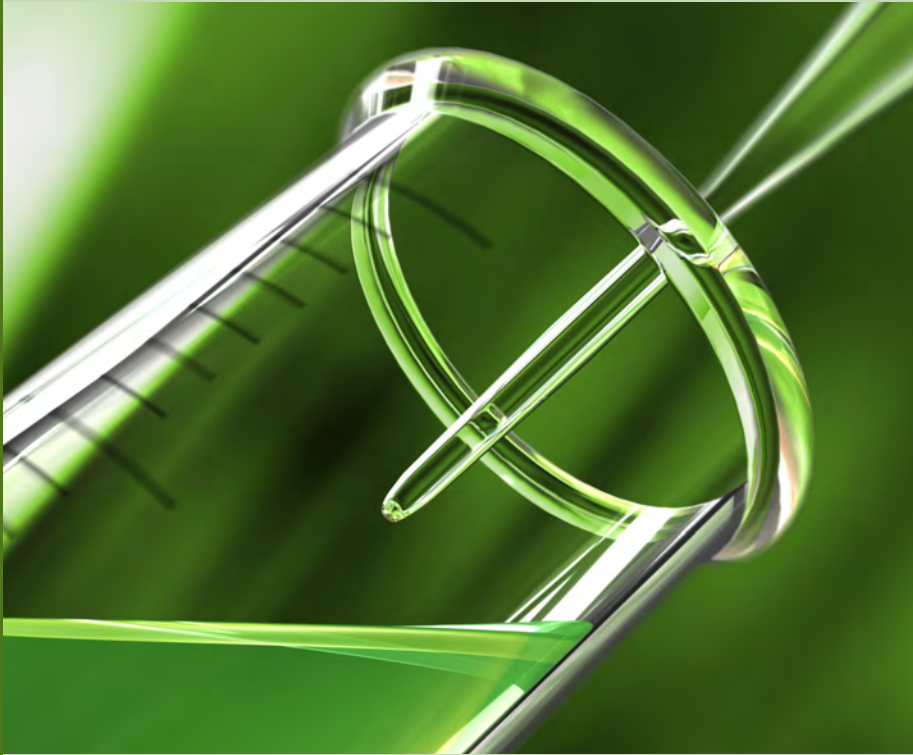


The Department of
Internal Medicine
Presents

UTSouthwestern
Medical Center



The 2nd Annual
Donald W. Seldin, M.D.
Research Symposium
May 4-5, 2017



*Robert L. Johnson, Jr., M.D.
Lectureship in Internal Medicine*

Marlene Rabinovitch, M.D.

Dwight and Vera Dunlevie Professor in Pediatric Cardiology

Dr. Rabinovitch obtained her medical degree from McGill University in Montreal, Quebec, Canada. Following internship and residency in Pediatrics at the University of Colorado, she completed fellowship training in Pediatric Cardiology at Texas Children's Hospital in Houston, Texas, and clinical and research fellowships at Children's Hospital, Harvard Medical School, Boston, Massachusetts. She was a faculty member at the University of Toronto, Ontario, and directed the Hospital for Sick Children Cardiovascular Research Institute, before moving to Stanford University School of Medicine where she now co-directs Pediatric Translational Research at the Stanford Cardiovascular Institute.

Dr. Rabinovitch's research centers on the pulmonary circulation in congenital heart disease and pulmonary hypertension. Her laboratory studies the molecular mechanisms regulating vascular endothelial and smooth muscle cell-extracellular matrix interactions as well as gene regulation and gene therapy for cardiovascular development and disease. Her research has been continuously supported by the National Institute of Health and other funding agencies.

Dr. Rabinovitch has received many awards including from the American Thoracic Society and the American Heart Association. She publishes extensively and serves on the Editorial Boards of several major journals in the field and on the Advisory Boards and committees at the National Institutes of Health and other research organizations. She has mentored many young scientists and is a popular invited speaker.

2nd ANNUAL DONALD W. SELDIN, M.D. RESEARCH SYMPOSIUM
May 4-5, 2017

Symposium Schedule

May 4, 2017

- ❖ 12:30 - 4:00 pm, McDermott Plaza - Poster Presentation and Judging
- ❖ 4:30 - 6:30 pm, A.W. Harris Faculty Club - Symposium Reception

May 5, 2017

- ❖ 8:00 - 9:00 am, McDermott Plaza, D1.502 - Internal Medicine Grand Rounds Speaker, Marlene Rabinovitch, M.D.
- ❖ 9:00 am, Announcement of six Foster Fellow finalists

May 12, 2017

- ❖ 8:00 - 9:00 am, McDermott Plaza, D1.502 - Oral presentations of six poster finalists, attendees will select the Seldin Scholar

Poster #1

Presenter: Yvonne Nicolle Covin

Authors: Yvonne Nicolle Covin MD, Neda Wick, Blake Barker MD, Palma Longo PhD

Title: Investigating Validity of a Clinical Reasoning Assessment Strategy to Identify Actionable Feedback for Struggling Medical Students

Abstract:

Background: Although clinical reasoning is a foundational skill for physicians, educators have limited tools for its standardized assessment to result in actionable feedback to medical students. We sought to assess the potential utility of a novel 'Think Aloud Protocol' assessment strategy, the Clinical Reasoning Task Checklist (CRT), to identify specific deficits in clinical reasoning among third-year medical students compared to the current validated multiple-choice instrument, the Clinical Data Interpretation (CDI) Test, which provides a global assessment of clinical knowledge but does not assess proficiency in specific clinical reasoning tasks.

Methods: We conducted a pilot study of third-year medical students during their internal medicine clerkship at one large US medical school. We assessed clinical reasoning using the CDI among all students before a group project-based learning exercise, during which each group created a SOAP note. One student representative from each group then participated in a structured Think Aloud Protocol, which consisted of a structured interview assessing the justification for assessment, differential diagnosis and plan for the patient case. Each Think Aloud Protocol interview was recorded and scored by two independent reviewers using the validated CRT to identify actionable deficits in the clinical reasoning process ($\kappa=0.88$). We assessed correlation of CRT to CDI scores with the Pearson correlation coefficient.

Results: Eighteen students participated in the study. The mean CDI score among all participants was 46.2 (SD = 7.0). Among Think Aloud participants, the average CDI score was 44.6 (SD = 7.38). Think Aloud participants used only 11 of the possible 24 tasks. On average, each student uttered 15.83 tasks [range 8-23] to discuss the case. Students most frequently used the task 'select diagnostic investigations'; on average, each student selected four [range 3-5]. Think Aloud Participant CRT and CDI scores were strongly positively correlated, but did not reach statistical significance. ($R = 0.768$, $p = 0.074$).

Conclusions: Assessment of Think Aloud protocols using the validated CRT provides a global assessment of medical student clinical reasoning ability that correlates with assessment via the existing CDI, but also additionally provides students with actionable feedback on specific deficits in clinical reasoning. Think Aloud used in conjunction with the CRT may be more helpful in identifying specific skills for remediation among medical students struggling with clinical reasoning and problem solving.

Poster #2

Presenter: Brooks Brodrick

Authors: Brooks Brodrick MD, Hua Lin, Ethan Halm MD, MPH, Michael E. Bowen MD

Title: Time to repeat diabetes screening in patients with prediabetes in an urban safety-net health care system

Background: Diabetes screening guidelines recommend repeat screening every 12 months for those with prediabetes and every 36 months for those with normal screening results. However, little is known about frequency and timing of repeat diabetes screening in clinical practice.

Methods: We conducted a retrospective cohort study in a large, safety-net healthcare system using electronic medical record (EMR) data from 2010 until 2014. Eligible patients were age 18-65, non-pregnant, and had an index, outpatient visit and a resulted gold standard diabetes screening test (fasting glucose or hemoglobin A1C) between January 2010 and June 2013. Eligible patients had one or more additional office visits before December 2014. Patients with diabetes were excluded using ICD-9 codes and test results consistent with diabetes. We describe the frequency of rescreening and examine characteristics associated with rescreening. Using a Cox proportional hazards regression model, we describe the time to repeat diabetes testing in normal vs. prediabetes patients via univariate and multivariate analysis, adjusting for age, sex, race, BMI, hypertension, hyperlipidemia, and family history.

Results: A total of 18323 patients met inclusion criteria. On average, patients were 48 years old and had a BMI of 31.7. Overall, 62% were female, 83% were non-white, 53% had a family history of diabetes, 57% had hypertension, and 78% were uninsured. Average followup was 398 days. Overall, 37% of patients completed repeat screening. Rescreening was more common among those that were older, female, had a higher BMI, hypertension, and hyperlipidemia ($p < 0.01$). Those with prediabetes on their initial screening ($N=6585$) were more likely to be rescreened compared with those with normoglycemia ($HR=1.33$) in multivariate analysis. However, at 12 months, only 25% of those with prediabetes had been rescreened, and by 18 and 36 months, repeat screening improved to only 34% and 41% respectively. Those with high-risk prediabetes ($A1C \geq 6\%$ or $FBG \geq 110$ mg/dL) were more likely be rescreened than those with low risk prediabetes at 12 months (34% vs 18%), 18 months (42% vs. 28%), and 36 months (49% vs. 36%) ($p < 0.01$ for all). Among those who were rescreened, 17.4% transitioned from normal to prediabetes, 3.2% transitioned from normal to diabetes, and 8.7% from prediabetes to diabetes.

Conclusions: Although patients with prediabetes are more likely to be rescreened than those with normoglycemia, only one third of patients with prediabetes complete repeat diabetes screening at 18 months. Improved, systematic approaches to promote timely rescreening in patients with prediabetes are needed.

Poster #3

Presenter: Carolina De La Flor

Authors: C. De La Flor MD, E. Porsa MD, MPH, A. Nijhawan MD, MPH, MSCS

Title: Opt-out HIV and HCV testing among jail inmates

Abstract:

Background: The burden of HIV is four times higher and the HCV positivity rate is up to ten times higher in correctional facilities compared to the general population. The CDC recommends routine opt-out HIV testing in jails and prisons, however only 19% of prisons and 35% of jails offer this service. The WHO recommends that all inmates should be tested for HCV, however only 12-15 states in the US report performing routine HCV screening. In the US, HCV screening is focused mainly on individuals born between 1945-1965 ('baby boomer' cohort).

Objectives: To describe the results of an opt-out combined HIV/HCV testing program in a criminal justice system, and to determine the prevalence and demographic characteristics of HIV/HCV in this population. **Methods:** Opt-out HIV/HCV testing was offered to individuals entering the Dallas County Jail between October 2015-July 2016 at the time of a scheduled blood draw. 4th generation Ag/Ab test for HIV and HCV antibody assay were used. Basic demographics were extracted from electronic health records. For those who tested HIV positive, risk factors, prior engagement in care (seen by and HIV provider within 6 months previous to incarceration), re-engagement in care (receipt of HIV care during incarceration), and post engagement in care (seen by and HIV provider within 6 months after release) were assessed. For those who tested HCV positive, prior seropositivity was determined. SAS statistical software, v9.4 was used for all analyses.

Results: HIV opt-out testing: Overall, 1.3% (41/3155) had a positive HIV screening test. Of these, 24% were false positives (positive 4th generation Ag/Ab test with negative HIV1/2 Ab differentiation test). Of those remaining, 16% were newly diagnosed, of whom 100% were linked to care. Among those previously known to be HIV-positive, one-third were not engaged in care before incarceration though 88% were linked back to HIV care in jail. HCV opt-out testing: Overall, 16% (500/3042) had a positive HCV Ab screening test. Mean age was 49, 80% were men, and our cohort was racially diverse (43% White, 42% Black, and 15% Hispanic). One-third of inmates self-reported HCV positivity before being tested. Only 52% of the HCV-positive were baby boomers. Within baby-boomers, 60% were black and 31% were white, vs among the non-boomer group 23% were black and 56% were white.

Conclusions: Routine opt-out testing in a jail setting identified multiple HIV and HCV infections. New HIV diagnoses were rare, though above CDC recommended thresholds for testing; linkage to HIV care and re-engagement in care were high. The rate of HCV Ab positivity was high and one-third was already aware of this diagnosis. HCV Ab positivity was >2X higher in Whites vs Blacks among those born after 1965, and nearly 2X higher among in Black vs White baby-boomers. Testing only those in the baby boomer cohort would have missed approximately half of HCV infections, predominately among whites.

Poster #4

Presenter: Luiz Fernando Leonavicius Franco

Authors: Luiz Franco PhD, Nawaf El-Rehani, Xilong Li PhD, Beverley Huet MS, Nilum Rajora MD, Khashayar Sakhaee MD, Shelby Holt MD, Naim Maalouf MD

Title: Outcomes of Parathyroidectomy for Secondary and Tertiary Hyperparathyroidism: The UT Southwestern Experience

Abstract:

Background: Parathyroidectomy (PTX) is frequently recommended for medically refractory secondary and tertiary hyperparathyroidism in patients with end-stage renal disease or post-renal transplantation. However, PTX is associated with short- and long-term complications including hypocalcemia from hypoparathyroidism and recurrent hyperparathyroidism. Moreover, the impact of surgical approach on these clinical outcomes is poorly understood.

Methods: To better understand post-PTX outcomes for 2ry or 3ry hyperparathyroidism, we performed a retrospective study of patients undergoing PTX between 2009-2016 at the UT Southwestern University Hospitals. We evaluated in-hospital and post-discharge outcomes, and examined the impact of renal function at time of PTX, and of surgical approach [subtotal PTX (STPTX) vs total PTX with forearm auto-transplantation (TPTX-FA)].

Results: Charts of 73 patients were analyzed; mean age was 49±13 years and 46.5% were women. 84% of patients were on dialysis at time of PTX, and dialysis need was associated with greater IV calcium use and longer post-PTX hospitalization. 48% of patients underwent STPTX and 52% had TPTX-FA. Age, body mass index, and gender and race distribution were similar between these 2 surgeries. TPTX-FA patients were significantly more likely than STPTX patients to require IV calcium post-PTX (82% vs. 26%, p<0.001) and had a significantly longer hospitalization (6.6±3.6 vs. 3.8±5.0 days, p<0.001). These significant differences persisted when the analysis was restricted to dialysis patients. Serum calcium was not significantly different at time of discharge between the 2 surgery types. Long-term follow-up data (>6 months) after PTX was available in 31 (42%) of patients. In that subgroup, 16% had permanent hypoparathyroidism, 23% had persistent/recurrent hyperparathyroidism, and 16% required a second PTX, with no significant differences in these outcomes between the TPTX-FA and STPTX groups (in the entire population or when restricting analysis to dialysis patients).

Conclusions: This study suggests that surgical approach and renal function have a significant impact on in-hospital outcomes of patients with 2ry or 3ry hyperparathyroidism undergoing PTX (including greater IV calcium use and longer hospital stay following total PTX with FA). A significant proportion of patients requires repeat PTX or develops hypoparathyroidism. Improved post-discharge follow-up is needed to better determine long-term post-PTX outcomes.

Poster #5

Presenter: Eddie Hackler III

Authors: Eddie Hackler III MD, Colby R. Ayers MS, Jeanney Lew MD, Kamakki Banks MD, Darren K. McGuire MD, MHSc, Amit Khera MD, MSC, Anand Rohatgi MD, Ian J. Neeland MD, James A. de Lemos MD

Title: Racial and Ethnic Differences in Cardiovascular Biomarkers

Abstract:

Background: The incidence and clinical manifestations of cardiovascular disease (CVD) differ between blacks and whites. Blacks have increased rates of heart failure, PVD, DVT and stroke but decreased rates of atrial fibrillation. Whites have more advanced coronary atherosclerosis but similar or lower rates MI. Currently there is limited understanding of pathophysiological mechanisms underlying these racial differences. Investigation of racial and ethnic differences in biomarkers associated with CVD may provide insights into biological pathways contributing to these racial and ethnic differences.

Methods: A cross-sectional analysis was performed using data from the Dallas Heart Study, a multi-ethnic probability based cohort study. Participants with existing CVD were excluded. Associations between race/ethnicity (African American, Caucasian and Hispanic) and 30 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, renal function, insulin resistance, LV mass by MRI, and socioeconomic factors.

Results: The study population included 3,214 individuals, mean age 43, 51% African American and 18% Hispanic. Significant race/ethnicity based differences were seen in multiple categories of biomarkers, including lipids, adipokines, and biomarkers of inflammation and myocyte injury and stress. In fully adjusted models, AA women had higher levels of Lp(a), Leptin, D-Dimer, OPG, ANA, SDMA and Homoarginine in comparison with Caucasian women, and AA men had higher levels of HDL-c, Lp(a), Leptin, D-Dimer, hs-CRP, ANA, SDMA, Homoarginine, hsTnT and ST2 in comparison with Caucasian men (Table).

Conclusion: Black and white adults demonstrate substantial differences in biomarker profiles after accounting for risk factors, body composition, and socioeconomic factors. These findings yield information that could be used clinically to risk stratify at-risk populations earlier in the treatment and prevention of CVD. Future studies are needed to distinguish whether pathophysiological processes delineated by these biomarkers contribute to racial and ethnic differences in the development and complications of CVD.

Poster #6

Presenter: Luigino Bernabela

Authors: Luigino Bernabela

Title: Felty's Syndrome and Rheumatoid neutrophilic Dermatitis in a patient with Rheumatoid Arthritis

A 61-year-old Caucasian male was evaluated for worsening arthritis and persistent leukopenia and rash. He had a past medical history significant for active Hepatitis C, Hypertension, GERD. Three years ago, he was diagnosed with seropositive erosive Rheumatoid arthritis(RA). As part of his Hepatitis C evaluation he was noted to have an enlarged Spleen. His hepatitis C was never treated. Through the next few years his rheumatoid arthritis was never under control due to non-compliance and adverse side-effects from DMARDs. He was also developing worsening neutropenia. On presentation in the hospital he had increasing joint pains, morning stiffness, subjective fevers and a rash on his extremities and persistent Leukopenia. On examination he had active synovitis in his wrists and hands. Palpable erythematous rash was noted involving all extremities including palms and soles. These lesions were not blanchable. No skin ulcerations or neuropathy was noted. Abdominal exam revealed an enlarged spleen. Laboratory evaluation revealed WBC 1.1, ANC: 560, Hepatitis C viral load: 2.5Million, Genotype 3, ESR 77, CRP 5.7, RF and CCP and cryoglobulins were positive. Prominent Splenomegaly of 19cm and mild hepatomegaly was noted on CT of the abdomen. Bone marrow aspiration showed Normocellular marrow. Peripheral Blood smear confirmed marked Neutropenia. He had no findings supporting Large granular lymphocytic Leukemia. His splenomegaly was noted to be out of proportion to degree of suspected fibrosis and portal hypertension and there felt to be due to Felty's syndrome . Patient declined transjugular biopsy with portal pressure evaluation for confirmation of above. Skin biopsy revealed Diffuse Neutrophilic infiltration mainly in the dermis supporting a diagnosis for Rheumatoid Neutrophilic Dermatitis. No vasculitis was present. He was started on Rituximab infusions as therapy resulting in modest improvements of his joints and Neutropenia.

Discussion: Felty's Syndrome remains very rare and occurring in <1% of patients with rheumatoid arthritis. It is classically characterized by triad of seropositive rheumatoid , splenomegaly and neutropenia (ANC <1500/mm³). It should be noted that his complete triad is not an absolute requirement, but persistent neutropenia with an absolute neutrophil count (ANC) generally less than 1500/mm³ is necessary for establishing the diagnosis. Skin manifestations are the most frequent extra-articular manifestations in Rheumatoid arthritis . Less frequently neutrophilic lobular panniculitis, and neutrophilic dermatoses such as Sweet syndrome and rheumatoid neutrophilic dermatosis can be seen.

Conclusion: There is large body of evidence that RA patients with extra-articular manifestations have worse prognosis and more mortality. It's important to recognize these early in the RA disease process in order to escalate therapy and improve patient outcomes.

Poster #7

Presenter: Ami DeWaters

Authors: Ami L. DeWaters MD, Hilda Loria, Helen Mayo

Title: The Impact of Residency Block Scheduling: A Systematic Review

Abstract:

Background: In an effort to improve the quality of and resident satisfaction with ambulatory training, many internal medicine residencies have redesigned traditional ambulatory schedules (a half day of clinic/week) into a block schedule (longitudinal clinic time offered for weeks at a time). The authors conducted a systematic review to examine the impact of block versus traditional ambulatory scheduling on resident and patient satisfaction, ambulatory training time, continuity of patient care, the conflict between inpatient and outpatient responsibilities, and patient health outcomes.

Methods: We searched Ovid MEDLINE, Ovid MEDLINE InProcess, EBSCO CINAHL, EBSCO ERIC and the Cochrane Library from inception to March 2017. The authors included studies that compared traditional and block scheduling for the outcomes of interest.

Results: Of 7,741 citations reviewed, 9 studies met inclusion criteria. Overall, block scheduling was associated with an increase in resident satisfaction (effect size 0.7-0.9), increase in ambulatory training time (32-66% increase in clinic sessions), and decrease in residents' perceived conflict between inpatient and outpatient responsibilities (effect size 0.3-2.6). Block scheduling had decreased provider perspective continuity of care (10.2-15% decrease in visits PCP saw their own patient), unchanged patient satisfaction, and it was unclear whether patient health outcomes were changed.

Conclusions: Resident satisfaction with ambulatory training and ambulatory training time increased with block scheduling, while decreasing conflict between inpatient and outpatient responsibilities. Patient satisfaction was unaffected by the change in scheduling. However, provider continuity of care declined in the block schedule, and it is unclear whether patient health outcomes were altered.

Poster #8

Presenter: Ami DeWaters

Authors: Ami DeWaters MD, Jamael Thomas, Daniel Mejia, Michael Bowen, MD

Title: What Do Patients Really Do When They Fast? Patients' Practices and Perceptions towards Fasting Blood Work

Abstract:

Background: Fasting glucose is an important screening test for diabetes. However, little is known about patients' behaviors and attitudes towards fasting blood work. To improve our understanding, we conducted a survey to assess patients' practices and perceptions of fasting blood work in clinical practice.

