract:

Background/Aims: Gastroenterologists are at risk of overuse injuries due to repetitive hand motion, high hand forces and awkward postures. All of these injuries are preventable with good ergonomics training. Our aim was to determine prevalence of musculoskeletal pain among gastroenterology (GI) trainees and knowledge of endoscopy ergonomics.

Methods: A validated survey was emailed to 25 GI fellowship programs with total of 225 fellows. The information collected included baseline characteristics, position of bed and monitors in their endoscopy units, details of musculoskeletal pain and awareness of ergonomics.

Results: 130 fellows responded with a response rate of 58%. 62% were male and 86% were between the ages of 25 and 35 years. 52% of the respondents worked primarily at endoscopy units with non-adjustable fixed monitor screens. 19% never adjusted monitor screen before start of procedure while 20% adjusted it rarely. 53% experienced at least some endoscopy related musculoskeletal pain since start of fellowship. Common sites of pain were thumb, wrist, low back, neck, shoulder and forearm. 83% trainees did not receive any formal GI ergonomics education. 32% mentioned that their attendings did not routinely point out non-ergonomic habits.

Conclusions: This study shows that musculoskeletal injuries are common among GI trainees. There is a significant lack of awareness and knowledge about ergonomics in endoscopy. We suggest including ergonomics as part of fellowship training.

Quality Improvement
Abstract #65

Presenter: Yvonne Covin

Authors: Yvonne Covin, Shannon Scielzo, Lynne Kirk, Blake Barker

Title: Checking In on Check-Out: Perceptions and Expectations of Residents during the Continuity Clinic Check-Out Process

Abstract:

Background: Despite focus on increasing the quality of ambulatory education training, few studies have examined residents' perceptions of learning during case discussions with their preceptors. Our objective was to assess the difference between residents' and preceptors' perceptions of behaviors that should occur during check-out.

Methods: We conducted a cross-sectional survey of 81 categorical Internal Medicine and Family Medicine residents and 22 primary-care preceptors utilizing a 5-point Likert questionnaire (1-5, larger numbers = more important or more prevalent). The survey assessed 22 components of the discussion.

Results: Residents felt that all 22 areas needed additional teaching during check out ($p < 0.05$). Preceptors believed that demonstrating physical exam skills in the patient room during checkout was significantly more important than did residents ($p = 0.01$). Increasing years of clinical experience did not statistically relate to their valuation of components important to residents.

Conclusions: We highlight a major deficiency in training in the check-out process – with residents desiring more patient management education in all components. Moreover, faculty and residents do not necessarily agree with what is an important focus in the “teachable moment.” Our results serve as a training needs assessment for faculty development seminars and highlight the need to consider resident learning needs.

Quality Improvement

Abstract #66

Presenter: Elizabeth McGehee

Authors: Elizabeth McGehee MD, Jonathan Dowell MD

Title: Then and Now: The financial impact of providing outpatient antineoplastic medications at the VANTHSC

Abstract:

In 2003, a retrospective study of VANTHSC Hematology/Oncology referrals showed 4.5% of referrals that year were made specifically to obtain oral antineoplastic medications that patients could not afford through their outside oncologists. Since then, the field of cancer drug development has expanded dramatically, and yet the cost of these drugs remains staggering. The hypothesis was that the proliferation of these new and expensive anticancer medications led to an increased number of referrals to VANTHSC Hematology/Oncology. This study sought to determine if referrals had increased since 2003 and to estimate these referrals' economic impact. All new consults received from 1/2015-12/2015 were abstracted. 1,416 consults were reviewed for medication requested, disease, age, race, sex, location and insurance. While 5.6% of referrals were patients presenting because of cost, only 1.1% of referrals were specifically to obtain oral chemotherapy. One possible explanation for the decrease since 2003 was the 2006 implementation of Medicare Part D. In 2015, roughly 1/3 of patients presenting because of cost had no documented insurance; an additional 33 percent had Medicare without Medicare Part D. However, almost 20 percent of patients presenting because of cost did have Medicare Part D. Thus, despite this program's creation, veterans requiring antineoplastic medications often still face significant cost burden, resulting in their continued presentation to VANTHSC for assistance.