Methods: We designed and administered a survey to assess fasting behaviors in a convenience sample of patients presenting for outpatient blood work at an academic medical center in the fall of 2016. We invited English speaking adults ≥18 years old, who presented to the lab to participate. We subsequently reviewed the EHR and extracted demographics, comorbidities, and laboratory results from the laboratory visit on the day of the survey. Participants who had nothing to eat or drink except water for at least 8 hours were considered fasting, in accordance with the American Diabetes Association fasting definition. We describe the frequencies of fasting behaviors and examine differences in characteristics between fasting and non-fasting participants using Chi2 and Fisher's Exact tests as appropriate.

Results: In this 6 week pilot study, we collected 79 surveys toward the study goal of 550. On average, survey participants were 52 years old, 58% female, 30% non-white, and 22% had diagnosed diabetes. Overall, 75% (N=59) of participants self-identified as fasting, and 93% of those met our fasting definition. Surprisingly, 53% of all participants felt it was important to fast for every blood test. Importantly, 94% of patients with diagnosed diabetes (N=17) fasted on the day of the survey, and 100% reported taking their diabetes medications as prescribed the day of their lab visit, including 5 of 6 patients on insulin. We observed no differences in fasting behavior by patient characteristics and common comorbidities including hypertension and hyperlipidemia. Of the 19 patients without diabetes who fasted unbeknownst to their clinicians and had a glucose measured, 3 cases of prediabetes and 1 case of diabetes were missed.

Conclusion: Patients commonly fast for routine laboratory tests and adhere to ADA fasting guidelines. Fasting is common among patients with diabetes taking hypoglycemic medications, which poses significant safety concerns. Development of standardized protocols to assess fasting status when patients present for routine blood work may improve recognition and diagnosis of prediabetes and diabetes in clinical practice.

Poster #9

Presenter: Lanna Little

Authors: Lanna Little, Matthew Leveno, Catherine Chen

Title: Improving the Management of Alcohol Withdrawal at PMH

Abstract:

Background: Recognition and management of alcohol withdrawal is of universal interest in the medical community as alcohol use disorder is prevalent in 15-40% of general hospital admissions. Benzodiazepines (BZDs) have been the mainstay of alcohol withdrawal therapy since the 1960s as they lessen the symptoms of withdrawal, and reduce the likelihood of seizures and delirium tremens. The Clinical Institute Withdrawal Assessment (CIWA) was devised in the 1980s as an objective alcohol withdrawal severity scale, and its revision, the CIWA-Ar, is widely utilized today. In the 1990s, symptom triggered therapy (STT) supplanted fixed dose tapers as studies demonstrated that STT resulted in decreased BZD use and duration without increased risk of severe withdrawal. Although initial studies evaluating CIWA-Ar STT protocols were performed in subjects with pure alcohol withdrawal, use of CIWA-Ar STT protocols have gained a foothold in the management of general medicine patients with alcohol use disorder. With such widespread use, limitations of the CIWA-Ar STT protocol may be poorly understood.

Statement of the Problem: Over 1100 CIWA protocols were ordered in 6 months at Parkland. Anecdotally, providers have noted cases of patients with mild/moderate alcohol withdrawal who progress to severe withdrawal despite use of the CIWA protocol. We hypothesized that providers poorly understand the limitations of the CIWA protocol, resulting in inappropriate patient selection and poor protocol adherence.

Methods: The electronic medical record (EMR) was queried for hospital encounters between February 1, 2015 and August 19, 2015, associated with a CIWA protocol order. A total of 1102 such encounters were identified. We randomly selected 220 cases to review for appropriateness of CIWA use. Of the 1102 cases, 230 carried a primary admission diagnosis of alcohol withdrawal, and were manually reviewed to determine protocol adherence.

Findings: Of the random sample, 50% of patients were appropriate candidates for CIWA protocol. Of those with a primary diagnosis of alcohol withdrawal, 31.3% of patients had CIWA scores checked at the correct interval >75% of the time. Less than half of CIWA protocol-prescribed lorazepam doses were given, and 10.3% of patients received protocol-prescribed lorazepam doses >75% of the time.

Discussion: The CIWA protocol is often ordered inappropriately, and adherence to the protocol is poor. The score is often checked too early or too late, and prescribed benzodiazepines are commonly not administered.

Intervention: We are implementing staff education and clinical decision support in the EMR. We are developing an education program about alcohol withdrawal to provide training to nursing and physicians. Within the EMR, the CIWA protocol order set has been simplified and clinical decision support techniques have been constructed to guide nurses and doctors in proper protocol use.

Poster #10

Presenter: Nicole Bitencourt

Authors: Nicole Bitencourt, G. Andres Quiceno MD, Fatemeh Ezzati MD

Title: Rituximab in ANCA-Associated Glomerulonephritis with Relapsing Polychondritis

Abstract:

A 51-year-old Guatemalan female with a history of mild seasonal allergies initially presented to the emergency room on 5/2016 with a 2-week history of right pinna erythema and edema not responsive to ceftriaxone and Augmentin. She was noted to have peripheral eosinophilia to 15.6% (absolute eosinophil count or AEC of 2010) with normal renal function (creatinine 0.82) and was discharged with ciprofloxacin. She was seen in June by an ophthalmologist for bilateral photophobia, erythema, and eye pain and was diagnosed with corneal ulcers for which topical prednisolone drops were prescribed. In August 2016, she was again seen in the ER with a 1-week history of left pinna pain, swelling, and erythema which had not improved despite 5 days of Bactrim.

In November 2016, she was admitted with acute renal failure. Creatinine was now 3.45 and urinalysis showed 182 RBCs with a 24-hour protein of 1920 mg. Eosinophilia persisted at 19.7% with AEC 2110. P-ANCA was positive with negative C-ANCA; anti-myeloperoxidase was elevated to 4.2 (normal <0.4, positive >1.0). A renal biopsy revealed ANCA-associated crescentic (70%) glomerulonephritis with global and segmental glomerulosclerosis. The patient was treated with pulse steroids and a tapering dose of prednisone as well as rituximab, which was re-dosed at 4 months. As of last visit, creatinine was down to 1.35 and there were no obvious signs of disease relapse.

Relapsing polychondritis (RP) is a rare disorder of episodic inflammation of cartilaginous tissue classically affecting the nasal bridge, the auricular cartilage (with sparing of the earlobes), the eye, and the trachobronchial tree. An inflammatory arthritis is often seen and part of the classification criteria. Aortitis with aortic root dilatation is also common. RP has been associated with other immune mediated disorders or myelodysplasia in about 25-30% of cases. In one series of 112 patients, this included most commonly the systemic vasculitides (9.8%) and rheumatoid arthritis (7.2%). Renal involvement is relatively uncommon; in one series of 129 patients, crescentic necrotizing glomerulonephritis was noted among 8 of the 11 who underwent biopsy. In a small case series of 6 patients with vasculitis (2 with c-ANCA positive GPA, 3 with MPA), symptoms of RP developed after the diagnosis of vasculitis.

There is no standardized approach to the treatment of RP. While rituximab was reported to be effective in 3 patients by case reports, another small series of 9 patients did not appear to confirm its benefits. However, none of those patients had ANCA positivity or renal involvement. We herein report the first case of a patient with ANCA-associated biopsy proven crescentic glomerulonephritis (GN) with associated RP that responded well to rituximab. We postulate that ANCA presence and GN may identify a subset of patients responsive to B-cell depletion in RP

Poster #11

Presenter: Mehwish Ismaily

Authors: M. Ismaily MD, A. Vanderheiden MD, M. Yates MD, A. Degueme MD, B. Adams-Huet PhD, S. Basani MD, M. Abreu MD, I. Lingvay MD

Title: Insulin Dose Changes Post- Hospitalization

Abstract:

Determining an adequate and safe insulin dose at the time of hospital discharge is challenging as multiple factors contribute to each individuals' insulin requirement. We explored patient characteristics that would predict post-discharge insulin requirements to aid in guiding insulin dose decision at the time of hospital discharge.

We reviewed 797 charts of consecutive patients discharged on insulin from Parkland Hospital (largest safety net hospital in the nation) who had an outpatient follow-up within 6 months of discharge. The patients were categorized into those that required an insulin dose decrease (n=378), insulin dose increase (n=102) and no change in insulin dose (n=317) at follow-up. Insulin dose decrease is defined as >5% change in total daily dose (TDD) from discharge to follow-up, dose increase is defined as <5% change in TDD, and no change in dose is defined as within 5% of the TDD. The median time to the post-discharge follow-up was 33 days, at which time most patients (46.4%) required an insulin dose decrease. Results showed several differences in patient and treatment characteristics between the groups who required an increase, decrease, and no change in insulin dose post-discharge.

Admission TDD of insulin, hemoglobin A1c, age, gender, and principal admission diagnosis (DKA, HHS, Hyperglycemia, GI related, Infectious) did not show a statistically significant relationship with post-discharge insulin dose changes. An analysis of variance showed the effect of BMI on post-discharge insulin dose changes was significant, $F(2,794) = 3.64$, $p = 0.026$. A chi square test of independence was performed to examine the relationship between patients with newly diagnosed diabetes and post-discharge insulin changes. The relationship between these variables was significant, $X^2(2, N=797) = 114.22$, $p = <0.001$. We also observed a strong association with insulin-naïve patients ($X^2(2, N=797) = 75.24$, $p = <0.001$) and diabetes type (type 1, type 2, or ketosis-prone diabetes) with post-discharge insulin changes ($X^2(2, N=797) = 114.22$, $p = <0.001$).

A multivariate regression models was also created using various patient factors to determine a possible discharge algorithm for patients transitioning from the inpatient to outpatient side. The most significant predictors of a decrease in post-discharge insulin dose included a diagnosis of ketosis prone diabetes, those with newly diagnosed diabetes, higher discharge dose, and discharge metformin use. Factors that were not significant predictors included age, gender, and ethnicity. These elements should be factored in to create a safe discharge insulin dose plan.

Poster #12

Presenter: Okeefe Simmons

Authors: Okeefe Simmons MD, Pooja Dharwadkar MD, Henning Drechsler MD, Marcus Kouma PharmD, Geri Brown MD, Roger Bedimo MD

Title: Lipid Profiles after Therapy with Direct-Acting Antivirals in HCV mono-infected and HCV/HIV co-infected Patients

Abstract:

Background: Hepatitis C infection is associated with significant decreases in low-density cholesterol (LDL-c) and triglycerides (TG) which may be partially reversed by interferon-based therapy. Explanations include interactions between lipid metabolism and hepatitis C viral life-cycle, viral-associated inflammation or hepatic fibrosis. It is unclear if therapy with direct acting antivirals (DAA Rx) alters lipid profiles, and, if so, whether these changes differ among Hepatitis C mono-infected (HCV) and HCV/HIV co-infected (HCV/HIV) patients and whether they correlate with hepatic synthetic function or fibrosis scores (FIB-4).

Methods: We compared LDL-c, TG, and FIB-4 scores at baseline (BL) until 1 year after end of DAA Rx in HCV and HCV/HIV patients with sustained virologic response after DAA Rx at the VA North Texas Health Care System from 01/2014 until 10/2015. We analyzed changes and correlations using Wilcoxon signed rank test and Spearman's rho, respectively.

Results: 118 consecutive patients were included in the analyses, 23 (19%) of whom were HIV/HCV (all on stable combination antiretroviral therapy with HIV viral loads <100 copies/mL). Median age was 61 years, inter-quartile range (IQR): 58-65, 95% were male. Median BL HCV viral load (VL) was 6.4 log copies/mL, (IQR 6.0-6.8), 81% had HCV-genotype 1, 91% received sofosbuvir-based therapy, 86% for 12 weeks, and 31 patients took anti-hyperlipidemic therapy. Median BL FIB-4 score was significantly lower in HIV/HCV than in HCV: 2.1 (IQR 1.7-3.5) vs. 4.5, (IQR 2.9-6.4), $p < 0.001$ while the median BL LDL was not different: 80 mg/dL (IQR 60-107) vs. 66 mg/dL (IQR 54-81), $p = 0.13$. BL LDL-c and BL HCV VL were inversely correlated in HCV ($r = -0.28$, $p = 0.009$) but not in HIV/HCV ($p = 0.45$). After DAA Rx, median FIB-4 scores declined more in HCV: -1.8 (IQR -0.6 to -3.3) than in HIV/HCV: -.3 (IQR 0 to -0.6), $p = 0.01$. Median LDL-c increased similarly: +25 mg/dL (IQR 6-36, $p < 0.001$) in HCV and +25mg/dL (IQR -5 to +41, $p = 0.003$) in HIV/HCV. LDL-c and FIB-4 changes were inversely correlated ($r = -0.35$; $p = 0.046$) in HCV patients only. Overall median TG declined: -20 mg/dL (IQR +10 to -45, $p = 0.01$) with no differences between groups ($p = 0.95$).

Conclusion: Successful DAA Rx was accompanied by significant LDL-c increases regardless of HIV co-infection status. In HCV patients - in whom fibrosis scores were much higher at baseline - this was inversely correlated with FIB-4 improvements.

Poster #13

Presenter: Okeefe Simmons

Authors: Okeefe Simmons MD, Neema Saraiya MD, Roopa Vemulapalli MD

Title: An Underrecognized Syndrome Following Colonic Polypectomy Using Snare Electrocautery

Abstract:

A 64-year-old woman with alcoholic cirrhosis presented with six hours of nausea, non-bloody diarrhea, and severe abdominal pain. She underwent a screening colonoscopy the day prior to presentation and had eight polyps removed via snare polypectomy with and without electrocautery. Vital signs were remarkable for a temperature of 100.2 degrees Fahrenheit, blood pressure 102/76 mmHg, and a pulse of 84 beats per minute. Her abdomen was diffusely tender to palpation with normoactive bowel sounds and no rebound, guarding, distention, or fluid wave. No evidence of perforation was seen on an abdominal plain film. She was treated as an outpatient with a five-day course of antibiotics and conservatively managed with resolution of her symptoms. Although it is a rare complication following hot snare polypectomy, healthcare providers must maintain a high index of suspicion for post-polypectomy syndrome in the appropriate clinical context to prevent excessive and potentially harmful diagnostic evaluations, as well as unnecessary inpatient admissions.

Presenter: Okeefe Simmons

Authors: Okeefe Simmons MD, Caitlyn Ellerbe PhD, William Lee MD

Title: Transplant Listing and Outcomes in Acetaminophen-Induced Acute Liver Failure: A Multi-Center Analysis

Abstract:

Background: Although acetaminophen-induced acute liver failure (APAP-ALF) is the most common cause of ALF in the United States and Europe, APAP-ALF patients are listed for liver transplantation (LT) at a disproportionately low rate compared to non-APAP etiologies of ALF. Presumed reasons for not listing these patients include a favorable transplant-free prognosis and psychosocial concerns, primarily substance abuse and/or a willful suicide attempt. To date, no large studies have examined the reasons why more APAP-ALF patients are not listed for transplantation.

Methods: 1,859 subjects were enrolled in the ALFSG registry between January 1, 2000 and December 31, 2015 with a diagnosis of ALF, including 872 APAP-ALF patients who met criteria: a history of potentially toxic APAP ingestion, measurable APAP level in the serum, and/or ALT>1000 with any history of APAP ingestion irrespective of APAP level. Subjects were classified as intentional (37.3% of APAP subjects) if ingestion occurred at a single time point usually with admission of suicidal intent; patients were classified as unintentional (51.7%) with multiple time point ingestions without suicidal intent, or otherwise classified as unknown (11.0%) if intent could not be determined. Extensive clinical and laboratory data were collected for the first 7 days or until transplant, discharge or death.

Results: Of the APAP-ALF subjects, 79% were not listed for transplant, of whom 75% were spontaneous survivors at 21 days. Of the patients listed for LT, 34% received an organ, and 29% died (47/54) prior to LT. Among APAP-ALF subjects, suicidal patients tended to be younger ($p < 0.001$), but were otherwise similar in most demographic and laboratory parameters. There were no differences observed between suicidal and unintentional patients in interventions (N-acetylcysteine, vasopressors, renal replacement therapy), listing rate, transplantation, or death (regardless of listing status). Suicidal patients were more likely to have a psychiatric concern which precluded them from listing (38.7% vs 27.5%), though among psychiatric reasons they were less likely to have active substance abuse (43% vs 91%).

Conclusions: Despite a presumed bias against the intentional APAP overdose patient, there were no differences observed between intentional and unintentional APAP-ALF patients in the frequency of interventions (N-acetylcysteine, vasopressors, renal replacement therapy), listing rate, or outcomes, including transplantation or death.

Poster #15

Presenter: Pedro Castillo

Authors: Pedro Castillo MD, Elizabeth Solow MD

Title: Comparing Cardiovascular Risk Factors and Disease Prevalence in Rheumatoid Arthritis Patients Separated by Ethnicity and Race

Abstract:

Assessment of cardiovascular disease and cardiovascular risk factors in rheumatoid arthritis patients seen at Parkland Health and Hospital System using the novel software SlicerDicer.

Rheumatoid arthritis (RA) patients suffer from increased morbidity and mortality due to cardiovascular disease (CVD). The majority of the literature regarding cardiovascular outcomes in RA is produced from predominately Caucasian cohorts. Ethnic minorities have been found to have worse outcomes in other rheumatic diseases. Studies directly comparing the Hispanic and African American (AA) cohorts to the Caucasian RA population are limited. A registry in San Antonio, Texas called ORALE contains approximately 60% Hispanic, 7% AA and 23% Caucasian subjects, and the authors have reported increased risk of death in RA subjects associated with disease severity independent of traditional cardiovascular risk factors. These deaths were due to cardiovascular events.

The novel software program SlicerDicer allows the user to create and split populations by factors which in turn can be used as preliminary data for further evaluation. We used SlicerDicer to determine the prevalence of CVD (myocardial infarction, transient ischemic attack, stroke, peripheral vascular disease) and cardiovascular risk factors (hypertension, diabetes, obesity, hyperlipidemia) present in patients with an encounter diagnosis of RA, split into groups based on ethnicity and race. A population 1366 RA patients were grouped by Hispanic, Caucasian, and African American designations. Our RA cohort was 50% Hispanic, 33% AA, and 16% Caucasian. We found that RA patients who identified as Hispanic were less likely to experience cardiovascular events compared to the AA and Caucasian patient group (17%, 27%, 33%, respectively). Cardiovascular risk factors were also compared between Hispanic, African American, and White populations, respectively, including diabetes (17%, 18%, 13%, respectively), obesity (62%, 61%, 50%, respectively), hyperlipidemia (50%, 52%, 49%, respectively), and hypertension (42%, 67%, 48%, respectively.)

This preliminary data suggests lower rates of cardiovascular disease in Hispanics and African Americans with RA compared to Caucasians despite similar and in some cases worse rates of risk factors. Next steps will include assessment of RA disease activity and timing of development of cardiovascular events.

Poster #16

Presenter: Nicole Rich

Authors: Nicole Rich MD, Adam Yopp MD, Mobolaji Odewole BS, MPH, Caitlin Murphy PhD, MPH, Jorge A. Marrero MD, MS, Amit G. Singal MD, MS

Title: Racial/Ethnic Disparities in HCC Presentation and Prognosis

Abstract:

Background: Racial/ethnic minorities have been shown to have higher hepatocellular carcinoma (HCC) mortality than non-Hispanic Whites. However, prior research is limited to administrative data, which lack granular clinical information on tumor characteristics and liver function.

Aim: Characterize racial/ethnic disparities in presentation, treatment, and survival among patients with HCC.

Methods: We conducted a cohort study of patients diagnosed with HCC at two health systems between January 2008 and December 2016. We used univariate and multivariate logistic regression models to compare patient characteristics by race/ethnicity. Survival was characterized using Kaplan-Meier analysis and compared using log rank test.

Results: Of 952 HCC patients, 32.7% were White, 31.0% Black, 26.3% Hispanic and 10.1% other races. Compared to Whites, Blacks were more likely to have viral hepatitis (OR 2.89, 95%CI 1.84-4.53) and Hispanics more often had fatty liver disease (OR 3.45, 95%CI 2.38-4.99). At HCC diagnosis, a higher proportion of Hispanics had liver dysfunction than Whites and Blacks (Child B or C: 62.6% vs. 50.8% and 45.6%, respectively; $p < 0.001$ for both). Though there was no difference in the proportion detected by screening ($p = 0.22$), Hispanics were less likely to be detected at an early stage (BCLC 0/A) than Whites (36.7% vs. 45.6%; OR 0.69, 95%CI 0.49-0.97); however, there was no difference in early detection between Blacks and Whites (OR 0.82, 95%CI 0.60-1.13) or Blacks and Hispanics (OR 1.19, 95%CI 0.84-1.68). After adjusting for tumor stage, Hispanics were less likely than Whites (13.6% vs. 21.5%; OR 0.61, 95%CI 0.37-1.00) and Blacks (13.6% vs. 23.1%; OR 0.48, 95%CI 0.29-0.79) to receive curative therapy but there was no difference between Blacks and Whites (OR 1.28, 95%CI 0.83-1.95). Median survival of all patients was 9.6 months. Survival did not differ between Whites and Hispanics (HR 1.15, 95%CI 0.93-1.42) but was shorter in Blacks than Whites (7.9 vs. 12.7 months; HR 1.52; 95%CI 1.25-1.86) after adjusting for HCC stage and curative treatment receipt.

Conclusion: Hispanic-White disparities in HCC prognosis appear to be driven by different factors than Black-White disparities. Hispanics were diagnosed at a later tumor stage, but have similar stage-adjusted survival. However, Blacks have worse survival than Whites despite a lack of difference in tumor stage and curative treatment receipt.

Poster #17

Presenter: An Lu

Authors: An Lu MD, Rosechelle Ruggiero MD

Title: Surviving Sepsis: Time to Lactate

Abstract:

Background: Sepsis is one of the important causes of healthcare expenditure globally and it causes significant morbidity and mortality in hospitalized patients. Lactate level is a useful marker in identifying tissue hypoperfusion and, therefore, severity of illness. Many hospitals have implemented a sepsis protocol to increase adherence to best practices which includes measuring a lactate within 3 hours of diagnosis of sepsis. Despite this, many hospitals struggle with meeting this metric. At Parkland Hospital, our 3-hour composite metric bundle (which includes blood cultures prior to broad spectrum antibiotics and measurement of a lactate was 36% in FY 2016, The measurement of first lactate within 3 hours is approximately 66%.

Objective: A quality improvement project to identify potential barriers preventing the achievement of obtaining lactate in the first 3 hours.

Design: A retrospective study of patients admitted with sepsis, severe sepsis and septic shock to Parkland Hospital during November 2016. Chart review was performed on these patients after sepsis criteria are met to identify whether lactate was drawn in the first 3 hours and to determine the potential barriers if the 3-hour time line was not met.

Result: During November 2016, there were 206 patients admitted for sepsis, severe sepsis and septic shock. Lactates were obtained within 3 hours of arrival in 148 patients (71.8%). Thirty three patients did not have lactate in the first 3 hours (16%) and 25 patients had no lactate drawn (12.1%). Reasons includes: lactate were not ordered until evaluated by primary admitting team (13), until patient decompensated (7), delay between ordering and getting lab drawn (3), difficult patient (agitation, IV access) (2), transfer of care (1), and unidentified (7). We were unable to determine the reasons that patients did not have a lactate obtained due to the retrospective nature of the study.

Conclusion with Future Implications: Based on the above results, plan for intervention includes education regarding sepsis criteria and bundle with informative posters and meetings, encourage the utilization of sepsis alert and sepsis order set in the electronic medical record. We also aim to improve the triage process and hopefully to create a sepsis icon in the ED trackboard to increase awareness and help to prioritize the initial work up and management of these septic patients. After these interventions are completed, we will conduct another study in the future to assess for improvement.

Poster #18

Presenter: Neil Keshvani

Authors: Neil Keshvani MD, Bernard Tawfik MD, Weina Chen MD, PhD, David H. Johnson MD

Title: Vitamin B12 Deficiency Masquerading as Malignancy

Introduction: B12 deficiency is a very well known cause of megaloblastic anemia, and the classic presentation involves a macrocytic anemia with unexplained neurologic signs and symptoms such as paresthesia or sensory ataxia, but there can be atypical presentations.

Case Description: A 41-year-old Hispanic female with a history of hypothyroidism presented to the emergency department with chief complaint of dyspnea. This dyspnea was progressively worsening for the past four weeks and was also accompanied by severe fatigue, anorexia, and generalized malaise. Review of systems was positive for chills, non-drenching night sweats, bleeding from the gums while brushing, easy bruising, and a forty pound weight loss over the past year. Physical exam was positive only for bruising over the bilateral lower extremities. Laboratory testing showed a white blood cell count of 2,600/ μ L, hemoglobin of 5.3 g/dL, a hematocrit of 15.8%, a platelet count of 51,000/ μ L, and an LDH of 2450 U/L. The differential showed an absolute neutropenia (580/ μ L) with left shift including 3% blasts, occasional nucleated RBCs, and teardrop cells. Hypersegmented neutrophils were absent. A thyroid-stimulating hormone was within normal limits. Hematology was consulted given concern for acute leukemia and an emergent bone marrow (BM) biopsy was performed. BM examination revealed a hypercellular bone marrow with megaloblastic erythrocytic hyperplasia and giant bands in granulocytic lineage cells. A vitamin B12 level was measured the following day and found to be undetectable (< 30 ng/L). Both homocysteine and methylmalonic acid levels were increased to 76.4 μ mol/dL (reference range <15) and 36 nmol/dL (reference range <0.4), respectively. Anti-parietal cell antibodies and anti-intrinsic factor antibodies were positive. An esophagogastroduodenoscopy (EGD) revealed an atrophic appearing mucosa with mild antral gastritis. Biopsy results showed autoimmune gastritis consistent with pernicious anemia.

The patient was treated with subcutaneous injections of Vitamin B12 daily 1,000 mcg. The patient was seen in clinic 8 weeks post-discharge with near resolution of all of her symptoms and normalization of her CBC, methylmalonic acid, and homocysteine levels.

Discussion: What makes this case atypical for traditional Vitamin B12 deficiencies is the lack of neurologic symptoms, the severe pancytopenia, and the immature precursors on peripheral smear including blasts without hyperlobulated neutrophils. This clinical picture was so concerning for acute leukemia that an urgent bone marrow biopsy was performed. Due to intramedullary hemolysis caused by ineffective hematopoiesis, the LDH is often extremely elevated as seen in this patient. Elevated levels of methylmalonic acid and homocysteine can be used to confirm the diagnosis of vitamin B12 deficiency. These tests are more sensitive and specific than the assay used to measure direct vitamin B12 levels. Lastly, patients with pernicious anemia have an increased risk of gastric carcinoma and should be followed by gastroenterology.

Poster #19

Presenter: Shreya Rao

Authors: Shreya Rao MD, Ambarish Pandey MD, Sushil Garg MD, Helen Mayo, Bryan Park MD, Ian J. Neeland MD

Title: Impact of Exercise and Pharmacologic Interventions on Changes in Visceral Adiposity: A Meta-Analysis of Randomized Controlled Trials

Abstract:

Background: Increased BMI and visceral adipose tissue (VAT) are associated with elevated risk of adverse cardiovascular outcomes. While several exercise and pharmacological interventions have been shown to reduce BMI, their impact on VAT is not well established.

Methods: We included randomized controlled trials (RCTs) that evaluated the efficacy of exercise or pharmacological interventions in VAT reduction. Outcome assessed was change in VAT measured as visceral fat area (cm²) using CT or MRI imaging. Separate pooled analysis was using random-effect models with pooled estimates of change in VAT from baseline to following reported as standardized mean difference (SMD). Magnitude of effect was compared based on SMD estimates.

Results: The primary analysis included 4,380 participants from 25 RCTs. In pooled analysis, both exercise training and pharmacological interventions were associated with significant reductions in visceral adiposity (see figure). Exercise training was associated with a moderate reduction in VAT measures [SMD (95% CI): -0.71 (-0.93 to -0.49)]. In contrast, more substantial decrease in VAT was observed with pharmacological therapies [SMD (95% CI): -0.91 (-1.42 to -0.40)].

Conclusions: Exercise and pharmacologic interventions are associated with significant reduction in VAT, with more substantial benefits from pharmacological therapies. Future studies are needed to determine if the favorable effects of these interventions may also lower the risk for adverse cardiovascular outcomes.

Poster #20

Presenter: Timil H. Patel

Authors: Timil H. Patel MD; Namrah Siddiq MD; Srikanth Nagalla MD.

Title: Quantitative Interpretation of Optical Density Measurements For Heparin-Induced Thrombocytopenia

Abstract:

Introduction: The diagnosis of heparin-induced thrombocytopenia (HIT) is based on a decrease in the platelet count of more than 50% or thrombosis beginning 5 to 10 days after the start of heparin, in association with the appearance of platelet-activating HIT antibodies, as shown by means of a functional assay (serotonin-release assay) or inferred by means of a strong positive immunoassay (PF4-heparin IgG immunoassay).

The initial laboratory test for heparin-induced thrombocytopenia (HIT) uses a PF4-dependent enzyme-immunoassay (EIA). EIA is expressed in optical density (OD) units. The standard diagnostic cutoff for a positive OD value is 0.40 and above. Anti-PF4-heparin enzyme immunoassays have an excellent negative predictive value (98 to 99%) but a low positive predictive value, in part due to detecting clinically insignificant anti-PF4-heparin antibodies.

Diagnostic accuracy for HIT is improved with the use of both an anti-PF4-heparin enzyme immunoassay and a serotonin-release assay (SRA). An SRA is much more specific than enzyme immunoassays for clinically relevant antibodies and thus a negative functional assay essentially rules out HIT, but the test is technically demanding and performed by few laboratories.

We sought to determine whether the quantitative degree of a positive EIA result, expressed in optical density (OD) units, predicts risk of HIT antibodies, defined as a strong-positive platelet serotonin-release assay (SRA) result (>50% serotonin release).

Methods: We retrospectively reviewed the serological data for 127 patients tested for HIT at the University of Texas Southwestern Medical Center from January 2012 to December 2016 using EIA-IgG and SRA.

Results: For patients with a weak-positive EIA result (0.4 to <1 OD units), 10 out of 49 patients had a strong-positive SRA (>50%). For patients with a strong-positive EIA result (>1 OD units), 19 out of 57 patients had a strong-positive SRA (>50%). Of the patients who had a weak-positive EIA result (0.4 to <1 OD units) and a strong-positive SRA (>50%), the average OD unit was 0.68 (range 0.42 to 0.83).

Conclusions: The likelihood of HIT antibodies (strong-positive SRA result) inferred by a positive PF4-dependent EIA varies considerably in relation to the quantitative degree of the EIA result, expressed as OD values. Therefore, rather than a single cutoff to determine a positive OD value, it maybe reasonable to interpret any specific OD value as a probability for the presence of HIT antibodies.

Poster #21

Presenter: Timil Patel

Authors: Timil H. Patel MD; Randall Hughes MD; Thomas Froehlich MD; Arthur Frankel, MD

Title: Subacute Progressive Encephalopathy From Miliary Melanoma

Abstract:

A 54-year-old Caucasian male with metastatic melanoma (BRAF-positive) presented with one-week history of altered mental status.

The patient was diagnosed with melanoma of the lower back in 2002 and treated with wide-local resection. In August 2016, he was noted to have recurrence with biopsy proven BRAF-mutation melanoma, with metastatic disease to the lungs, liver, mediastinum and bone. He was initially treated with ipilimumab and nivolumab but developed worsening dyspnea so his chemotherapy was changed to trametinib and dabrafenib.

In November 2016, he presented with progressively worsening confusion and loss of function. Normal at baseline, the patient was now disoriented and dependent for all activities of daily living. An infectious and seizure work-up were negative. MR of the brain revealed diffuse, innumerable scattered foci of hypo-intense lesions, concerning for micro-hemorrhage versus metastatic disease. His lumbar puncture fluid cytology confirmed melanoma. Due to the rapidly deteriorating condition and a dismal prognosis, after an interdisciplinary discussion with oncologists, neurologists, radiation oncologists and palliative care physicians, the decision was made to transition to comfort care and the patient passed away shortly thereafter.

We describe a case of a miliary pattern of metastatic melanoma that is both very rare and portends a poor prognosis. Metastatic melanoma represents the third most common cause for central nervous system metastases after breast and lung cancer. Nevertheless, only about 5% of the patients with metastatic melanoma have more than five intracerebral metastatic lesions and there are been only a few case reports worldwide for a miliary metastatic pattern for melanoma. It remains to be seen if there is an association between BRAF status and a miliary pattern of metastasis.

Poster #22

Presenter: Jennifer Fan

Authors: Yu Zuo MD, Jennifer Fan MD, Ravi Sarode MD, David Karp MD, Yu-Min Shen

Title: Identifying 'Second Hit' Risk Factors Associated with Thrombosis and Pregnancy Morbidity in aPLs Positive Patients

Abstract:

Background: The evaluation of thrombotic and pregnancy risks associated with antiphospholipid antibodies (aPL) in individual patients without APS clinical manifestation is challenging.

Aims: To identify potential predictors of thrombosis and pregnancy morbidities among aPL positive patients.

Methods: This study included 229 consecutive persistent aPL positive patients who attended clinic at University of Texas Southwestern Medical Center. All patients had persistent high titer (99 percentiles) aPL. The aPL profiles were assessed with commercial assay. Hypertension (HTN) was classified based on 8th Joint National Committee guidelines. Hyperlipidemia (HLD) was defined as fasting total cholesterol >200 mg/dl. When assessing risk factors associated with pregnancy morbidities, only reproductive age (age<45) female controls were used. Pearson Chi-squared analysis and multivariable logistic regression were used to evaluate correlation between different risk factors and clinical manifestations.

Results: Of the 229 aPL positive patients, 130 (56.8%) patients had criteria APS clinical manifestations and 99 patients did not. Among APS patients, 98 (75.4%) patients had primary APS. When comparing APS patients to asymptomatic aPL positive control patients, HTN (OR=3.827, 95%CI 1.603 - 8.761, P=0.0018) was significantly associated with arterial thrombosis (Fig 1) and the presence of lupus anticoagulant (OR=3.308, 95%CI 1.501- 6.949, P=0.0015) was significantly associated with venous thrombosis (Fig 2). Age, HLD, smoking, raynaud, livedo reticularis, presence of IgA aPL or triple positive aPL did not demonstrate significant correlation with either arterial or venous thrombosis. None of the analyzed clinical characteristics or aPL profiles showed significant correlation with obstetric manifestations.

Conclusion: HTN is a potential predictor of arterial thrombosis and the presence of LA is a potential predictor of venous thrombosis in aPL positive patients.

Poster #23

Presenter: Nivedita Arora

Authors: Nivedita Arora, Arjun Gupta MBBS, Hong Zhu PhD, Alana Christie, Jeffrey J. Meyer MD, Saad A. Khan MD, Muhammad S. Beg MD

Title: Racial and Gender Disparities in the Therapy and Outcomes of Squamous Cell Carcinoma of the Anus

Abstract:

Background: Squamous cell carcinoma of the anus (SCCA) is one of the few cancers with a rising incidence in the United States. We aimed to characterize race and gender-based disparities in receipt of therapy and overall survival (OS) of SCCA using the Surveillance, Epidemiology and End Results (SEER) database.

Methods: Cases of locoregional SCCA (T2-T4, any N, M0) diagnosed between 2000-2012 in the SEER database were included. Demographics, tumor characteristics, therapy and outcomes were extracted. Univariable and multivariable Cox proportional hazard models were constructed to test factors associated with OS. Data were reported as hazard ratios (HR) and 95% confidence intervals (CI).

Results: We identified 7882 cases of locoregional SCCA, median age 58 years, 61.2% women, 86.3% white. Majority of patients (82.3%) received radiation therapy; with the lowest rate in black males (76.7%) and highest in white females (86.1%). The median OS was 135 months. OS was lower in elderly patients, (> 65 years old) (68 months), men (108 months), blacks (109 months) and those who did not receive radiation therapy (121 months). In multivariable analysis, age (HR 1.19, 95 % CI 1.17-1.21 per 5 years increase), gender (HR 1.59, 95% CI 1.47- 1.73, men vs women), race (HR 1.51, 95% CI 1.34- 1.71, black vs white), and radiation therapy (HR 0.90, 95% CI 0.82-0.99), were independently associated with OS ($p < 0.05$).

Conclusions: Significant racial and gender-based disparities exist in survival of patients with locoregional SCCA. Further investigation into causes of and methods to eliminate these disparities are warranted.

Poster #24

Presenter: Nivedita Arora

Authors: Nivedita Arora MD; Laurette Femnou-Mbuntum MD; Arjun Gupta MD; Sujata Bhushan MD.

Title: Type B Lactic Acidosis in a patient with Metastatic Squamous Cell Lung Cancer

Case: A 63-year-old man with poorly differentiated squamous cell carcinoma of the right lung presented with worsening shortness of breath. He denied fevers, sick contacts, travel, or focal symptoms. Medications included hydrocodone, ranitidine and senna. He was afebrile, hemodynamically stable, well perfused with oxygen saturation 97% on room air. Decreased breath sounds over the right upper lung field and non-tender hepatomegaly were noted. Laboratory testing showed unremarkable blood counts and renal function, bicarbonate 20 mmol/L (ref 22-30), anion gap 21 mmol/L (ref 8-16), AST 174 U/L (ref 15-41), ALT 90 U/L (ref 5-58), Alkaline phosphatase 931 U/L (ref 40-129) and lactate 7.6 mmol/L (ref 0.5-2.2). CT scan revealed interval enlargement of the lung mass with innumerable metastatic lesions in the liver and hepatomegaly. He had no symptomatic, laboratory or imaging evidence of infection. He was hemodynamically stable, euvolemic and was not taking any medications that could contribute to lactic acidosis. A repeat lactate was 9.2 mmol/L. His elevated lactate was presumed secondary to extensive tumor burden and liver dysfunction. He declined further testing/ treatment and was transitioned to hospice care.

Impact: This case describes lactic acidosis in a patient with a solid tumor and liver dysfunction secondary to metastasis. Though type B lactic acidosis is known to occur in haematological as well as solid malignancies, it remains a diagnosis of exclusion and it is necessary to rule out sepsis, tissue hypoperfusion or drug effects (alcohol, salicylates, reverse transcriptase inhibitors) as potential causes of the elevated lactate.

Discussion: Lactic acidosis can occur in the presence (type A) or absence (type B) of tissue hypoperfusion. It has high sensitivity but poor specificity for tissue hypoperfusion. Type B lactic acidosis can be seen with cancer, renal or liver disease, drug or toxin ingestion or congenital enzyme deficiency.

Cancer-associated type B lactic acidosis has rarely been described with solid tumors. This is postulated to be a result of the Warburg phenomenon of altered energy metabolism in cancer cells, whereby they preferentially undergo aerobic glycolysis, leading to production of lactate from pyruvate, instead of the more energy efficient oxidative phosphorylation. Liver dysfunction secondary to metastasis with resultant decreased clearance of circulating lactate by the liver (Cori Cycle) likely also played a role in lactic acidosis in this patient. The etiology of malignancy associated hyperlactatemia is thus likely multifactorial. Hyperlactatemia has been shown to be a negative prognostic marker in cancer patients. This case highlights an unusual cause of lactic acidosis in a patient presenting with progression and metastasis of lung cancer with high tumor burden.

Poster #25

Presenter: Nimish N. Shah

Authors: Nimish N. Shah MD, Joel Taurog MD

Title: Slight of Hand: Diabetic Cheiroarthropathy and the Prayer Sign

Abstract:

A 60-year-old woman with a history of type 1 diabetes mellitus and a prior diagnosis of seropositive rheumatoid arthritis (RA) presented for evaluation and management of RA diagnosed several years ago. She was briefly treated with corticosteroids for 1 month, but had otherwise not received any immunosuppressive treatment. Aside from 1 hour of painless morning stiffness in her right knee, shoulders, and hands, her symptoms were minimal. Her medications included a calcium-vitamin D3 supplement, atorvastatin, insulin glargine, insulin aspart, lisinopril, ranitidine, and acetaminophen. Her exam revealed mild joint swelling and tenderness at the left wrist, thickened skin over the right second proximal interphalangeal joint without swelling, and mild contractures at the proximal interphalangeal joints bilaterally with a positive 'prayer sign' (Figure 1). The remainder of her exam was unremarkable. Her labs were significant for HgbA1c of 8.7, WBC of 8.38, ESR of 68, positive speckled ANA with a titer of 1:80, CCP of 209.97, and RF of 50. The remainder of her immunologic studies were negative.

Rather than RA, this patient was ultimately diagnosed with diabetic cheiroarthropathy, a clinical diagnosis suggested by the 'prayer sign,' or the inability to approximate the palmar surfaces of the digits with the palms opposed. It is a recognized complication of long-standing diabetes, thought to be more common in Type 1 diabetes than in Type 2 due to the longer disease duration. It is attributed to glycosylation and crosslinking of collagen causing collagen stiffening, in addition to collagen degradation.

Microvasculopathy may also play a role in inducing ischemia of skin tissue. These changes may be reversed or at least improved with tightened glycemic control.

This case represents a teachable moment, wherein the diagnosis of diabetic cheiroarthropathy may be missed in favor of a diagnosis of seropositive RA. Indeed, this patient reported polyarticular morning stiffness, had an exam suggestive of synovitis, and had positive RF and CCP serology to suggest RA. Using ACR classification criteria for RA without considering cheiroarthropathy in the differential, this patient would receive at least 7 points, consistent with definite RA. With a diagnosis of RA, this patient would have been a candidate for disease-modifying antirheumatic drug (DMARD) therapy, and likely would have initially received methotrexate (MTX), a drug that may potentiate hepatotoxicity. If MTX was ineffective at controlling symptoms, she would then have been exposed to additional DMARDs, including biologic DMARDs, which place the patient at risk of opportunistic infections due to their immunosuppressive effects. However, the ACR criteria are only applicable for patients with synovitis not better explained by another disease. Here, the diagnosis of diabetic cheiroarthropathy not only explains the patient's presentation, but also precludes exposure to potential adverse drug reactions associated with RA management. The patient was counselled on improving her glycemic control and offered wrist splinting with physical therapy for symptomatic relief.

Poster #26

Presenter: Lauren Smith

Authors: Lauren N. Smith MD, Anil N. Makam MD, MAS, Douglas Darden MD, Helen Mayo MLS, Sandeep R. Das MD, MPH, Ethan A. Halm MD, MPH, Oanh Kieu Nguyen MD, MAS

Title: Acute Myocardial Infarction Readmission Risk Prediction Models: A Systematic Review Of Model Performance

Abstract:

Background: Hospitals are subject to federal financial penalties for excessive 30-day hospital readmissions for acute myocardial infarction (AMI). Prospectively identifying AMI patients at high risk for readmission could help prevent 30-day readmissions by enabling targeted interventions. However, the performance of AMI readmission risk prediction models is unknown.

Methods and Results: We systematically searched the currently published literature through March 2017 for studies of risk prediction models for 30-day hospital readmission among adults with AMI. We identified 11 studies of 18 risk prediction models across diverse settings primarily in the U.S., of which 16 models were specific to AMI. Overall observed all-cause readmission rates across studies were 10.6-21.0%. Six models were based on administrative data; four on electronic health record data; three on clinical hospital data; and five on cardiac registry data. Models included 7-37 predictors, of which demographics, comorbidities, and utilization metrics were the most frequently included domains. Most models, including the Centers for Medicare and Medicaid Services AMI administrative model had modest discrimination (C-statistic range 0.53-0.79, median 0.65). Of the 16 AMI-specific models, only 8 models were assessed in a validation cohort in the reported analysis, limiting generalizability. Observed risk-stratified readmission rates ranged from 3.0% among the lowest risk individuals to 43.0% among the highest risk individuals, suggesting good risk stratification.

Conclusions: Current AMI readmission risk prediction models have modest predictive ability but uncertain generalizability given methodological limitations. Few existing models provide actionable information in real-time to enable early identification and risk-stratification of AMI patients prior to hospital discharge, a functionality needed to optimize the potential effectiveness of readmission reduction interventions. Future studies should focus not only on developing models with improved accuracy, but that also on models that are parsimonious and provide clinically actionable information in real-time.

Poster #27

Presenter: Lauren N. Smith, Meredith K. Greer

Authors: Lauren N. Smith MD, Meredith K. Greer MD, Lance Terada MD

Title: Rheumatoid pneumoconiosis, delayed diagnosis and harmful treatments

Abstract:

Introduction: A 33-year-old HIV-negative Hispanic male, working as a stonebreaker, presented with recurrent polyarthritis and incidental finding of pulmonary nodules. He was ultimately diagnosed with rheumatoid pneumoconiosis (Caplan's syndrome) but would remain seronegative until almost one year into his disease course.