Quality Improvement
Abstract #67

Presenter: Mehwish Ismaily

Authors: Jeremy Warshauer MD, Rajeev Singh MD, Jason Fish MD, Michael Huo MD, Ugis Gruntmanis MD

Title: Implementation of High Risk Osteoporosis Consult (HiROC) for Treatment of Osteoporotic Fractures

Abstract:

Osteoporosis and associated fractures are medical conditions with substantial morbidity and mortality among elderly people. This study addressed the improvement in adherence to quality measures for hip fractures through implementation of a High Risk Osteoporosis Consult (HiROC) service via an electronic auto-notification in order to provide safe, effective, patient-centered care in elderly patients with fractures. A retrospective study was performed comparing patients with hip fractures before and after HiROC integration into our health system. HiROC intervention included inpatient consultation, assessment of Bone Mineral Density by Dual-energy X-ray absorptiometry (DXA), adequate calcium and vitamin D intake, and appropriate pharmacotherapy. 34 patients with hip fractures from January 2012 to January 2013 were enrolled in a post-fracture inpatient physical therapy unit and compared with 26 consecutive patients admitted with hip fractures from March to July of 2014 after HiROC intervention was initiated. Following intervention, a significantly higher proportion of patients had serum vitamin D measured prior to discharge (85% vs. 21%, $p < .001$), initiation of calcium and/or vitamin D supplementation at discharge (96% vs. 29%, $p < .001$), and initiation of FDA-approved pharmacotherapy for osteoporosis post-fracture (39% vs. 0%, $p < .001$). In conclusion, an EMR notification for implementation of an inpatient HiROC service improved quality of care for patients with hip fractures.

Quality Improvement

Abstract #68

Presenter: Mark Weinreich

Authors: Mark Weinreich, Mathew Leveno

Title: A Novel Early Mobilization Program In The ICU: A Quality Improvement Project

Abstract:

Purpose: Early mobilization programs in the ICU have resulted in improved outcomes and wide spread implementation has been recommended by several professional societies. However, there are several barriers to implementation. We implemented an early mobilization program at the Parkland ICU as part of a quality improvement project.

Methods: A multi-disciplinary team developed an early mobilization protocol that was implemented at the Parkland medical ICU in January 2015. We collected data 6 months pre and post intervention. Variable collected included number of referrals, treatment sessions, and inappropriate referrals, time to first therapy session, and ICU length of stay. We also used the relational coordination scale, a validated measure, to assess the quality of teamwork amongst therapists and nurses.

Results: Comparing pre and post-implementation time periods, referrals increased over 2 times, number of completed treatments increased over 3 times, and inappropriate referrals decreased from 26 to 17, and percentage of referrals that were inappropriate decreased from 19% to 3%. The time to first PT session decreased from 7.7 to 4.1 days. The relational coordination scale average score improved from 3.7 to 4.7.

Conclusions: Our multi-disciplinary early mobilization program resulted in patient's receiving therapy interventions sooner, more often, and more efficiently. The quality of teamwork improved after implementation of the program as well.

Quality Improvement
Abstract #69

Presenter: Jeong-hee Ku

Authors: Jeong-hee Ku MD, Ugis Gruntmanis MD

Title: Improving Bone Health for Prostate Cancer Patients on Androgen Deprivation Therapy

Abstract:

Background: Prostate cancer patients on androgen deprivation therapy (ADT) are at increased risk of developing osteoporosis. In 2014, High Risk Osteoporosis Consult (HIROC) service was created to improve bone health of patients with osteoporosis or at risk of developing osteoporosis.

Objective: To improve bone health of prostate cancer patients on ADT by increasing referral to HIROC.

Setting: Outpatient urology clinic

Patients: Prostate cancer patients receiving Leuprolide

Interventions: In March 2014, Best practice alert for Leuprolide was created that links Leuprolide order to HIROC referral. In March 2015, education was provided to urology staffs and nursing staffs.

Measurements: Retrospective data collection was performed during pre-intervention and post-intervention periods. Outcome measures included referral rate to HIROC, number of bone density scan performed and number of bone health related medication prescribed.

Results: Referral rate HIROC increased from 4% during pre-intervention period to 44% after both interventions. Bone density scans were ordered more after interventions (from 19% to 46%). More than 70% of patients who were seen in HIROC clinic had either osteopenia or osteoporosis, and more than 50% of patients were started on either bisphosphonate or denosumab.

Conclusions: Prostate cancer patients on ADT are at high risk for developing osteoporosis. BPA and medical staff educations can be effective tools in improving osteoporosis screening and treatment.