Case Presentation: Our patient first presented with a chief complaint of right-sided shoulder pain. Routine shoulder x-ray noted pulmonary nodules. Subsequent CT chest showed innumerable randomly distributed pulmonary nodules. An infectious work up was pursued but all tests, including TB, came back negative. Autoimmune work up was also pursued, all of which was negative. For the following seven months, he returned to the ED for evaluation of recurrent episodes of polyarthritis treated with NSAIDs, and occasionally prednisone, but was never admitted for further workup. Eventually, he was referred to rheumatology clinic where exam demonstrated synovitis thus autoimmune testing was again pursued. This time, RF positive, CCP > 250. He was started on prednisone, sulfasalazine, and leflunomide at this time. Follow up CT chest showed progression of disease. The patient underwent a VATS procedure with pathology demonstrating numerous nodules with central necrosis bordered by palisading histiocytes as well as dust-like particles seen under polarizing light. In the setting of RA, work history of construction, and pathology findings patient was diagnosed with rheumatoid pneumoconiosis, or Caplan's syndrome. Unfortunately the patient's treatment course has been difficult due to worsening of pulmonary nodules. There was concern for drug induced rheumatoid nodules from leflunomide and also etanercept, which the patient was on briefly, thus he has now been switched to plaquenil.

Discussion: Both diagnosis and treatment have been difficult in this case. The diagnosis was delayed due to negative initial serologies and unremarkable findings on initial musculoskeletal exams. However, in Caplan's syndrome features of RA can be absent or develop later after pulmonary manifestations become evident. In the original Caplan paper, several patients with classic lung findings on CXR did not develop arthritis or positive serologies until years later. Similarly, other literature has found that some patients with arthritis and lung nodules have negative serological markers on initial presentation but convert down the road. Overall, there is a minority of patients that remain seronegative throughout the disease course and thus is not a requirement for diagnosis. Patients with high suspicion of disease should be treated earlier regardless of serological testing and arthritis manifestations. Lastly, case studies have shown that several common treatments for RA including methotrexate and leflunomide have been associated with development of rheumatoid nodules in the lung. For patients with RA

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who present with lung involvement these therapies should be avoided and plaquenil used as first line since it is not shown to cause lung manifestations.

Conclusions: This case illustrates the importance of history taking, pattern recognition, and continued diagnostic re-evaluation to minimize delay in diagnosis of less common conditions when laboratory data and physical examination are not conclusive. Furthermore, in systemic diseases physicians must be aware of potential drug side effects before starting new therapies and quickly identify alternatives to reduce harmful outcomes.

Poster #28

Presenter: Joseph Moore

Authors: Joseph Moore MD, Louise Gliga MD, Srikanth Nagalla MD

Title: Thyroid Storm & Warm Autoimmune Hemolytic Anemia

Abstract:

Introduction: Graves' disease is often associated with other autoimmune disorders, including rare associations with autoimmune hemolytic anemia (AIHA). We describe a unique presentation of thyroid storm and warm autoimmune hemolytic anemia diagnosed concurrently.

Case Presentation: A 20-year-old Chinese female with history of hyperthyroidism presented to our hospital with nausea, vomiting, diarrhea and altered mental status. On admission, temperature was 101.9° F and heart rate was 160/min. Physical exam was notable for disorientation, scleral icterus, diffuse nontender enlargement of thyroid gland, mild tremors and jaundice. Laboratory studies revealed hemoglobin 3.9 g/dL, platelets 171 x10⁹/L, haptoglobin <5 mg/dL, reticulocytosis, and positive direct antiglobulin test (IgG, warm). Additional workup revealed serum thyroid stimulating hormone (TSH) <0.01 µIU/mL and serum free-T₄ (FT₄) level 7.8 ng/dL. Our patient was diagnosed with concurrent thyroid storm and warm AIHA. She was started on glucocorticoids (prednisone 1 mg/kg/day) to treat both warm AIHA and thyroid storm, as well as methimazole, propranolol and folic acid. Due to profound anemia and concern for hemodynamic instability, the patient was transfused three units of uncrossmatched packed red blood cells slowly and tolerated this well. The patient was successfully treated with both methimazole and prednisone taper, and achieved complete resolution of the thyrotoxicosis and anemia.

Discussion: Hyperthyroidism can affect all three blood cell lineages of the hematopoietic system. Anemia can be seen in 10-20% of patients with thyrotoxicosis. Several autoimmune processes can lead to anemia in Graves' disease, including pernicious anemia, celiac disease, and warm AIHA. Of these processes, AIHA is the rarest and limited to single case reports. The pathophysiology of AIHA in Graves' disease is not completely understood. First-line therapy for warm AIHA is glucocorticoids and fortunately our patient responded well to this treatment. This case illustrates a rarely described presentation of a patient with Graves' disease presenting with thyroid storm and warm autoimmune hemolytic anemia. To the best of our knowledge, this represents the first such case described.

Poster #29

Presenter: Christina Mosher

Authors: Christina A. Mosher MD, Rebecca F. Yarborough MD, Bret Evers MD, PhD, Salahuddin Kazi MD

Title: Immunoglobulin free light chains as a harbinger for lupus myositis

Abstract:

Systemic lupus erythematosus (SLE) is an autoimmune disease that can affect any organ system and is marked by flares alternating with remission. Flares are treated with immunosuppressants only after active disease becomes clinically apparent, when irreversible tissue damage may have already occurred. Skeletal muscle involvement is most commonly subclinical, but rare cases of overt myositis demonstrate significant inflammatory damage, and patients overall have a worse prognosis. Especially in severe manifestations such as SLE myositis, biomarker screening could allow early treatment initiation that curtails the extent of inflammatory damage. Recent work has attempted to correlate SLE disease activity with serum levels of various immunologic parameters, and thus find a biomarker predictive of flares. Polyclonal free light chains have been shown to correlate with SLE disease activity. The detection of elevated urinary FLC can precede relapses by four to eight weeks. These studies suggest that serum light chains may be used to indicate an impending flare. Here, we describe an unusual case of SLE whose presenting symptom was severe myositis and was found to have elevated serum and urine free light chains.

Poster #30**Presenter:** Bernard Tawfik**Authors:** Bernard Tawfik MD, Seema Jabar MD, Barbara Haley MD**Title:** Refractory Thrombocytopenia Due to HLA Specific Antigens**Abstract:**

History of Present Illness: 61-year-old Caucasian woman with history of BRCA2+ breast cancer 1994 s/p lumpectomy, chemotherapy and CD34+ selected Autologous Stem Cell Transplant (ASCT) who presents with refractory thrombocytopenia. After ASCT, the patient recalls being transfusion dependent for one year with persistent pancytopenia since that time. Previously seen by benign hematology 5 years prior with bone marrow biopsy showing normocellular trilineage hematopoiesis with 50-60% cellularity. At the time of presentation, she is actively undergoing treatment for recently diagnosed p16+ anal SCC with dose reduced Mitomycin C/Capecitabine with concurrent XRT. She began to have severe anemia and thrombocytopenia refractory to platelet (plt) transfusions. She last received Mitomycin C 18 days prior to admission, ceased Capecitabine 11 days prior and received XRT 1 day prior. She had no significant episodes of bleeding. She was sent from clinic after her platelet count of 5,000 only rose to 10,000 after one unit platelets.

Hospital Course: Patients corrected count increment (CCI) was calculated as ~ 3,000 indicating an inappropriately low platelet response. A plt antibody screen was sent and further type specific plts were administered but she continued to be refractory. Bone marrow biopsy was obtained which showed profoundly hypocellular marrow (5-10%) with trilineage hypoplasia without any malignancy. Plt antibody screen results returned positive and HLA typing on the patient was performed. Initial HLA matched plts (B1U1X: 4 out of 6 antigens match, 1 homozygous allele, 1 cross reactive antigen) continued to show an inadequate response. Typically this match would be appropriate so further testing for HLA antigen antibodies were ordered to determine the antigen specific antibodies. Once determined, the next HLA matched unit was still B1U1X; however, it was negative for these antigens. After this plt transfusion, the plt count increased from 7,000 to 45,000 which she maintained for two days. She was given the 2nd bag of platelets from this same donor and had a similar response of 15,000 plts to 56,000 plts.

Discussion:

- CD 34+ selected ASCT often resulted in suboptimal deposition of stem cells and significant resultant pancytopenia
- mitomycin C alkylates DNA to produce DNA cross-linking and patients with BRCA mutation may be unable to repair these cross links as BRCA is a DNA double strand break repair protein
- The above two factors in combination with capecitabine and XRT likely explains the severe myelosuppression
- Heavily transfused patients can develop plt antibodies to HLA and HPA-1A and may need HLA matched and/or testing for antigen specific antibodies (Figure 2)

Presenter: Elizabeth McGehee

Authors: Elizabeth McGehee MD, Joan Reisch PhD, David Gerber MD, Jonathan Dowell MD

Title: Treatment and outcomes of primary pericardial mesothelioma: a systematic review

Abstract:

Purpose: Primary pericardial mesothelioma (PPM) is a rare cancer, for which there is no consensus on treatment. We performed a retrospective systematic review of recently published PPM cases to characterize risk factors, treatment patterns, and clinical outcomes.

Methods: Published literature from 2000-2016 was searched using the terms 'primary pericardial mesothelioma', 'pericardial mesothelioma' and 'malignant pericardial mesothelioma'. T-tests, Chi-square, and multivariable stepwise logistic regression were employed to correlate demographics, disease characteristics, and treatment with mortality.

Results: We identified 6 case series and 84 case reports for a total of 103 PPM cases. Median age at diagnosis was 55; age range was 19 to 87. 39% were female and 61% were male. The mean time from diagnosis to death was 5.6 months. Tobacco exposure and asbestos exposure were reported in 15% and 25%, respectively. Neither exposure was predictive of mortality. 46% of patients underwent surgery, 8% received radiation, 37% received chemotherapy and 23% received no treatment. For 13% of patients, the treatment received, if any, was unknown. Radiation treatment was not associated with a mortality benefit ($p=0.54$). Overall, surgery did not provide a mortality benefit ($p=0.13$). While pericardiectomy alone was not associated with a mortality benefit (20% alive at last follow-up, $p=0.77$), patients who received mass resection with or without pericardiectomy did have a statistically significant survival benefit (47% alive at last follow-up, $p=0.0047$). A mortality benefit was noted in those who received chemotherapy ($p=0.0022$), specifically pemetrexed ($p=0.0038$) or platinum agents ($p=0.003$). Gemcitabine was not associated with a mortality benefit ($p=0.101$).

Conclusion: To the authors' knowledge, this is the first comprehensive analysis of published PPM cases in the modern era. In this retrospective systematic review, a mortality benefit was seen with tumor resection and chemotherapy. Selection bias may account for some of this effect. However, given the inability to perform prospective studies in this population due to small patient numbers, it seems reasonable to offer surgical and medical therapy to eligible patients with PPM.

Poster #32

Presenter: Joseph Wang

Authors: Joseph Wang MD, Rebecca Vigen MD, MSCS, Christopher Clark, Sandeep Das MD, MPH

Title: The Association between Medication Adherence and Time in Therapeutic Range (TTR) among patients with Atrial Fibrillation treated with Warfarin: Lessons from the Parkland Health and Hospital System

Abstract:

Background: Time in therapeutic range (TTR) impacts the treatment benefit of warfarin requiring at least TTR >65%. Novel oral anticoagulants (NOACs) are non-inferior or superior to warfarin and do not require maintaining a narrow therapeutic window. A transition from warfarin to NOACs has been suggested to improve real-world effectiveness of anticoagulation. However, to the extent that low TTR simply reflects non-adherence, switching to NOACs without explicitly considering adherence may not improve outcomes. The goal of this study was to examine TTR in a safety-net hospital and determine predictors of reduced TTR.

Methods: We queried the Parkland Health and Hospital System electronic medical record for all patients from January 2010 to 2016 with a diagnosis of atrial fibrillation or flutter on EKG who were on warfarin and had INR results available during the study period. TTR was calculated using the Rosendaal method. Patients were grouped into TTR quartiles. Adherence to warfarin was defined by the proportion of days covered to the medication (0 - 100%). Multivariable linear regression modeling was used to assess the associations between TTR with demographic factors, comorbid conditions, and adherence.

Results: A total of 2,626 patients were included in the analysis. There was significant variability in the TTR with the median TTR of 50% and IQR of 31 - 66. Younger age, black race, alcohol and drug use history, use of antiplatelet medications, and systolic blood pressure >160 was associated with having TTR in the lowest quartile (<31%) after multivariable adjustment. Medicare status was associated with a lower likelihood of being in the lowest quartile of TTR. Finally, lower adherence was associated with an increased likelihood of being in the lowest quartile of TTR.

Conclusions: TTR on warfarin in this underserved population is suboptimal. Since TTR is influenced by adherence to warfarin, we need to be aware of the potential impact of non-adherence on preventing stroke. Although it is possible that NOACs would have greater ease-of-use and therefore higher adherence than warfarin, NOACs lack two important feedback mechanisms when compared with warfarin: the INR and frequent anticoagulation clinic visits. We need to have mechanisms in place to monitor and optimize NOAC adherence in order to make sure the transition from warfarin to NOACs is as safe as possible.

Poster #33

Presenter: Meredith Greer

Authors: Meredith Greer MD, Frank Hannallah MD

Title: Severe Coarctation of the Aorta in an Asymptomatic Adult, An Incidental Discovery

Abstract:

Coarctation of the aorta accounts for 5-8% of all congenital heart defects and is associated with a bicuspid aortic valve in 30-66% of patients. Presentation is usually during childhood and without correction can result in heart failure and stroke with the average age of death being 30-40 years old. We present a case of a 39-year-old Hispanic male who was incidentally found to have coarctation of his aorta along with a bicuspid aortic valve with minimal complications - a rare presentation of this well known anomaly.

Our patient presented for altered mental status and was found to be hypertensive, tachycardic, and intoxicated - consistent with alcohol withdrawal. He was admitted to the intensive care unit for a lorazepam drip. Although his mentation and heart rate improved, he remained hypertensive despite increasing doses of lorazepam. Arm and leg blood pressures were compared revealing a difference in systolic pressures of 60 mmHg. Closer examination of pulses revealed a radio-femoral delay. Chest x-ray showed the 'configuration of three' sign as well as rib notching. CT angiography aorta was performed with near complete obliteration of the aortic lumen at the level of the ductus arteriosum and multiple chest wall, abdominal wall and mediastinal collateral vessels. Echocardiography showed a bicuspid aortic valve, but intact systolic biventricular function. Interestingly, on discussion with the family, the mother endorsed a history of childhood murmur and fatigue on exertion. There was no history of stroke, chest pain, claudication, or syncopal episodes.

The average life expectancy for patients with coarctation of the aorta is about 30 years. While our patient has a relatively common congenital malformation, his presentation with minimal historical symptoms to suggest aortic coarctation by nearly the fifth decade of life makes his case very unusual. Little seems to be known about whether the minimally symptomatic adult benefits more from conservative versus invasive corrective measures. Given the relatively benign complications of our patient's aortic coarctation despite his age, he may represent a unique patient population that benefits most from conservative management. Our patient achieved blood pressure control on ACE inhibitor alone and is awaiting cardiac catheterization for further delineation of his anatomy at which point his candidacy for stenting versus aortic bypass surgical repair will be considered. This case emphasizes the importance that otherwise inconsistent signs and symptoms deserve more elaborate etiologic considerations - such as secondary hypertension causes in an otherwise healthy patient such as ours.

Poster #34

Presenter: Benjamin Nanes

Authors: Benjamin A. Nanes MD, PhD, Benjamin F. Chong MD, MSCS

Title: Predictors of clinical response in cutaneous lupus: A longitudinal study from the UTSW Cutaneous Lupus Registry

Abstract:

While a broad range of therapies are available for patients with cutaneous lupus erythematosus (CLE), the response to treatment of individual patients is difficult to predict. To identify patient factors associated with clinical response, we analyzed prospective longitudinal data from patients with CLE enrolled in the UTSW Cutaneous Lupus Registry. These data include demographics, disease history, medication history, smoking history, and disease severity scores such as Cutaneous Lupus Activity and Severity Index (CLASI). Patients with baseline CLASI activity score ≥ 5 and ≥ 2 study visits were included in the analysis. We designated two clinical response endpoints based on relative decrease in CLASI activity score of $\geq 50\%$ and $\geq 75\%$ on consecutive visits. Univariate and multivariate logistic regression models identified patient factors associated with clinical response. 71 patients with 129 visit-pairs between 7/2009 and 2/2017 were analyzed. At the $\geq 50\%$ CLASI activity reduction endpoint, higher initial CLASI activity (OR 1.1/CLASI point (95% CI: 1.02-1.19), $p=0.01$) and older age of CLE development (1.04/year (1.00-1.07), $p=0.04$) were associated with higher response rates, while baseline use of steroid-sparing immunosuppressants (0.29 (0.1-0.86), $p=0.03$) was associated with lower response rates. At the $\geq 75\%$ CLASI activity reduction endpoint, predominance of subacute CLE lesions (4.72 (1.33-16.78), $p=0.02$) was associated with higher response rates, while current smoking use (0.19 (0.04-0.86), $p=0.03$) was associated with lower response rates. More study visits are necessary to perform sub-analyses of different treatment modalities. This will help formulate evidence-based guidelines for CLE treatment ladders and establish patient inclusion criteria for clinical trials.

Poster #35

Presenter: Anuarg Mehta

Authors: Anurag Mehta MD, Parag H. Joshi MD, Colby R. Ayers MS, Khurram Nasir MD, Jarrett D. Berry MD, MS, Anand Rohatgi MD, Amit Khera MD

Title: Coronary artery calcium zero warranty varies by ASCVD risk: insights from the Dallas Heart Study

Abstract:

Introduction: Absence of coronary artery calcium is associated with favorable cardiovascular outcomes and can be useful for down-classifying risk in asymptomatic individuals. Identifying predictors of incident CAC can help inform those that may need heightened surveillance.

Objectives: To assess the association between predicted 10-year atherosclerotic cardiovascular disease (ASCVD) risk and incident CAC among participants of a young, multi-ethnic, population-based cohort with baseline zero CAC score.

Methods: Participants of the Dallas Heart Study (DHS) underwent repeat CAC scanning at a median interval of 6.7 years. Participants with baseline zero CAC score were included, and those with clinical ASCVD or on statins were excluded. Incident CAC was analyzed as CAC >0 and CAC >10 AU at follow up. Ten-year ASCVD risk was calculated using the 2013 AHA/ACC pooled cohort equations.

Results: Baseline zero CAC score was found in 756 DHS participants meeting exclusion criteria, with a mean age of 42 years, 34% men, and 42% blacks. Among these individuals, incident CAC occurred in 23.8% using CAC >0 and in 8.3% using CAC >10 AU. Risk markers associated with incident CAC >0 included baseline 10-year ASCVD risk, BMI, and triglyceride levels; while only 10-year ASCVD risk was associated with incident CAC >10 AU. Ten-year ASCVD risk ≤7.5% was associated with higher odds of developing incident CAC >0 and >10 AU in fully adjusted logistic regression models (adjusted odds ratio 2.7 [95% C.I. 1.3-5.4] and 3.8 [95% C.I. 1.6-8.9], respectively).

Conclusions: In this young cohort, one in four individuals with baseline zero CAC score developed incident CAC after 6.7 years. Reassessing risk, including consideration of repeat CAC measurement in those with higher baseline 10-year ASCVD risk, may be warranted.

Poster #36

Presenter: Anurag Mehta

Authors: Anurag Mehta MD, Jaideep Patel MD, Mahmoud A. Rifai MD ,MPH, Colby Ayers MS, Ian J. Neeland MD, Alka M. Kanaya MD, Namratha Kandula MD MPH, Michael J. Blaha MD ,MPH, Khurram Nasir MD, MPH, Roger S. Blumenthal MD, Parag H. Joshi MD, MHS

Title: Inflammation and Coronary Artery Calcification in South Asians: The Mediators of Atherosclerosis in South Asians Living in America (MASALA) study

Abstract:

Introduction: Inflammatory biomarkers and adipocytokines (IBA) may contribute to atherosclerosis by promoting vascular inflammation. The association between IBA and coronary artery calcium (CAC), a marker of subclinical atherosclerosis and predictor of incident atherosclerotic cardiovascular disease (ASCVD), is not well defined in South Asians (SA).

Hypothesis: IBA (high sensitivity C-reactive protein [hsCRP], tumor necrosis factor alpha [TNF- α] adiponectin, and leptin) are independently associated with and improve discrimination of CAC when added to traditional risk factors (TRF).

Methods: We analyzed IBA and CAC among 906 participants of the MASALA study. Logistic regression models were used to examine the cross-sectional association of IBA with CAC presence (CAC >0) and burden (CAC >100). IBA were categorized as upper tertile vs. lower two (hsCRP, TNF- α , leptin) and lower tertile vs. upper two (adiponectin). C-statistics were used to assess incremental contribution of each IBA to elements of the 2013 Pooled Cohort Equations (PCE) for the discrimination of CAC.

Results: SA women had significantly higher levels of hsCRP, adiponectin, and leptin but lower levels of TNF- α than men ($p < 0.01$ for all). There was no significant association between any of the four IBA and either CAC category in multivariable-adjusted models. In sex-stratified analysis, lower adiponectin levels in women were inversely associated with CAC presence (adjusted OR 0.32, 95% CI 0.13-0.81). None of the IBA improved discrimination of CAC presence or burden when added to TRF.

Conclusion: IBA were not associated with and did not improve discrimination of CAC presence or burden in the overall SA population. There was an inverse association between low adiponectin levels and CAC presence among SA women. IBA may not help identify SAs with a high burden of subclinical atherosclerosis.

Poster #37

Presenter: Spencer Carter

Authors: Spencer Carter MD

Title: TB Constrictive Pericarditis in an HIV negative Male

Abstract:

Case Description: A 34-year-old formerly homeless male with no past medical history presents with three weeks of cough, B symptoms, and weight loss. He states that he was feeling well until three weeks ago when he began to experience nightly fevers, sheet drenching sweats, a cough productive of clear sputum, 4 pillow orthopnea, 15 lbs of weight loss, and edema to the ankles.

Exam was notable for tachycardia, fever to 39, RR 28, diaphoresis, distant heart sounds, bibasilar rales and 2+ pitting edema to the mid shin. Pulsus paradoxus was 20.

Lab data was remarkable for hyponatremia at 127, nl white count, negative HIV, cbc without leukocytosis. CXR showed cardiomegaly and bilateral pleural effusions, TTE revealed large anterior pericardial effusion with fibrous material.

Emergent pericardiocentesis revealed serous fluid with 2000 nucleated cells with a lymphocytic predominance (61%), ADA was normal at 4.9, AFB smear returned negative x3 and MTB PCR also returned negative. Bacterial Culture resulted with GPCs at 24h. Given concern for suppurative pericardial effusion he was taken for emergent thoracotomy/sub-total pericardioectomy and started on broad spectrum antibiotics. He remained tachycardic in the 120s with persistent fevers to 39 C for the next few days. GPCs grew out as coag negative staph. On HD 8 pathology returned showing caseating granulomas with + stain for mycobacterium. He was started on RIPE and steroids with defervescence soon thereafter. TTE before discharge was concerning for constrictive pericarditis with medial>lateral e'.

Discussion: This case illustrated several important topics 1) the prevalence and risk factors for TB in our community, 2) the relative insensitivity of laboratory testing for TB pericardial effusions, 3) the high prevalence of constrictive pericarditis in TB patients with pericardial involvement, and 4) continued re-evaluation of patients who do not respond to treatment as expected.

Poster #38

Presenter: Shahzad Chindhy

Authors: Shahzad Chindhy MD, Nicholas Hendren MD, Kaylee Shepherd MD

Title: Gram Negative Rod Meningitis due to *Strongyloides stercoralis*

Abstract:

A 57-year-old Hispanic male with a history of embryonal sarcoma of the liver presented with one day of confusion, mild headache, and fevers. He was diagnosed with stage IV embryonal sarcoma of the liver one year prior to admission and despite current therapies, his cancer progressed with recurrent liver lesions and metastatic spinal disease requiring palliative radiation and dexamethasone therapy. Of note, he was a citizen of Mexico and last traveled to Mexico in 2008. His vitals were unremarkable and exam was only pertinent for baseline right upper quadrant and back pain. Blood cultures were positive for *Escherichia coli* and a lumbar puncture revealed *E. coli* meningitis. Given his immunosuppression, travel history and meningitis, a stool ova and parasite was obtained to screen for *Strongyloides stercoralis*. His stool was markedly positive for *Strongyloides stercoralis* larvae and he was diagnosed with *Strongyloides* hyperinfection syndrome. Given his poor prognosis, the patient declined medical therapy and elected home hospice.

Strongyloides stercoralis is a neglected tropical disease that not only infects people in developing countries, but remains endemic in rural pockets of the United States. Our patient likely had a chronic asymptomatic *Strongyloides* infection acquired in Mexico that became a hyperinfection after starting high doses of dexamethasone for spinal metastatic disease. This led to bacterial translocation resulting in a classic case of GNR infection secondary to *Strongyloides* hyperinfection. Clinicians should have a high level of suspicion for *Strongyloides stercoralis* in patients with unexplained GNR infections and a history of travel to endemic areas of transmission. Suspicion should be further heightened for patients on steroids or with an immunocompromised state.

Poster #39

Presenter: Jeanney Lew

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

Title: Understanding the Venus and Mars Effect: Sex-Based Differences in Cardiovascular Biomarkers

Abstract:

Evaluation of circulating biomarkers may provide mechanistic insight into important sex-based differences in cardiovascular disease (CVD) in the population. Few data are available in which large panels of biomarkers reflecting unique biological pathways are compared between women and men, with comprehensive adjustment for differences in risk factors and body composition.

Methods: A cross-sectional analysis was performed using data from the Dallas Heart Study, a multi-ethnic probability based cohort study. Participants with existing CVD were excluded. Associations between sex and 26 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, renal function, insulin resistance, LV mass by MRI, and menopausal status.

Results: The study population included 3557 individuals, mean age 43, 56% female 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 renal dysfunction. In fully adjusted models, women had higher levels of HDL, leptin, d-dimer, osteoprotegerin (OPG), and NT-proBNP and lower levels of lipoprotein-associated phospholipase A2 (LP-PLA2), monocyte chemoattractant protein-1 (MCP-1), soluble endothelial cell adhesion molecule (sESAM), symmetric dimethylarginine (SDMA), hs-cTnT, and cystatin c (Table).

Conclusion: Even after accounting for sex-based differences in traditional risk factors, body composition and insulin resistance, important differences in biomarker profiles exist between women and men without CVD in the population. Future studies are needed to characterize whether pathophysiological processes delineated by these biomarkers contribute to sex-based differences in the development and complications of CVD.

Poster #40

Presenter: Omer Mirza

Authors: Omer Mirza MD, Catherine Chen MD

Title: Parainfectuous Vasculitis: An Unexpected Complication of Streptococcus Pneumoniae Meningitis

Abstract:

Parainfectious vasculitis is a deadly complication that has been reported in up to 30% of cases of *S. pneumococcus meningitis* despite optimal medical management. We report a case of a 49-year-old female with no prior medical history who was admitted to the MICU from an outside hospital with meningitis. The patient initially presented to the outside facility with left ear pain for one week and headache, nausea, vomiting, and dizziness for three days. Cerebral spinal fluid studies were notable for glucose <1g, protein of 777, and a cloudy appearance consistent with bacterial meningitis. She received ceftriaxone and linezolid, then was transferred to Parkland Memorial Hospital for further management.

Following arrival to Parkland, ceftriaxone was continued and a four-day course of dexamethasone was started. Cultures grew *S. pneumococcus* sensitive to ceftriaxone. The patient initially improved and by hospital day 9 she was able to participate in physical therapy, so was transferred out of the ICU. Following transfer out of the ICU, mental status gradually deteriorated, so she was intubated for airway protection and transferred back to the MICU. Repeat lumbar puncture showed 1200 nucleated cells with 85% polymorphic nucleated cells. Cefepime, vancomycin, and metronidazole were started, but MRI brain showed new multifocal infarcts. MRA brain showed vessel wall thickening consistent with vasculitis. She was restarted on high-dose steroids but remained unarousable off all sedation and developed hydrocephalus. Following discussion with the patient's family, the patient was transitioned to comfort measures and died in hospital day 26.

Parainfectious vasculitis has long been recognized as a complication of bacterial meningitis and causes 67% of ischemic injuries associated with meningitis. Pneumococcal autolysis causes proinflammatory cytokine release, resulting in disruption of the blood-brain barrier. Case reports suggest that early re-initiation of high dose steroids and the addition of immunosuppressive therapy can halt the progression of parainfectious vasculitis, although neurologic outcomes remain poor. Currently there is minimal literature examining the outcomes of reinitiating high dose steroids after development of meningitis-associated vasculitis. This case illustrates that further research is needed in order to adequately manage meningitis-associated parainfectious vasculitis.

Poster #41

Presenter: Bryan Wilner

Authors: Bryan R. Wilner MD, Colby R. Ayers MD, Ian J. Neeland MD

Title: Is there a Link between Family History of Cardiometabolic Disease and Body Fat Profile?

Background: Body fat distribution has been implicated in the pathogenesis of cardiovascular diseases (CVD) and diabetes mellitus (DMII). The influence of a family history of cardiometabolic disease, as a surrogate for genetic risk, on fat distribution is unknown.

Methods: Participants without CVD or DMII in the Dallas Heart Study underwent assessment of family history (CVD, hypertension, DMII, stroke, or heart failure) by interview and body fat distribution by MRI and DXA. Multivariable-adjusted associations between family history and fat profile were assessed by linear regression.

Results: The study cohort (n=1,881) had a mean age 44 years and was 54% male, 55% African American, with mean BMI 29 kg/m². 81% had one or more family history factors and the mean number of factors was 1.8. Those with a family history of cardiometabolic disease had higher blood pressure, total cholesterol and LDL cholesterol (p<0.05 for all). After multivariable adjustment, a family history of DMII was significantly associated with less lower body fat but the relationships of family history with other fat depots were not significant (Table).

Conclusion: A family history of cardiometabolic disease is not independently associated with fat distribution in the general population. Family history of DMII may be associated with less lower body fat, a protective fat depot. Environmental factors may play a more important role in fat distribution, suggesting a fundamental role for lifestyle modification in the treatment of obesity.

Table. Relationship of family history of cardiometabolic disease with body fat

	Any family history of cardiometabolic disease				Family history of DMII			
	Model 1		Model 2		Model 1		Model 2	
	β	P-value	β	P-value	β	P-value	β	P-value
Visceral adipose tissue (kg)	0.06	0.01	0.02	0.26	0.06	0.01	0.01	0.36
Subcutaneous adipose tissue (kg)	0.12	<0.0001	0.01	0.46	0.09	<0.0001	0.01	0.24
Lower body fat (kg)	0.10	<0.0001	-0.01	0.51	0.04	0.09	-0.03	0.01
Liver Fat (%)	0.06	0.01	0.01	0.55	0.07	0.002	0.04	0.07

Standardized β-coefficient represents the estimated unit change in 1-standard deviation of the adipose tissue parameter per any family history of cardiometabolic disease or a family history of diabetes mellitus type II (DMII).

Model 1- unadjusted

Model 2- adjusted for age, sex, race, physical activity, smoking, BMI

Poster #42

Presenter: Timothy J Brown

Authors: Timothy J. Brown MD, Prapti A. Patel MD, Robert H. Collins Jr. MD

Title: Clonal implications of mast cell sarcoma in a patient with prior AML

Abstract:

A 61-year-old male with a history of acute myeloid leukemia (AML) in remission presented with abdominal pain. A CT of the abdomen showed a lytic lesion in the pubic ramus concerning for malignancy. A biopsy was diagnostic for mast cell sarcoma (MCS). A FoundationOne genetic panel performed on the MCS revealed IDH2 and SRSF2 mutations, and a c-KIT mutation sensitive to imatinib. A FoundationOne panel performed retrospectively on his prior AML showed a known FLT3-ITD mutation, as well as IDH2, and SRSF2 mutations. The MCS and the AML shared identical IDH2 and SRSF2 mutations, implicating a clonal relation between the malignancies. He received irradiation and daily imatinib and is without evidence of disease 21 months after diagnosis. This is the 25th reported case of mast cell sarcoma and the first to be demonstrated to be related to another neoplasm.

Poster #43

Presenter: Timothy J. Brown

Authors: Timothy J. Brown MD, Daniela Bota MD, PhD, Elizabeth Maher MD, PhD, Dawit Aregawi MD, Linda M. Liau, Paul D. Brown MD, Jan Buckner MD, Michael Weller MD, Martin J. van Den Bent MD. PhD, Mitchel S. Berger MD, Michael Glantz MD

Title: Numbers needed to treat for neurosurgical interventions in low-grade glioma - a systematic review and study-level meta-analysis

Abstract:

Background: Low-grade gliomas (LGG) account for 17-22% of all primary brain tumors. Optimal surgical management consists of optimum safe resection with the goal of complete resection. We performed a systematic review and meta-analysis to quantify the association of extent of resection with likelihood of survival, expressing our results in numbers needed to treat (NNT).

Methods: A systematic review and study-level meta-analysis to determine the association of resection with overall survival and progression-free survival in newly diagnosed, supratentorial LGG in adults was performed by querying PubMed. Data were extracted to compare gross total resection (GTR) to subtotal resection (STR) and STR to biopsy (Bx) to determine relative risks (RR) of death and progression at 2, 5, and 10 years. Data were analyzed using a random effects model. NNT were calculated from significant comparisons and rounded up to the nearest whole number. Quality of evidence was determined by American Academy of Neurology criteria.

Results: The systematic review resulted in 283 potential studies. Ultimately 29 studies were included in at least one comparison. There were no high quality (class I and II) or prospective studies discovered in the review. Comparing GTR to STR, RR with 95% confidence intervals (CI) of death at 2, 5, and 10 years, and NNT to avoid one death at 2, 5, and 10 years (GTR vs. STR) were 0.29 [0.17-0.52, $p < 0.0001$, NNT 17], 0.39 [0.29-0.51, $p < 0.00001$, NNT 6], and 0.50 [0.35-0.70, $p < 0.0001$ NNT 4]. RR and NNT for progression (GTR vs. STR) at 2, 5, and 10 years were 0.37 [0.24-0.57, $p < 0.0001$ NNT 7], 0.50 [0.39-0.64, $p < 0.0001$ NNT 4], and 0.67 [0.53-0.84, $p = 0.0005$ NNT 4]. Comparing STR to Bx, RR of death at 2, 5, and 10 years were 0.55 [0.34-0.88, $p = 0.01$ NNT 10], 0.9 [0.61-1.34], and 0.95 [0.73-1.23].

Conclusions: Increasing resection thresholds appear to be associated with improved overall and progression free survival, but the body of literature consists of low quality studies. Prospective studies are required to explore whether extent of resection matters or whether resectable tumors share a favorable biology associated with better outcome.

Poster #44

Presenter: Christina Yek

Authors: Christina Yek MD, Arjun Gupta MBBS, Julian McCreary PharmD, Tiffany Knight PharmD, Allison Stephenson PA, Kristin S. Alvarez PharmD, Mark Cooper MD

Title: A Case of Phenytoin Toxicity: Root Cause Analysis and Performance Improvement

Abstract:

Situation: A 64-year-old man with seizure disorder, chronic obstructive pulmonary disease (COPD) and traumatic T4-paraplegia presented with a COPD exacerbation. Regular medications included oral phenytoin 300mg once daily. On day 3 of hospitalization, the patient developed nystagmus and dystonic movements of his upper extremities. It was noted that an excessive dose of phenytoin (300mg three times daily) had been erroneously prescribed. Serum total phenytoin level was 68.0 mcg/mL (goal range 10-20 mcg/mL). The patient was diagnosed with iatrogenic phenytoin overdose leading to central nervous system toxicity.

Background: Medication errors are ubiquitous in the healthcare setting and can lead to adverse drug events including increased patient morbidity and mortality, increased length of hospitalization, and higher cost of care. Medications that require loading, re-dosing and/or monitoring are commonly associated with error; of these, phenytoin is a notorious cause of severe harm and medication-related fatality.

Assessment: A root cause analysis was performed to identify system-based errors underlying the event. Process and technology errors identified included delay in verification of prior-to-admission medications, multiple order entry interfaces that permitted the provider to circumvent medication reconciliation on admission, and defaulting of the computerized phenytoin order to three times daily dosing.

Recommendations/Results: Several interventions were implemented to correct identified errors: first, the phenytoin order set was adjusted to default to once daily dosing; next, education on phenytoin prescription and updated reconciliation practices was developed and disseminated to hospital staff; a new action was implemented allowing for pharmacists to order phenytoin levels when clinically indicated; finally, quarterly audits were initiated to ensure use of correct templates when performing medication histories. Additional areas for improvement at the organizational level were recognized and will require targeted efforts for future improvement to reduce the incidence of medication-related adverse drug events in Parkland Hospital.

Poster #45

Presenter: Arjun Gupta

Authors: Arjun Gupta MBBS, Raseen Tariq, Siddharth Singh, Darrell S. Pardi, Sahil Khanna

Title: Gastric Acid Suppression and Recurrent *Clostridium difficile* Infection: A Systematic Review and Meta-Analysis

Abstract:

Importance: Gastric acid suppression has been associated with an increased risk of primary *Clostridium difficile* infection, but the risk of recurrent *C difficile* infection in patients taking acid suppression medications is unclear.

Objective: We performed a systematic review and meta-analysis to evaluate the association between acid suppression medications and recurrent *C difficile* infection.

Data Sources: We searched MEDLINE, Embase, and Web of Science up to September 2015 for studies assessing the association between gastric acid suppression exposure and recurrent *C difficile* infection.

Study Selection: We included case-control studies, cohort studies, or clinical trials that included patients with *C difficile* infection who did and did not receive gastric acid suppression therapy and that evaluated for recurrent *C difficile* infection, with no restriction on study setting (inpatient or outpatient).

Data Extraction and Synthesis: The Newcastle-Ottawa scale was used to assess the methodologic quality of included studies. Data were independently abstracted to a predetermined collection form by 2 investigators. Summary odds ratio estimates with 95% CIs were calculated using the random-effects model and MetaXL version 5.1 software to calculate the pooled effect size of studies reporting multivariate analyses.

Main Outcomes and Measures: We assessed the risk of recurrent infection in patients with *C difficile* infection and its association with gastric acid suppression medication use. Results: Sixteen observational studies were included, with 1,525 cases of recurrent *C difficile* infection among 7,703 patients with *C difficile* infection (19.8%). The rate of recurrent *C difficile* infection in patients with acid suppression was 22.1%, compared with 17.3% in patients without acid suppression, which indicated an increased risk by meta-analysis (odds ratio, 1.52; 95% CI, 1.20-1.94; P<.001). There was significant heterogeneity among the studies, with an I² of 64%. Subgroup analyses of studies adjusting for age and potential confounders confirmed an increased risk of recurrent *C difficile* infection with acid suppression (odds ratio, 1.38; 95% CI, 1.08-1.76).

Conclusion and Relevance: Meta-analyses of existing observational studies suggest that patients prescribed acid suppression medications may be at increased risk for recurrent *C difficile* infection. These data should be interpreted with caution because they may be confounded due to the observational nature of the individual studies. It may be reasonable to re-evaluate the need for these medications in patients with *C difficile* infection.

Poster #46

Presenter: Arjun Gupta

Authors: Arjun Gupta MBBS, Tyler Stewart, Ying Dong PhD, Zain Rahimi, Tony Paul, Kimberli Smith, Chad Rethorst PhD, Muhammad S. Beg MD

Title: Feasibility of wearable physical activity monitors in cancer patients (PAMCaP)

Abstract:

Background: Wearable physical activity monitors (PAMs) provide a degree of functional assessment not possible with prior clinical instruments. Subjective assessments of functional status are prone to inaccuracy and current objective assessment techniques are limited to the research setting. The relevance of physical activity monitors (PAMs) to measure functional status in cancer patients is unclear. The feasibility of using these devices in cancer patients is not known.

Methods: This is a prospective pilot trial of a commercially available PAM in cancer patients. Patients with Eastern Cooperative Group performance status (ECOG PS) 0-2 receiving systemic therapy at an NCI Designated Comprehensive Cancer Center were enrolled. (NCT02583815). The primary objective was to determine feasibility of PAM use, defined as device use of more than 50% of the study observation period. Secondary objectives were to correlate PAM-reported measures: median, minimum and maximum steps/day, minutes of activity/day, (light/ fairly active/ very active); with 1) clinician assessed ECOG PS and 2) quality of life tool scores (FACT-G, QIDS, PQSI and BFI). Patient experience with wearable PAMs was assessed at the end of study.

Results: We enrolled 32 patients: median age = 56 years (range 23-72), female=67%, and white=78%. Most patients had gastrointestinal (52%) and breast (19%) primaries. Clinician assessed PS was ECOG 0 in 56%, 1 in 37% and 2 in 7%. Majority of patients (81%) met the primary end point. Mean PAM measured steps for ECOG 0 was 5911 steps/d, ECOG 1 was 1890 steps/d and ECOG 2 was 845 steps/d ($p=0.002$). Minimum steps/day correlated with BFI ($r=-0.56$, $p<.01$), FACT-G ($r=0.45$, $p 0.01$) and QIDS (no vs mild vs moderate depression, $p 0.01$). Patients reported a positive experience with the devices (74%).

Conclusions: Wearable PAMs are a feasible tool to measure physical activity in cancer patients receiving systemic therapy. PAM derived measures correlate with clinician assessments of performance status. Future work should develop methods to systematically incorporate PAMs in oncology clinical trials and practice.

Poster #47

Presenter: Arjun Gupta

Authors: Arjun Gupta MBBS, Udayan Shah MD, Htet Khine MD, Travis Vandergriff MD, Thomas Froehlich MD

Title: Antiphospholipid syndrome associated with combined immune checkpoint inhibitor therapy

Abstract:

Immunotherapy is fast emerging as an effective anti-neoplastic treatment, alternative to chemotherapy for a number of malignancies. Anti-CTLA-4 agents (ipilimumab) and anti-PD1 agents (nivolumab, pembrolizumab) are already approved for use in metastatic melanoma and non-small cell lung cancer, and their use is being investigated in multiple other cancers. Combination therapy has been shown to be more efficacious than single agent immune checkpoint inhibitor therapy. In contrast to the direct action of traditional cytotoxic antineoplastic agents, these agents result in augmented host T-cell immunity and a sustained immune response against tumor cells due to loss of tolerance. This immune dysregulation also leads to a systemic loss of tolerance and has been associated with the development of several immune-related adverse effects (irAEs), including dermatitis, pneumonitis, endocrinopathies, uveitis, hepatitis, myocarditis and colitis. Combined immunotherapy is associated with higher rates of grade 3-4 adverse events (>50%) and need for treatment discontinuation in 36.4% patients, and these are largely due to diarrhea, fatigue and pruritis.

Poster #48

Presenter: Christina Yek

Authors: Christina Yek MD, Nicholas S. Hendren MD, Jason Mull MD, James B. Cutrell MD

Title: Disseminated Histoplasmosis Presenting as Multiple Oral Ulcers

Abstract:

Background: Oral ulcers can be a protean and often vexing clinical presentation due to limited clinician exposure. The etiology of oral ulcers represents a broad differential, ranging from isolated oral disease to severe systemic disease. We present a case of unremitting oral ulcers in a HIV-infected patient.

Case Description: A 61-year-old female with a history of advanced HIV disease and chronic hepatitis B presented with painful oral ulcers. Review of systems was unremarkable. On admission, vital signs were normal. Examination of the oropharynx revealed oral thrush and multiple clean-based ulcers on the tongue and hard palate. Pulmonary, cardiac, abdominal, neurological, skin, and musculoskeletal exams were unremarkable. Laboratory analysis was notable for CD4 T-cell count of 88 cells/mL³ and transaminitis. A biopsy of the tongue lesions was obtained that showed multiple histiocytes containing intracellular yeast forms, consistent with a diagnosis of disseminated histoplasmosis presenting as oral ulcers.

Discussion: Oral ulcers are most commonly caused by mechanical trauma. Secondary ulcers may represent infectious etiologies (e.g. herpes simplex virus, cytomegalovirus, coxsackievirus, secondary syphilis, histoplasmosis), malignancy, and autoimmune disease (e.g. vasculitis, lichen planus, pemphigus vulgaris). Given the broad differential, any unexplained oral ulcers that do not resolve within two weeks should be considered for biopsy. Oral ulcers are a common feature of disseminated histoplasmosis, occurring in 25-45% of cases. Other manifestations of the disease include pulmonary disease, hepatosplenomegaly, lymphadenopathy, and skin lesions. Direct visualization of organisms in biopsied tissue enables rapid and accurate diagnosis; alternatively, positive histoplasma plasma and/or urine antigen levels are suggestive of active infection. First-line treatment involves at least 2 weeks of liposomal amphotericin 3 mg/kg daily, followed by oral itraconazole (200 mg three times daily for 3 days, then 200 mg twice daily) for 1 year.

Outcome: The patient was started on amphotericin, with which her oral lesions improved significantly. She was subsequently discharged on oral itraconazole. She continues to follow in clinic and remains asymptomatic with no disease recurrence five months after diagnosis.

Poster #49

Presenter: Nicholas Hendren

Authors: Nicholas S. Hendren MD, Timothy J. Brown MD, Thalvinder Sangha MD

Title: An Everlasting Appetite: Insulinoma-Induced Hypoglycemia

Abstract:

A 53-year-old woman presented with two years of worsening episodic tremors, sweating, weight gain and confusion that rapidly improved with juice (Whipple's triad). This led to nearly constant snacking. Labs revealed elevated levels of serum insulin, serum proinsulin and serum C-peptide. Computed tomography (CT) of the abdomen revealed a pancreatic tail mass and numerous masses in the liver consistent with malignancy. A liver biopsy demonstrated a well-differentiated neuroendocrine tumor. Given her symptoms, an elevated endogenous insulin level and abdominal masses, she was diagnosed with a metastatic insulinoma. The burden of her disease precluded surgical management, necessitating medical management. Her blood glucoses were initially stabilized with subcutaneous octreotide injections and diazoxide tablets. At endocrinology follow-up, she was transitioned to monotherapy with pasireotide long-acting release 60 mg subcutaneous monthly injections which provided sustained control of her blood sugars at clinical follow-up.

Insulinoma-induced hypoglycemia is a rare, but important condition that should be considered in the differential of hypoglycemia that is readily identified classically by Whipple's triad. Curative treatment of these tumors is usually surgical, with limited medical therapy available for those who are not surgical candidates. Insulinoma-induced hypoglycemia treated with long-acting pasireotide has rarely been described in the literature. Our case demonstrates a case of symptomatic hypoglycemia managed with monthly pasireotide injections. This clinical case supports further investigation of pasireotide for management of symptomatic hypoglycemia due to an insulinoma.

Poster #50

Presenter: Nicholas Hendren

Authors: Nicholas Hendren MD, Senthil Sukumar MD, Craig Glazer MD

Title: *Vibrio vulnificus* sepsis due to a contaminated tattoo

Abstract:

We present a case of *Vibrio vulnificus* sepsis and cellulitis in a patient with chronic liver disease that occurred after obtaining a leg tattoo with subsequent sea water exposure in the Gulf of Mexico. Initial suspicion for *Vibrio vulnificus* was high and he was started on empiric doxycycline and ceftriaxone at admission. Blood and wound cultures grew oxidase positive and comma shaped gram negative rods ultimately confirmed to be *Vibrio vulnificus*. Despite aggressive initial treatment the patient developed septic shock and died. This case highlights the association of chronic liver disease and high mortality associated with infections of *Vibrio vulnificus*.

Vibrio vulnificus is classically associated with sepsis and bullous skin lesions in patients with chronic liver disease after exposure to seawater or ingestion of raw oysters. Healthy patients appear to account for < 5% of all reported cases of *Vibrio vulnificus* sepsis in the United States. All patients with chronic liver disease and hemochromatosis should be instructed to avoid raw oyster ingestion and avoid swimming in seawater with open skin wounds. A high index of suspicion is imperative as empiric treatment with doxycycline is not routinely initiated for sepsis. The CDC recommends dual treatment with doxycycline and a third generation cephalosporin for 7-14 days in addition to surgical debridement for soft tissue infections. Symptoms can rapidly progress to septic shock during the first twelve hours of presentation which represents a very poor prognosis. The mortality rate for sepsis due to *Vibrio vulnificus* is high with reported rates of 50-60% in all patients. In sum, health providers should remain vigilant for *Vibrio vulnificus* infections in patients with chronic liver disease and raw oyster ingestion or seawater exposure.

Poster #51

Presenter: Nicholas Hendren

Authors: Nicholas S. Hendren MD, Joseph A. Moore MD, Seema Jabbar MD, Siyareh Rambally MD

Title: Acute Hepatitis B Associated Aplastic Anemia

Abstract:

Hepatitis-associated aplastic anemia is a rare variant of aplastic anemia in which bone marrow failure follows an acute episode of hepatitis. Most episodes of hepatitis preceding aplastic anemia are caused by non-hepatitis B and C viruses. A previously healthy 44-year-old woman presented with three days of worsening petechial rash, epistaxis, malaise and fatigue. Skin exam was notable for non-blanching, non-palpable petechial rash involving the palate, torso and extremities. Admission labs revealed pancytopenia with reticulocytopenia and elevated liver enzyme tests with a hepatocellular injury pattern. Hepatitis B surface antigen and antibody tests were consistent with acute hepatitis B virus (HBV) infection. HBV polymerase chain reaction returned with >170 million IU/ mL confirming the diagnosis of acute hepatitis B infection. A peripheral blood smear confirmed pancytopenia without overt dysplasia or blasts. Bone marrow biopsy demonstrated a profoundly hypocellular bone marrow consistent with aplastic anemia. As such, she was diagnosed with hepatitis-associated aplastic anemia due to acute HBV infection. Our patient was started on tenofovir for the HBV infection, as well as immunosuppressive therapy with anti-thymocyte globulin (ATG) and cyclosporine for the aplastic anemia. She had a rapid complete hematologic response and remains on maintenance immunosuppression with cyclosporine. In sum, aplastic anemia is a rare condition defined by pancytopenia with hypocellular bone marrow replaced with adipose tissue and the absence of myelodysplasia. Hepatitis-associated aplastic anemia is a rare variant of aplastic anemia in which bone marrow failure follows an acute bout of hepatitis. Aplastic anemia complicating acute hepatitis B infection is extremely uncommon. To the best of our knowledge, only five other cases have been reported, all but one prior to the availability of hepatitis B antiviral medications. We report a case of acute hepatitis B associated aplastic anemia successfully treated with a combination of antiviral medication for hepatitis B and immunosuppressive therapy for aplastic anemia.

Poster #52

Presenter: Saroja Bangaru

Authors: Saroja Bangaru MD, Dwain Thiele MD, Jayaprakash Sreenarasimhaiah MD, Deepak Agrawal MD

Title: Marked Elevation of Transaminases and Bilirubin in Choledocholithiasis

Abstract:

Background: Choledocholithiasis is typically associated with mild to moderate elevations in liver tests (LFTs). However, very high serum levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) have been reported in small case series. Our study aimed to describe the incidence of transaminases >1000U/L and total bilirubin >10mg/dl in patients with choledocholithiasis.

Methods: A retrospective chart review was performed of patients undergoing ERCP for choledocholithiasis at our tertiary referral hospital from July 2007 to June 2014. The following information was collected: demographic information, findings of abdominal ultrasound, CT and MRI, and LFTs at various points during admission. Patients with pre-procedural AST and/or ALT > 1000 U/L or total bilirubin > 10 mg/dL were identified. Patients with biliary stricture due to any cause, hepatobiliary or pancreatic malignancy, and active viral hepatitis were excluded.

Results: Choledocholithiasis was present on ERCP in 740 patients. Of these, 45 patients (6.1%) had pre-procedural AST or ALT > 1000 and 35 patients (4.7%) had pre-procedural total bilirubin > 10 mg/dl. AST, ALT and bilirubin decreased dramatically in 1- 10 days, in all patients after ERCP. The mean decrease in AST was 79% +/- 3%, ALT 56% +/- 3% and bilirubin 64% +/- 4%. Only 1 patient had both ALT > 1000 U/L and total bilirubin > 10 mg/dL. Compared to group with elevated bilirubin, the group with elevated transaminases had significantly more females (93% vs. 43%), had smaller CBD (8.5 mm vs. 10.6 mm) and more likely to have had cholecystectomy (40% vs. 14%). There was no significant difference in incidence of fatty liver, hepatomegaly, LDH level and racial distribution. Most patients with dramatic elevations in LFTs underwent extra tests: 36 patients had a chronic liver disease work-up, 22 patients had CT or MRI scans and hepatology was consulted in 6 patients. The average length of hospitalization for these patients was 5.4 +/- 0.5 days, which was significantly more compared to other patients with choledocholithiasis.

Conclusion: Very high transaminases and bilirubin can be seen in up to 11 % of patients with choledocholithiasis but they always decrease rapidly. Awareness of this can decrease unnecessary work-up to look for other causes of elevated liver tests in these patients.

Poster #53

Presenter: Saroja Bangaru

Authors: Saroja Bangaru MD, Amanda Strickland MD, Stephen Dickson MD, Nainesh Shah MD

Title: An Elusive Diagnosis Revealed with Death

Abstract:

Case: A 45-year-old man with a history of AIDS (CD4 34) who recently re-started antiretroviral therapy after prolonged noncompliance presented with fever (40C), diarrhea and was admitted for septic shock. His labwork was notable for hemoglobin 7.9, leukocyte count 3.6, platelets 126, and ferritin 2500. Infectious work-up including bacterial, fungal, and acid fast bacilli blood cultures; sputum, urine, and stool studies; and cytomegalovirus (CMV) PCR was negative. He improved initially with fluids, empiric antibiotics, and steroids but his shock recurred two weeks later and was associated with rapidly progressive somnolence and transfusion-dependent cytopenias. A more extensive work-up was negative for EBV, disseminated HSV, parvovirus, HHV6, tuberculosis, disseminated histoplasmosis, cryptococcus, brucellosis, and bartonella. Computed tomography of chest, abdomen, and pelvis revealed hepatosplenomegaly and diffuse lymphadenopathy. He was started on empiric treatment for disseminated mycobacterium avium-intracellulare. Hemophagocytic lymphohistiocytosis (HLH) was considered given persistent fever, splenomegaly, low fibrinogen (106 mg/dL), high ferritin (7125 ng/mL), and severely elevated IL-2 receptor level (18,890 pg/mL (normal = <1033)). Bone marrow biopsy did not show hemophagocytosis but was unable to rule out HLH, so high-dose dexamethasone was initiated to treat HLH. The patient did not improve, though, and his family elected for comfort care. He died two days later. Postmortem exam via autopsy revealed profound hemophagocytosis in the bone marrow, spleen and lymph nodes, affirming a diagnosis of HLH. It also demonstrated pulmonary Kaposi's sarcoma (KS) with scattered HHV-8 positive cells. HHV-8 serum PCR resulted 210,000 DNA copies/mL. The postmortem diagnosis was HLH secondary to HHV-8 and associated KS in the setting of advanced AIDS.

Impact: This case brings to attention HLH, a rare hematologic diagnosis that should be on the internist's early differential for a decompensating patient with poorly controlled AIDS. This patient's diagnosis adds to only a few reported cases of HHV8-associated HLH in the HIV population

Discussion: In HIV/AIDS patients, HLH is understood to be driven by an underlying infection or malignancy. The mainstay of management of secondary HLH is treatment of the underlying cause, but patients with HHV-8-associated HLH have benefited from steroids / chemotherapy per HLH treatment protocol. Autopsy rates have declined more than 50 percent over 4 decades, but in our case, HHV-8 positivity, KS, and HLH were all postmortem diagnoses, illustrating the power of autopsy to provide diagnoses that are complicated and can evade clinical evaluation. Thus it maintains value in modern clinical medicine. As providers of end of life care and in an effort to advance medical knowledge, it is imperative for internists to discuss autopsy with patients and families.

Poster #54

Presenter: Wally Omar

Authors: Wally Omar MD, Ambarish Pandey MD, Rohan Khera MD, Akhil Parashar, MD

Title: Implantable Cardioverter Defibrillators for the Prevention of Mortality in Patients with Non-ischemic Cardiomyopathy: A Meta-analysis of Randomized Controlled Trials

Abstract:

Background: While ICD therapy improves survival in heart failure patients with ischemic cardiomyopathy, its usefulness in those with non-ischemic cardiomyopathy (NICM) is less well established. We sought to determine whether ICD therapy reduces all-cause mortality in patients with NICM using updated medical literature by performing a study level meta-analysis.

Methods: A comprehensive computerized literature search of medical databases was conducted. Randomized controlled trials (RCT) for primary prevention were included in the final analysis to minimize heterogeneity and obtain robust pooled estimates. Primary efficacy outcome was all-cause mortality among patients with NICM randomized to ICD versus optimal therapy in primary prevention studies. We used random effects modeling to conduct a meta-analysis of the primary outcome from included studies.

Results: Six studies with enrolling 2970 NICM patients were identified. The pooled analysis revealed a significant reduction in all-cause mortality (figure 1) among patients randomized to ICD versus optimal therapy without ICD (risk ratio: 0.79; 95% confidence interval: 0.66-0.91; P = 0.003). In meta-regression analysis, there was no association between proportional use of beta-blockers or ACE-inhibitors and risk-reduction with ICD use.

Conclusion: ICD therapy significantly reduces mortality in patients with NICM in the pooled analysis of primary prevention randomized trials.

Poster #55

Presenter: Wally Omar

Authors: Wally Omar MD, Satyam Sarma MD, Erin Howden PhD, Benjamin D. Levine MD

Title: The Effect of High Intensity Aerobic Exercise Training over Two Years on Biologic Aortic Age

Abstract:

Introduction: Lifelong exercise training maintains youthful compliance of the central arteries. The exact mechanism by which lifelong aerobic fitness confers cardiovascular benefit is unknown. Aortic age, a measure of the intrinsic stiffening of the central arteries, is one means by which changes in arterial function can be quantified. Prior training studies in seniors have shown minimal improvement in biologic aortic age. Middle age may represent a life period in which vascular plasticity still exists. . We hypothesized aortic age would decrease after a 2-year high intensity aerobic training program (HIAT) in previously sedentary middle age adults.

Methods: Sixty one sedentary, healthy middle-aged subjects were randomized to either yoga or HIAT (2-3 moderate aerobic exercise sessions/week and 1-2 '4x4' aerobic interval sessions/week) for 2 years. Four subjects in the yoga group and 5 in the exercise group withdrew prior to completion of the study. Aortic age was not analyzable in 2 subjects. Aortic age was calculated from Modelflow reconstruction of the finger blood pressure waveform (BMEYE) and stroke volume (acetylene foreign gas rebreathing method) at baseline and post-intervention .

Results: Adherence to prescribed exercise sessions in the HAT group over 2 years was 90%. After 2 years, aortic age increased with a mean of 5.7 years in the yoga group, and remained relatively unchanged in the HAT group ($p < 0.19$)

Conclusions: High intensity aerobic training over 2 years slowed but did not significantly decrease aortic age in sedentary adults. These results suggest that while reversal may not be achieved with exercise, retarding further aortic aging may be possible .

Poster #56

Presenter: Wally Omar

Authors: Wally Omar MD, Joseph Wang MD, Shah Ali MD

Title: When Eosinophils Attack: A Rare Case of Loeffler Endocarditis

Abstract:

Presentation: A 57-year-old Vietnamese woman with a history of mild persistent asthma, on no medications at home, presented to the Emergency Department with chest pain. She noted three weeks of flu like symptoms prior to presentation with a subsequent development of squeezing chest pain. Given the fact that she had an elevated troponin and inferolateral T wave inversions, the patient was taken for a left heart catheterization, and was found to have non-obstructive coronary artery disease. Her transthoracic echocardiogram, however, showed a 'spade sign', a finding that is characteristic of an apical variant of hypertrophic cardiomyopathy. As such, the patient was further evaluated with a cardiac MRI, which was concerning for infiltrative disease, as she had circumferential delayed hyper-enhancement throughout the left ventricle wall, most prominently towards the apical segments. In addition, she was found to have multiple left ventricular thrombi.

Diagnosis: Given the above findings, as well as the patient's history of asthma and eosinophilia on her CBC, there was a strong concern for Loeffler Endocarditis (LE). The patient underwent a right ventricular biopsy, which showed endocardial tissue with numerous eosinophils, lymphocytes, plasma cells, and rare neutrophils, confirming that she had eosinophilic endomyocarditis, better known as Loeffler Endocarditis.

After her diagnosis was confirmed, the etiology of her hypereosinophilic syndrome was investigated. As previously stated, the patient had elevated IgE levels with multiple CBCs demonstrating eosinophilia. As such, there was continued concern for Churg Strauss Syndrome. While awaiting the results of her P-ANCA and MPO antibody tests, she was ruled out for HIV, Strongyloidiasis and helminths, malignancies including lymphoma, as well as DRESS. After a positive P-ANCA and MPO titer, she was diagnosed with Eosinophilic Granulomatosis with Polyangiitis, formerly known as Churg Strauss Syndrome.

Treatment: The patient was started on corticosteroids with Prednisone 40 mg daily during her hospitalization, and showed immediate clinical and laboratory response, with eradication of her eosinophilia. She was started on cyclophosphamide for induction therapy as treatment, with a slow taper of corticosteroids. Three months into treatment, the patient remained in remission, but was unable to tolerate the side effects of cytoxan therapy, as she had persistent nausea/vomiting, weight loss, hair loss, and multiple infections. Given this intolerance, she was switched over to Azathioprine.

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Results: Today, the patient remains symptom free from her EGPA, and laboratory studies show no evidence of eosinophilia 9 months after her initial presentation. We plan to continue her on azathioprine to keep her in remission.

Background: Löffler Endocarditis is a rare form of endocarditis or endomyocarditis caused by eosinophilic infiltration into the endo/myocardium, first described in 1936. The etiology of this disease varies, but remains congruent with the etiology of Hypereosinophilic Syndromes (HES) in general, namely parasitic infections, EPGA, fungal infection, malignancies, mastocytosis, and rarely, hypoadrenalism. The treatment for the condition depends on the etiology, however given the paucity of data for this specific complication of HES, there is no definitive prognosis described for LE. If left untreated, patients can rapidly develop myocardial fibrosis and restrictive cardiomyopathy, with a median survival of 2-5 years.

Poster #57

Presenter: Tien-Chun Chen

Authors: Tien-Chun Chen MD, Alvin Chandra MD, Zhouwen Tang MD

Title: Risk of Variceal Hemorrhage in Cirrhotic Patients Undergoing Transesophageal Echocardiography

Abstract:

Background and Aim: Transesophageal echocardiography (TEE) has become a widespread clinical tool for a variety of clinical indications. The role an esophagogastroduodenoscopy (EGD) prior to TEE for variceal screening and surveillance to prevent potential variceal disruption and variceal bleeding during TEE is unknown. Although the American Society of Anesthesiologists (ASA) and American Society of Echocardiography (ASE) recommends expert consultation prior to TEE in these patients, it remains unclear whether gastroesophageal varices arising from chronic liver disease and cirrhosis constitute as contraindication to TEE. The aim of this study was to retrospectively characterize the frequency and type(s) of gastrointestinal complications in patients with cirrhosis who undergo transesophageal echocardiography, and compare rates of TEE complications in those who received up to date variceal screening versus those who have not prior to TEE.

Methods: We analyzed data from 199 cirrhotic patients who underwent TEE between January 2010 to April 2016. 77 of 203 patients received up to date endoscopic variceal screening and surveillance per American Association for the Study of Liver Diseases (AASLD) guidelines prior to TEE. Rates of post-procedural bleeding, hospital admission, and cardiopulmonary complications were evaluated.

Results: The rates of immediate adverse events, immediate GI bleeding, delayed GI bleeding and mortality related to GI bleeding did not differ between those who received up to date variceal screening versus those who did not.

Conclusion: Completion of elective variceal screening/surveillance prior to TEE does not appear to impact rate(s) of post-TEE variceal bleeding, hospital admission, and overall mortality.

Poster #58

Presenter: Sarah Kiani

Authors: Sarah Kiani, An Lu, Christi Parker, Hetal Patel MD

Title: Severe prothrombin time derangement; rat poisoning or vitamin K deficiency bleeding?

Abstract:

Summary: We describe the case of an adult with end stage renal disease and chronic pancreatitis who was admitted for the management of gastrointestinal bleeding in the setting of severe acquired coagulopathy after Doxycycline and Rifampin use.

Case description: 66-year-old male presented to the hospital with three weeks of nausea and vomiting, dark stool and two episodes of hematemesis. Past medical history was notable for end stage renal and chronic pancreatitis. About 3 weeks prior to presentation, patient was prescribed Doxycycline and Rifampin for a superficial infection of arteriovenous graft. There was no history of anticoagulation use. Physical examination was notable for multiple scattered bruises on limbs. Abdomen was soft and non-tender.

Serum hemoglobin was 7.0 g/dl, down from 9.1 g/dl two days ago. Platelet and white blood cell count was normal. Serum prothrombin time (PT) >120s, International Normalized Ratio (INR) >12 and partial thromboplastin time (PTT) 83.9s in comparison to normal levels three months ago.

Factor VII activity was 2% and Factor II assay was 3%. Fat soluble vitamin deficiency was noted and serum warfarin level was undetectable.

Admitted to the Intensive Care Unit and received prothrombin complex concentrate, vitamin K, desmopressin and packed red blood cells. Esophagogastroduodenoscopy was consistent with doxycycline induced esophagitis with nonbleeding ulcers in esophagus and duodenum.

Rifampin and doxycycline were discontinued. Fat soluble vitamin supplementation was started and pancreatic enzyme dose increased. At 1 month follow-up, nausea was improved and there was no further evidence of bleeding. The patient's hemoglobin was stable and PT/INR & PTT were within the normal range.

Discussion: Vitamin K is absorbed via two pathways: dietary phylloquinone is absorbed from the small bowel and menaquinone is bacterially synthesized. Coagulopathy can result with any cause of fat malabsorption or eradication of intestinal microflora. The coagulation abnormalities caused by vitamin K deficiency are manifested as prolonged PT/INR and in severe deficiency, prolonged PTT.

For our patient, multiple factors contributed to gastrointestinal bleeding. He likely had subclinical vitamin K deficiency due to end stage renal disease and chronic pancreatitis. This may have been precipitated in the setting of Rifampin and Doxycycline use. Rifampin is known to interact with Warfarin due to its effects on vitamin K metabolism.

However, the degree of coagulopathy seen in this case has not been described in literature in the absence of warfarin use. Further research is warranted to better understand the pathophysiology of this process. Until then, we recommend antibiotics that effect vitamin K metabolism, particularly Rifampin, should be used with caution in patients predisposed to vitamin K deficiency.

Presenter: Ayad Alkhatib

Authors: Saira Bilal, Ayad Alkhatib, Elizabeth Solow MD, Sanjeeva Kavla

Title: Segmental Arterial Mediolyis: A rising entity in vasculitis mimics

Abstract:

Segmental Arterial Mediolyis is a non-inflammatory, non-atherosclerotic, non-immune vasculopathy involving medium to large vessels, characterized by dissecting aneurysms and stenosis with resultant ischemic and hemorrhagic manifestations. First described by Salvin and Gonzalez- Vitalea in 1976 with an unclear etiology. This condition is an important mimicker of vasculitis with one hypothesis describing repeated vasoconstrictive stimuli causing degeneration of smooth muscles in the media as a possible cause. According to a recent systemic review, about 101 cases of SAM have been described in literature between 1976 to 2015. Here we describe retrospectively 4 cases of Segmental Arterial Mediolyis diagnosed between 2013 to 2016 at University of Texas Southwestern Medical Center.

There are two primary goals of this retrospective study. One is to evaluate those 4 cases with regard to treatment, follow up, new lesions rates, and complication rates. Second primary goal is to educate internists, rheumatologists, and radiologists about this mimicker of vasculitis; as a correct diagnosis is essential for proper management and treatment, which would be aspirin and optimal BP control in these cases rather than immunosuppression.

Poster #60

Presenter: Justin Chen

Authors: Justin R. Chen MD, Scott A. Tarver PharmD, Kristin S. Alvarez PharmD, Chi Nguyen, David A. Khan MD

Title: Reflexive Penicillin Allergy Testing with In-Hospital Aztreonam Use

Abstract:

Rationale: Aztreonam is considered safe for penicillin-allergic patients. However, most patients reporting penicillin allergies are tolerant, leading to unnecessary use of this expensive antibiotic. We present an initiative to bundle penicillin allergy testing with inpatient aztreonam orders.

Methods: An electronic panel was created linking penicillin allergy consultations with aztreonam orders. Providers could retain or remove the request (i.e. no penicillin allergy) at their discretion. Consults were reviewed on weekdays by an allergy-trained clinical pharmacist who performed inpatient penicillin skin testing and challenge. Patients with negative tests had their allergies removed from the record.

Results: Seventy consultations were placed over an 8 month period for aztreonam recipients reporting penicillin allergy. Fifty-seven requests occurred while the patient was in the emergency department. Twenty-one (30%) were tested, all of whom were negative and subsequently cleared to use penicillin. The median time from admission to test was 1.05 days [IQR 0.90-3.43], reduced from 3.69 days [IQR 1.39-6.95] for 22 patients receiving aztreonam in the 15 months prior ($p=0.014$). The reasons for not testing included antihistamine use (27%), discharge before being seen (19%), mental status preventing consent (14%), severe cardiopulmonary comorbidity (6%) and patient refusal (4%). Patients testing negative then accumulated 46.8 inpatient days of penicillin and 25 days of cephalosporins with direct antibiotic costs of \$573.64 and \$138.13, respectively and totaling \$711.71. In contrast, an identical duration of aztreonam 1-2g per dose costs \$4,305.35 to \$9,290.61, a projected savings of 84-92% or \$171.12-\$402.52 per patient.

Conclusions: Coupling allergy testing with orders of high-cost aztreonam facilitates early awareness and removal of inaccurate penicillin allergy diagnoses. This decreases superfluous antibiotic use and financially benefits healthcare institutions.

Poster #61

Presenter: L. Parker Gregg

Authors: L. Parker Gregg MD, Xilong Li PhD, Beverley Adams-Huet MS;
James de Lemos MD, S. Susan Hedayati MD, MHS

Title: Troponin T, BNP, and NT-pro-BNP improve mortality and cardiovascular risk prediction in chronic kidney disease

Abstract:

Background: Few studies explored whether cardiac biomarkers add prognostic information to traditional cardiovascular (CV) risk factors in non-dialysis chronic kidney disease (CKD) patients.

Methods: We studied 3,218 participants of the Dallas Heart Study, a multiethnic community-based cohort with median 12.5-year follow-up, of whom 279 had CKD (eGFR<60 mL/min/1.73m² or albuminuria of ≥17 mg/g in men or ≥25 in women). We compared a base model of traditional risk factors (age, sex, race, diabetes, hypertension, smoking, hyperlipidemia, and HDL cholesterol) alone vs. with addition of high sensitivity cardiac troponin T (TnT) ≥3 ng/L, brain natriuretic peptide (BNP) and N-terminal-pro-BNP (NT-pro-BNP) ≥75th percentile for sex for prediction of death or CV death/event (myocardial infarction, stroke, CV revascularization, or hospitalization for heart failure or atrial fibrillation). Cox proportional hazards regression assessed associations between biomarkers and outcomes. Likelihood ratio tests assessed the prognostic improvement of nested models attained with the addition of one, then two biomarkers to the base model.

Results: The cohort was 52% Blacks, 29% Caucasians, 17% Hispanics, and 2% other races. Proportions with stages 1, 2, 3, and 4-5 CKD were 50, 26, 20, and 3%. There were 296 deaths and 218 CV deaths/events. Of the non-CKD group 7% died and 6% had CV death/event vs. 32% and 30% of the CKD group, P<.001 for both. There was a significant BNPxCKD interaction for death such that the aHR was intensified and significant in CKD but not significant in the non-CKD group. CKD also modified associations of BNP and TnT with CV death/event, with stronger associations in CKD. Addition of BNP or NT-pro-BNP to the base model improved prediction for death, and addition of any cardiac biomarker improved discrimination for CV death/event in the CKD group. The C-statistic (95% CI) for all-cause death in the CKD group was .71 (.66, .76) for the base model, and improved to .75 (.70, .80) when adding both TnT and NT-pro-BNP, P<.05. For CV death/event in CKD, the C-statistic improved from .71 (.65, .77) for the base model to .78 (.73, .83) with the addition of TnT and NT-pro-BNP, P<.05.

Conclusions: TnT, BNP, and NT-pro-BNP provide independent prognostic information in CKD, with stronger associations for BNP and TnT in CKD than in non-CKD. Cardiac biomarkers, though commonly elevated in CKD, add prognostic information to that obtained from traditional CV risk factors alone in CKD patients.

Poster #62

Presenter: Carlos Patrick Cardenas

Authors: Carlos Cardenas MD, Mark Weinrich MD, Jake Hutto MD, Catherine Chen MD

Title: A Case of Serpentine Envenomation and Ischemic Bowel

Abstract:

Case Report: In the United States (U.S.) there are approximately 5,000 snake bites per year with a mortality rate of 0.06%. Successful treatment requires prompt definitive medical evaluation and timely administration of antivenom when indicated. Here, we describe a case of a 51-year-old male who suffered a poisonous snakebite leading to circulatory shock, acute renal failure, severe coagulopathy, and ischemic bowel requiring bowel resection.

Description: A 51-year-old male was bitten by an unknown species of snake on the left ankle while lighting fireworks in rural Texas. He quickly developed nausea and numbness of the left leg that progressed to confusion and unresponsiveness while en route to an outside hospital. On presentation he was given 3 units of Ovine polyvalent Crotalinae immune Fab (Cro-Fab), the antivenom commercially available in the U.S., without initial improvement, so he was intubated and transferred to a tertiary care hospital. On arrival the patient had a pulseless electrical activity arrest with return of spontaneous circulation after two rounds of cardiopulmonary resuscitation. Physical exam was significant for cool and mottled extremities, epistaxis, distended and tympanic abdomen with decreased bowel sounds, and a small left ankle snake bite wound without surrounding erythema or evidence of compartment syndrome. Labs were consistent with lactic acidosis, acute renal failure, and severe coagulopathy that worsened despite adequate fluid resuscitation, antibiotics, continuous renal replacement therapy, and the administration of 6 more units of Cro-fab. A computed tomography of the abdomen showed pneumatosis in the small bowel and left colon. An emergent exploratory laparotomy revealed transmural ischemic necrosis of the small and large bowel for which a right hemicolectomy and small bowel resection were performed. He received a total of 33 units of Cro-fab during the first 24 hours with resolution of coagulopathy and lactic acidosis. He ultimately survived and was discharged to an inpatient rehabilitation center on hemodialysis after 25 days in the hospital.

Discussion: The patient presented after snake envenomation with circulatory shock, lactic acidosis, acute renal failure, profound coagulopathy, and ischemic colitis that necessitated emergent hemicolectomy and small bowel resection. Pathology revealed innumerable microthrombi within the vasculature of the bowel. He had minimal local tissue involvement but severe systemic signs suggesting possible direct intravascular envenomation. Ischemic colitis due to snake envenomation is exceedingly rare, but there have been some reported cases in the literature.

Poster #63

Presenter: Alex Monroe

Authors: Alex Monroe MD, MBA, Craig Glazer, MD

Title: Anti-synthetase syndrome: a rare cause of interstitial lung disease

Abstract:

Introduction: The anti-synthetase syndrome is an uncommon condition associated with interstitial lung disease. In this case, we describe a woman who presents with hypoxemia and is later diagnosed with this disease.

Case Description: A 30-year-old woman with no significant past medical history presented to the emergency department complaining of shortness of breath at rest and on exertion for the past 2 months. At the time her symptoms began, she experienced a few days of wrist pain and swelling. Her primary care doctor prescribed her 1-2 week courses of levofloxacin and prednisone, the latter of which improved her symptoms somewhat.

On presentation to this facility, oxygen saturation was 88%; this improved to 96% with 2 liters of oxygen. She was afebrile. Lungs were clear to auscultation and she had no dermatologic findings. The remainder of the exam was normal. White blood cell count was 13.24 (neutrophilic predominance), D-dimer was 0.67, and the remainder of the labs were unremarkable. Chest x-ray showed no infiltrates and CT angiography of the chest showed non-specific scattered groundglass opacities. She was treated for community-acquired pneumonia but still required oxygen at rest. An autoimmune workup was initiated. Anti-nuclear antibody was elevated at 1:2560 (nucleolar panel). CK and aldolase were negative and she had no clinical signs of myositis. The patient was started on a steroid taper for suspected anti-synthetase syndrome or other connective tissue disease. Her symptoms rapidly improved thereafter, and her oxygen requirement resolved. Further workup revealed weakly positive anti-threonyl-tRNA synthetase (anti-PL-7) antibodies, confirming the diagnosis of anti-synthetase syndrome.

Discussion: Anti-synthetase syndrome is a relatively new condition. The first diagnostic criteria for this disease were published in 2010. The main clinical features of anti-synthetase syndrome are antibodies against a tRNA synthetase along with either ILD that can't be attributed to another cause, polymyositis, or dermatomyositis. The antibody identified in this patient's case, anti-PL7, is associated with severe ILD. Because of the relatively recent emergence of this disease, there are no large randomized trials on the treatment of anti-synthetase syndrome. Steroids and mycophenolate are commonly used to improve lung function.

Poster #64

Presenter: Alex Monroe

Authors: Alex Monroe MD, MBA

Title: Dermato-neuro syndrome: a rare complication of scleromyxedema

Abstract:

Introduction: Scleromyxedema is a rare dermatologic condition characterized by increased mucin production and fibroblast proliferation. This case describes a young man with this skin condition who develops the dermatoneuro syndrome, a very rare and often fatal complication of scleromyxedema.

Case: The patient is a 27-year-old man with scleromyxedema complicated only by dysphagia from pharyngeal involvement. He had been treated with IVIG every few weeks with no complications. His dermatologist was gradually increasing the interval between treatments, and at the time of presentation he was overdue for an infusion by 2 weeks. He experienced flu-like symptoms for a few days prior to presentation, and on the day of presentation he had a seizure and was taken to an outside hospital where he had another seizure. He was treated with benzodiazepines and levetiracetam. Computed tomography of the brain was normal. Before transfer, he was intubated for airway protection. Vitals on presentation to our hospital were significant for tachycardia to 121. He was afebrile. Abnormal labs included lactate of 4.0, troponin of 0.11, and CK of 2091. Treatment with IVIG (500 mg/kg once on admission, then 1000 mg/kg daily for 2 doses) and methylprednisolone (0.3 mg/kg daily for 7 days) was initiated. He was treated for bacterial meningitis until lumbar puncture was completed, but at that point he was treated for herpes encephalitis because of the presence of 3000 RBC in the CSF. MR brain was not suggestive of HSV encephalitis. He remained intubated for 6 days after admission. Once extubated, mental status was abnormal (the patient was non-verbal and not following commands). Over the course of the next week he regained his ability to speak (initially just his name, then his family members' names) and after 2 weeks in the hospital he could follow commands and was appropriate in conversation but still was still slow to respond to questions. By the time of discharge 22 days after admission, he was back to his baseline mental status. However, his baseline dysphagia had worsened which required the placement of a PEG tube.

Discussion: The dermatoneuro syndrome is a very rare complication of a rare skin disorder. The syndrome is characterized by a triad of fever, seizures, and coma. One review of the literature showed a case fatality rate of 32%. Some who recovered from coma had persistent major neurologic deficits, but most patients had minor or no deficits after recovery. The patient in this case had no new major neurologic deficits, though at the time of discharge his dysphagia was worse than his baseline. There have been no randomized trials on the best treatment of dermatoneuro syndrome. This case follows a handful of other cases that illustrate possible benefit of IVIG and IV steroids in treating this syndrome. It also demonstrates that these patients may have a prolonged course due to slow recovery of baseline mental status.

Poster #65

Presenter: Stephen D. Dickson

Authors: Nick Brownell MD, Franck Hannallah MD

Title: LVAD failure presenting as Ventricular fibrillation from pLAD emboli after a night out with the girls

Abstract:

Case Description: A white 72-year-old female with a history of nonischemic cardiomyopathy status post destination left ventricular assist device (LVAD) with completely oversewn aortic valve 3 years prior presents to the emergency room after being shocked twice by her implanted defibrillator at one in the morning. Patient without history of ventricular arrhythmia, had recently been admitted 3 weeks prior for GI bleed. Device interrogation showed 2 episodes of ventricular fibrillation w successful cardioversion. LDH elevated, CTA chest showed possible clot within the inflow and outflow LVAD cannula so anticoagulation parameters heightened. Hospital course complicated by sudden onset shortness of breath and nausea in setting of decreased LVAD flows. Left heart cath showed 99 percent occlusion of proximal LAD presumably embolic in nature, successfully treated with drug eluting stent. Hospital course further complicated by complete LVAD pump failure requiring emergent device change out by Cardiothoracic surgery. Patient with speedy recovery walking halls, discharged home 10 days after LVAD device changeout.

Poster #66

Presenter: Nam Pham

Authors: Nam D. Pham, Poh-Choo Pang, Soumya Krishnamurthy PhD, Amberlyn Wands PhD, Paola Grassi, Anne Dell, Stuart M. Haslam, Jennifer J. Kohler PhD

Title: New insights into pathways underlying GNE Myopathy, a muscle disease of aging

Abstract:

GNE myopathy is a rare muscle disease of aging that is related to sporadic inclusion body myositis (sIBM), the most common acquired muscle disease of aging. The pathogenesis of sIBM is unknown but the related GNE myopathy is associated with mutations in the enzyme GNE (UDP-GlcNAc 2-epimerase/ManNAc kinase). GNE encompasses a protein with two enzymatic activities required for biosynthesis of sialic acid in mammalian cells. Mutations to both GNE domains are linked to GNE myopathy. However, the correlation between mutation-associated reductions in sialic acid production and disease severity is imperfect. To investigate other potential effects of GNE mutations, we compared cell lines expressing wild-type or mutant forms of GNE. Although we did not detect any differences attributable to disease-associated mutations, by using a combination of flow cytometry, high-performance liquid chromatography (HPLC), and glycan mass spectrometry we did discover that GNE deficiency is associated with unanticipated effects on the structure of cell-surface glycans. GNE-deficient cells produced distinct N-linked glycan structures with increased branching and extended poly-N-acetyllactosamine (polyLacNAc). GNE deficiency may also affect levels of UDP-GlcNAc, a central metabolite also associated with aging. Notably, the N-linked glycans produced by GNE-deficient cells displayed enhanced binding to galectin-1, indicating that changes in GNE activity can affect the affinity of cell-surface glycoproteins for the galectin lattice. These findings suggest an unanticipated mechanism by which alterations in GNE activity might affect signaling through cell-surface receptors. Taken together, this work highlights pathways that may underlie GNE myopathy, sIBM, and other diseases of aging.

Poster #67

Presenter: David Carruthers

Authors: David Carruthers MD, Parag H. Joshi MD, Colby R. Ayers MS, Christopher Maroules MD, James Gentry, Philip Aagaard, Rory Hachamovitch, Reginald Dunn, Andrew Lincoln, Andrew Tucker, Kezia Alexander, Dermot Phelan

Title: Pooled Cohort Equation and Coronary Artery Calcium in Former National Football League Athletes

Abstract:

Background: The performance of the ACC/AHA pooled cohort equation (PCE) 10-year risk of atherosclerotic cardiovascular disease (ASCVD) has not been evaluated in elite former athletes.

Methods: In this cross-sectional study, we compared 104 retired National Football League (NFL) players with a sample of 618 Caucasian or African American men aged 40-75 years old with BMI>20 from the population based Dallas Heart Study (DHS). Coronary artery calcium (CAC) scoring was performed in all participants at baseline. We estimated 10-year ASCVD risk using the 2013 ACC/AHA PCE. To evaluate discordance, we compared the proportions of NFL and DHS participants with CAC=0 and CAC>100 across categories of estimated ASCVD risk.

Results: Retired NFL players had higher body mass indices and systolic blood pressure, but otherwise a more favorable risk factor profile (Table). There was a trend toward lower median ASCVD risk among NFL players (Table). There was no significant difference in the prevalence of CAC >0. Comparing NFL players to DHS, there was no significant difference in the odds of having CAC=0 among high ASCVD risk participants (OR 1.37; 95% CI: 0.36, 5.17) nor in the odds of having high CAC (CAC >100) among low ASCVD risk participants (OR 1.28; 95% CI: 0.64, 2.54)

Conclusion: Overall, the 10-year ASCVD risk calculator performed similarly between retired NFL players and the DHS. Clinically relevant discordance between ASCVD risk estimate and CAC burden was similar in the two groups.

Poster #68

Presenter: Rohan Khera

Authors: Rohan Khera MD, Ambarish Pandey MD, Colby Ayers MS, Vijay Agusala BS, Sandi Pruitt PhD, Ethan Halm MD, MPH, Mark Drazner MD, Sandeep R. Das MD, MPH, James A. de Lemos MD, Jarett D. Berry MD, MS

Title: Contemporary Epidemiology of Heart Failure in Fee-for-service Medicare Beneficiaries

Background: To assess the current landscape of the heart failure epidemic and provide targets for future health policy interventions in Medicare, a contemporary appraisal of the epidemiology of heart failure across inpatient and outpatient care settings is needed.

Methods: In a national 5% sample of Medicare beneficiaries from 2002-2013, we identified a cohort of 2,331,939 unique fee-for-service Medicare beneficiaries ≥ 65 years of age with ≥ 1 year of enrollment in both Medicare parts A and B, and followed them for all their inpatient and outpatient encounters over a 10-year period (2004-2013). Heart failure encounters were identified in claim files using previously-validated International Classification of Diseases-9th edition codes. Pre-existing heart failure was defined by any heart failure encounter (inpatient/outpatient) during the first year of study entry, and incident heart failure was defined with either one inpatient or two outpatient encounters without any prior encounters for heart failure.

Results: At study entry, mean age of the cohort was 72 years; 57% were women, and 86% and 8% were Caucasian and Black, respectively. Within this cohort, 518,223 patients had pre-existing heart failure, and among those without pre-existing disease, 349,826 had a new diagnosis of heart failure during the study-period. During 2004-2013, the rates of incident heart failure declined 32%, from 38.7 per 1000 beneficiaries during 2004 to 26.2 per 1000 beneficiaries during 2013. Similar trends were observed in demographics subgroups by age, sex (men/women), race/ethnicity (white/black) and US census regions, with advanced age, male sex and black race associated with the highest incidence of heart failure. In contrast to incident disease, prevalent heart failure increased during our study period from 162 per 1000 in 2004 to 172 per 1000 beneficiaries during 2013. Finally, the overall 1-year mortality among patients with incident heart failure is high (24.7%) with a 0.4% absolute decline annually during the study period, with a more pronounced decrease among those diagnosed in an inpatient vs outpatient setting (P for interaction $<.001$)

Conclusions: In recent years, there has been a substantial decline in incident heart failure in fee-for-service Medicare beneficiaries, diagnosed in both inpatient and outpatient settings, along with a decrease in 1-year mortality in patients with after a diagnosis heart failure. However, despite improvements, the overall burden of heart failure in the elderly Medicare population continues to increase. Moreover, while there has been a consistent decline in incident heart failure across demographic subgroups of sex and race, those at elevated risk (men, blacks) continue to experience the highest burden of heart failure.

Presenter: Grace Liu

Authors: Grace S. Liu MD, Angela Orino MD

Title: Case Report: Rituximab Induced Serum Sickness

Abstract:

A 44-year-old male with nephrotic syndrome, who 1 week prior to presentation was treated with a rituximab infusion, presented with polyarthralgia and swelling associated with painful range of motion. His PMH included hypertension, dyslipidemia, and nephrotic syndrome secondary to idiopathic membranous nephropathy, for which he was on chronic immunosuppression with cyclosporine.

On presentation, he reported arthralgias that started in hands and wrists, which were followed by arthralgia in the back of his neck, right knee, and bilateral ankles. He was initially afebrile on admission, however his temperature became elevated to 37.8C a few hours later. His right knee was swollen and tender with an effusion. The rest of his vitals and physical were unremarkable. Laboratory studies showed WBC of 17.43×10^3 . His BMP was significant for an AKI. His wrist X-rays did not show any abnormalities, whereas his knee X-rays indicated a small suprapatellar effusion of the right knee. Joint aspiration of the right knee showed total nucleated cells of 53K with 97% PML and 3% monocytes and no crystals were seen by microscopy.

He was started on empiric vancomycin therapy for possible septic joint along with tramadol and hydrocodone for pain control. The following day, his knee pain had improved but he was complaining of pain in the medial aspect of his feet along with continued swelling and weakness. Based on the migratory progression of his symptoms, an exam inconsistent with septic arthritis, and negative gram stain of the joint fluid, Orthopedics stated there was no surgical indication. His initial leukocytosis improved on the vancomycin. We attributed his overall presentation to post-viral reactive arthritis, as a prior rheumatological work-up was negative.

It was not until the day after discharge, when he went to his nephrologist to get another Rituximab infusion, that it was noted his presentation was highly suspicious for Rituximab-induced serum sickness (RISS). His fever, migratory polyarthralgias with a negative infectious work up, including a negative gonorrhea/chlamydia, were all consistent with this diagnosis. His rituximab treatment was canceled and he was given a three-week course of prednisone taper. Serum sickness is a type III hypersensitivity reaction resulting from injection of foreign protein and subsequent formation of antibodies, usually occurring 4-10 days after exposure. Clinical symptoms can include fever, rash, and arthralgia, but this classic triad is reported in only 48.5% of cases. Although uncommon, RISS has been implicated repeatedly. It is important to recognize RISS clinically, as it may mimic exacerbation of various rheumatological conditions. Although RISS is typically self-limited, further infusions of Rituximab should be avoided to limit development of more severe symptoms.

Poster #70

Presenter: Ali A. Saherwala

Authors: Ali A. Saherwala MD, Sonja Stutzman PhD, Junaid Kalia, Stephen Figueroa MD, Venkatesh Aiyagari MD, DaiWai Olson PhD, RN

Title: Exploring Associations between Invasive and Non-Invasive Blood Pressure Monitoring in Patients Receiving Vasoactive Medication Infusions

Abstract:

Blood pressure (BP) can be measured in critically-ill patients using non-invasive (oscillometric) blood pressure (NIBP) and intra-arterial blood pressure (IABP) monitoring. The accuracy of NIBP compared to the 'gold standard,' AIBP, has been questioned. NIBP monitors generally tend to over-read at low values and under-read at high values compared to IABP. Previous studies exploring NIBP-IABP correlations have generally been performed on patients not receiving continuous infusions of vasoactive medications. Since many critically-ill patients receive vasopressors and antihypertensive agents, we wanted to study the relationship between simultaneously-measured NIBP and IABP recordings in this patient population.

We prospectively identified patients (N=25, target N=70) admitted to a Neurosciences ICU, who had simultaneous IABP and NIBP monitoring while receiving intravenous infusions of vasopressors/antihypertensive agents. Following informed consent, paired NIBP/IABP observations were manually abstracted via retrospective chart audit. Covariate and demographic variables were also abstracted and entered into an electronic spreadsheet. Statistical analysis performed using SAS v9.4.

Initial results from 25 subjects (60% Caucasian, 56% male, mean age 60.3 years, mean BMI 30.3), received vasopressors (n=13) or antihypertensive agents (n=12), with 857 paired NIBP/IABP observations. Independent-samples t-tests showed a significant difference between NIBP vs IABP readings: [SBP: m=125 vs 130mmHg respectively]. Bland-Altman plots demonstrated good inter-method agreement between NIBP-IABP measures (when visually excluding outliers) and demonstrated marked NIBP-AIBP SBP differences at higher blood pressures.

Preliminary analysis indicates a statistically significant difference between NIBP-IABP readings for patients on vasoactive medications. Yet when visually excluding outliers, there is good inter-method agreement. Data from the entire cohort will be available soon and will be helpful in choosing appropriate BP monitoring methods for patients on vasoactive infusions in both the Neurosciences ICU as well as any Critical Care setting.

Poster #71

Presenter: Nicholas Keisuke Brownell

Authors: Nicholas K. Brownell MD, Amit Khera MD, MS, James A. de Lemos MD, Colby R. Ayers MS, Anand Rohatgi MD, MSCS

Title: The Association Between Peptidoglycan Recognition Protein-1 and Atherosclerotic Cardiovascular Disease Events in the Dallas Heart Study

Abstract:

Peptidoglycan recognition protein-1 (PGLYRP-1) is a pro-inflammatory molecule in the innate immune system that binds peptidoglycan, a known constituent of human atheroma. Increasing circulating levels of PGLYRP-1 are associated with prevalent subclinical atherosclerosis. Therefore, we hypothesized that PGLYRP-1 levels are associated with incident atherosclerotic cardiovascular disease (ASCVD) events. PGLYRP-1 was measured at baseline in 2,443 participants without cardiovascular disease enrolled in the Dallas Heart Study, a multi-ethnic probability-based population sample of Dallas County residents, aged 30-65. ASCVD was defined as first myocardial infarction, stroke, coronary revascularization, or cardiovascular death.

Over a mean follow up of 9.9 ± 1.8 years, increasing PGLYRP-1 was associated with ASCVD events ($p < 0.0001$). After adjustment for traditional risk factors, there was a 2-fold increased risk of ASCVD in the top vs. bottom quartile of PGLYRP-1 (HR 2.14, 95% CI 1.33-3.47, $p = 0.002$). Analysis of PGLYRP-1 as a continuous variable and serial adjustment for renal function, inflammatory markers, and prevalent coronary calcium did not alter the findings. In a large population-based cohort, PGLYRP-1 is associated with an increased risk of incident ASCVD, independent of inflammatory markers and subclinical coronary atherosclerosis. These findings support the role innate immunity in cardiovascular events and warrant further studies on the mechanisms by which PGLYRP-1 may confer increased ASCVD risk.

Poster #72

Presenter: Nicholas Keisuke Brownell

Authors: Nicholas K. Brownell MD, Reeni Abraham MD

Title: Trusting Your Clinical Judgment; A Case of Cryoglobulinemia

A 61-year-old woman presented to an outside hospital with epigastric abdominal pain. A CT abdomen noted gallbladder sludge. When pain persisted after an outpatient course of antibiotics, she underwent a laparoscopic cholecystectomy. An intraoperative liver biopsy revealed steatosis and bridging fibrosis consistent with early cirrhosis.

Postoperatively she began retaining fluid and developed a leukocytosis; her creatinine rose from within normal limits to Cr = 3.2 mg/dL. She was started on antibiotics and diuretics and was transferred to our institution for possible dialysis initiation. On admission, she reported the same abdominal pain as well as fatigue, diffuse myalgias, arthralgias of her bilateral hands, hyperesthesias in a stocking/glove distribution, and diarrhea. She denied rashes, hematuria, hemoptysis, family history of SLE or CKD, and previous IV drug use or blood transfusions.

On initial exam, she was afebrile, normotensive, tachycardic but with a normal respiratory rate and normal oxygenation on room air. The patient was grossly anasarctic. Admission labs were notable for BUN 57 mg/dL, Cr = 3.47 mg/dL; AST 39 U/L, ALT 21 U/L, total bilirubin 0.4 mg/dL, Alb = 1.7 g/dL; and WBC = 15.91x10³/μL, PLT = 268x10³/μL. Initial urinalysis noted proteinuria and granular casts. Further work-up revealed elevated rheumatoid factor, decreased C3/C4 levels, positive Hepatitis C antibody, and negative HIV, HBV, and ANA serologies. Based on her clinical picture, biopsy results, and laboratory findings, a presumptive diagnosis of cryoglobulinemia due to hepatitis C was made. Subsequently, Hepatitis C viral PCR (sensitivity 99% and specificity 98-99%) returned negative. Initial renal biopsy results noted cryoglobulinemic membranoproliferative glomerulonephritis; the patient was started on solumedrol and plasmapheresis to treat cryoglobulinemia of unclear etiology.

Given the high clinical suspicion for HCV related cryoglobulinemia, the HCV PCR was repeated 3 days later and returned elevated at 1,640,000 copies. Another test confirmed HCV genotype 2. A send-out cryoglobulin study returned as Type II cryoglobulinemia (monoclonal IgM kappa plus polyclonal IgG). With plasmapheresis and steroids, the patient improved in symptoms and renal function. She was ultimately discharged to a long term care facility and given curative HCV treatment with daclatasvir and sofosbuvir. This case illustrates the importance of recognizing the limits of laboratory results. The patient's presentation was highly consistent with cryoglobulinemia secondary to HCV infection despite an initial, negative HCV RNA. While HCV PCR is highly sensitive and specific, false negative HCV PCR results can occur in cryoglobulinemia; a proposed mechanism is that HCV RNA might become entrapped in the cryoprecipitate, leading to low levels in plasma and a false negative test. This case suggests that lab results should be viewed in the appropriate clinical context and a healthy skepticism should be maintained for results that seem at odds with the overall clinical picture. Clinical suspicion, above all, should drive a diagnostic work up and ultimately lead to the correct diagnosis.

Poster #73

Presenter: Glynnis A Garry

Authors: Glynnis A. Garry MD, Ning Liu PhD, Svetlana Bezprozvannaya MS, Efrain Sanchez-Ortiz PhD, Beibei Chen PhD, John M. Shelton , Rhonda Bassel-Duby PhD, Eric N. Olson PhD

Title: A Twist-Dependent Progenitor Cell Contributes to Adult Skeletal Muscle

Abstract:

Skeletal muscle possesses remarkable regenerative potential due to satellite cells, a stem cell population located beneath the muscle basal lamina. By lineage tracing of progenitor cells expressing the Twist2 (Tw2) transcription factor in mice, we discovered a myogenic lineage that resides outside the basal lamina of adult muscle. Tw2+ progenitors are molecularly and anatomically distinct from satellite cells, are highly myogenic in vitro, and can fuse with satellite cells. Tw2+ progenitors contribute specifically to type IIb/x myofibers during adulthood and muscle regeneration, and their genetic ablation causes wasting of type IIb myofibers. We show that Tw2 expression maintains progenitor cells in an undifferentiated state that is poised to initiate myogenesis in response to appropriate cues that suppress Tw2 expression. Tw2-expressing progenitors represent a previously unrecognized, fiber-type specific progenitor cell involved in post-natal muscle growth and regeneration.

Poster #74

Presenter: Richard A. Mills

Authors: Richard A. Mills MD, Akeel Merchant MD, Abu Minhajuddin PhD, Lauren Wehrmann BS, Amanda A. Fox MD, MPH, Michael E. Jessen MD, Lynn Huffman MD, Dharam Kumbani MD, Sarah K. Gualano MD

Title: Blood Transfusion Rates Decreased with Newer Generation Valves following Transcatheter Aortic Valve Replacement

Abstract:

Introduction: Blood transfusion is increasingly recognized as a strong risk factor for myocardial infarction, stroke, death, and acute kidney injury following transcatheter aortic valve replacement (TAVR). TAVR is a rapidly evolving field with advances in valve/sheath technology and center experience. It is our hypothesis that packed red blood cell (PRBC) transfusion rates will decrease with improved technology and operator skill.

Methods: With IRB approval, data were retrospectively extracted from the charts of 87 consecutive patients undergoing transfemoral TAVR at a single center between March 2013 and May 2016. Valve types were grouped into three generations. Generation 1 consisted of Edwards Sapien, Generation 2 of Edwards Sapien XT and Medtronic CoreValve, and Generation 3 of Edwards Sapien S3 and Medtronic CoreValve Evolut. A logistic regression analysis was performed to evaluate association between the need for PRBC transfusion in the peri-operative period and valve generation, adjusting for body surface area and pre-operative hemoglobin. A similar regression was run comparing valve sheath size and blood transfusion rates, breaking sheath sizes into small 12-16, medium 18-20, and large 22-24 cohorts.

Results: Each successive generation of percutaneous valve had a decreased transfusion rate compared to previous generations. There was a 31.6% transfusion rate with Generation 1 valves, 27.9% transfusion rate with Generation 2 valves, and 8.0% transfusion rate with Generation 3 valves. Newer valve generation was associated with significantly decreased PRBC transfusion ($p=0.03$) after adjustment for body surface area and preoperative hemoglobin. In particular, Generation 3 valves had a markedly decreased transfusion risk compared to Generation 1 valves [OR 0.06(0.01-0.48)] Sheath sizes 12-16 had a PRBC transfusion rate of 20.0%, sheath sizes 18-20 had a transfusion rate of 22.0%, and sheath sizes 22-24 had a transfusion rate of 33.3%. Although there was a trend towards decreased transfusion with smaller sheath sizes, there was no statistical significance after adjustment for body surface area and preoperative hemoglobin ($p=0.12$). The largest sheath cohort (22-24) was associated with increased odds of transfusion compared to the smallest cohort (12-16) [OR 5.39(1.05-27.58)].

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Conclusion: In our single center study, the newest generation of TAVR valves was associated with decreased PRBC transfusions compared to older models. This may in part be explained by a trend towards decreased transfusion rates with the smaller sheath sizes featured in newer percutaneous valves. We suspect that increasing center experience and awareness of the harm imparted with blood transfusion are also acting to decrease transfusion rates.

Poster #75

Presenter: Joshua Parker

Authors: Joshua Parker MD, Michinari Hieda MD, Satyam Sarma MD, Tanya Rajabi, Benjamin Levine MD

Title: Evaluation of Left Ventricular Diastolic Dysfunction with Cardiac MRI in HFpEF

Abstract:

Background: Heart failure with preserved ejection fraction (HFpEF) has been called 'diastolic heart failure', and is associated with elevated filling pressure and slow Doppler indices of diastolic function. However, diastole is fundamentally the ability of the heart to fill after ejection, so these indices are indirect. Cardiac magnetic resonance imaging (cMRI) is a high resolution tool that can allow for the precise tracking of filling rates and left ventricle (LV) volume-time relationship during the diastolic period.

Hypotheses: We hypothesized that HFpEF patients would demonstrate an abnormal LV volume-time relationship as well as a lower peak filling rate (PFR) during the early diastolic phase.

Methods: Conventional cine-cMRI was performed using 1.5T MRI systems, as part of routine clinical protocol. Cine images were acquired in multi-planar short-and long-axis views with retrospective electrocardiographic gating. Cine short-axis views were used for measurement of LV volume. To test the hypothesis, we compared the diastolic parameters (PFR / LV end-diastolic volume (EDV); PFR / EDV / pulmonary capillary wedge pressure (PCWP); time to peak filling rate (TPFR); % TPFR for cardiac cycle) calculated by cMRI between HFpEF patients (N=10, 73±7 yrs) and age-matched controls (N=12, 70±3 yrs).

Results: There were no significant between-group differences in age, gender, body surface area (BSA), heart rate, LVEF, and LV end-diastolic volume index. PCWP was significantly greater in HFpEF group than controls (HFpEF vs. Controls: 15.6±5.2 vs. 11.2±1.3 mmHg, P = 0.0092). PFR/EDV was significantly smaller in the HFpEF group than in controls (2.68±0.85 vs. 3.59±0.87 EDV/s, respectively, P = 0.03), as was PFR/EDV/PCWP (0.18±0.07 vs. 0.33±0.10 EDV/s/mmHg, respectively, P = 0.002). In addition, Time to PFR (246±17.2 vs. 188±15.7 ms, respectively, P=0.04) and %Time to PFR of cardiac cycle (36.4±10.4 vs. 25.6±5.9 %, respectively, P=0.012) were significantly longer in HFpEF than in controls.

Conclusion: The results in this study highlight that HFpEF patients have an abnormal volume-time relationship including lower PFR/EDV and prolonged time to PFR, resulting in impairment of active relaxation during the early diastolic phase.

Presenter: Ahana Sen

Authors: Ahana Sen MD

Title: Efficacy Of Gastroduodenal Stenting For Malignant Gastric Outlet Obstruction

Abstract:

Background: Malignant gastric outlet obstruction (GOO) is highly morbid and can be treated with endoscopic gastroduodenal stenting. Long term stent efficacy and need for further intervention in these patients are understudied. We aim to assess long term efficacy of gastroduodenal stenting, predictors of stent dysfunction, and overall mortality of these patients.

Methods: We performed a retrospective cohort study of all patients referred for endoscopy for malignant GOO from 2011 through 2016 at a single center and followed until death or November 15, 2016. Stent dysfunction is defined as return of symptoms after initial stenting necessitating another endoscopic or surgical procedure. Kaplan Meier (KM) analyses of stent dysfunction and overall mortality were performed. Patients were censored at death (only in analysis of stent dysfunction), loss of follow up, or end of study. Cox proportional hazards modeling was used to assess for predictors of stent dysfunction.

Results: 56 of 57 patients (98%) received technically successful initial placement of 63 stents and were followed for a median of 110 days. 6 patients (11%) received multiple stents at initial EGD. All stents were uncovered and 22 mm in diameter of various lengths (Table). 3 patients (5%) died within 1 week of stent placement, including 1 patient at 24 hours. No deaths were directly due to endoscopy. No other adverse events, including bleeding, perforation, aspiration pneumonia, or cardiopulmonary arrest, were identified on follow up. 4 patients were outpatients. 7 inpatients died before discharge. The remaining 45 inpatients were discharged at a median 5 days (range 1-19) after stenting. On follow up, 10 patients (18%) suffered stent dysfunction; 6 patients due to tumor ingrowth, 2 due to stent migration, 1 due to luminal obstruction from a biliary stent placed after initial luminal stenting, and 1 patient was taken for surgical bypass without repeat endoscopy. Of the 9 patients to receive repeat endoscopy for stent dysfunction, 6 received 1 more stent, 1 received 2 more stents, and 1 received 3 more stents. KM stent dysfunction curve yielded a median dysfunction time of 292 days (Figure). Cox proportional hazards modeling did not identify any predictors of stent dysfunction among age, sex, presence of ascites, presence of liver metastases, or length of initial stenting (Table). Only 3 patients (5%) were confirmed alive at the end of the study and 32 patients (57%) were confirmed dead. KM survival curve yielded a median overall survival after initial stenting of 102 days (Figure).

Conclusions: Gastroduodenal stenting for malignant GOO is highly technically successful. Only a small minority of patients suffer from eventual stent dysfunction. Overall mortality from baseline malignancy remains high and most patients are able to be palliated with one stent before death.

Poster #77

Presenter: Heather Wolfe

Authors: Heather Wolfe MD; David Carruthers MD

Title: A Cutaneous Presentation of Plasmablastic Lymphoma

Abstract:

An HIV positive man presented with multiple hemorrhagic nodules on the lower extremities. Further work up revealed pancytopenia and a CD4 T-lymphocyte count of 81 cells/ μ L. Biopsy of these lesions revealed atypical lymphoid cells with plasmacytoid features. Tumor cells were positive for plasma cell markers and EBV. A diagnosis of plasmablastic lymphoma was made. There is no standard treatment for this rare disease. The patient was treated with systemic chemotherapy, but unfortunately succumbed to sepsis. Plasmablastic lymphoma is a rare but important HIV/AIDS-related malignancy due to its aggressive nature and poor prognosis. The patient presents with an uncommon presentation of this disease.

Poster #78

Presenter: Heather Wolfe

Authors: Heather Wolfe MD, Haomin Ye MD, Mark Cooper MD

Title: Safe and effective medical management depends on successful patient self care

Abstract:

A 60-year-old Hispanic man presented with odynophagia and a diffuse rash. The patient had a history of chronic plaque psoriasis treated with methotrexate. He had been lost to follow up in dermatology clinic and reported that he had not taken methotrexate for many months. Physical examination was significant for oral ulcers and violaceous eroded plaques and diffuse bullae. Laboratory results revealed pancytopenia and acute renal failure. A methotrexate level was found to be elevated. Skin biopsy of a lesion was consistent with methotrexate toxicity.

Due to its potential toxicities, the use of methotrexate requires frequent laboratory monitoring and close follow up with prescribing physicians. The combination of renal clearance and nephrotoxicity makes dosing challenging in patients with chronic kidney disease. Patient adherence to methotrexate therapy may be complicated by its once weekly dosing and requirement for concomitant folate therapy.

Months prior to admission, the patient had presented to the ED with a psoriatic flare. Dermatology recommended methotrexate be held until he re-establish care with their clinic. The methotrexate prescription was refilled at an acute care follow up although his kidney function was deteriorating. Despite patient reports of not taking the medication, the methotrexate continued to be filled. The methotrexate was discontinued at a later hospitalization, but his accumulated home supply was sufficient to allow the patient to continue therapy against medical advice. Root cause analysis highlighted opportunities to enact clinical and pharmacy safety alerts, simplify prescribing and monitoring processes, and clarify patient instructions.

The recent integration of pharmacy's information systems with Parkland's clinical EMR permits coordinated safety controls at the point of prescription and dispensation. A proposed order panel links appropriate folate therapy and monitoring labs into the medication order entry process, and recommends dose adjustments. Engaging a multispecialty team revealed the opportunity to simplify patient instructions

Poster #79

Presenter: Lucas Pineda Bernal

Authors: Lucas Pineda, Nicole Bitencourt, Kiran Batra MD, Elizabeth Solow MD

Title: Aortitis in Granulomatosis with Polyangiitis managed with Rituximab and Methotrexate

Abstract:

Large vessel involvement, although rare, has been increasingly recognized as a complication of Granulomatosis with Polyangiitis (GPA) in recent years. The presentation is highly variable, ranging from an incidental finding to aortic dissection and rupture. Treatment has predominately consisted of a combination of Cyclophosphamide and high doses of steroids with surgical intervention when indicated. We present the case of a 34-year-old male diagnosed with GPA after presenting with sinus and eye involvement in whom work-up incidentally revealed large vessel involvement that remarkably improved after treatment with the combination of Rituximab infusions, Methotrexate and steroids after a 6-month follow up.

Poster #80

Presenter: Robert Carson Sibley III

Authors: Mohammad Toliyat MD, Kanwar Singh MD, Robert C. Sibley MD, Murthy Chamarthy MD, Sanjeeva P. Kalva MD, Anil K. Pillai

Title: Interventional radiology in the management of thoracic duct injuries: Anatomy, techniques and results

Abstract:

Disruption of the thoracic duct can have devastating consequences and be associated with a high morbidity and mortality. Conservative therapies have been attempted to treat chylothorax without much success. Surgical management has traditionally been necessary to provide definitive treatment at the expense of increased morbidity. Lymphatic interventions have recently emerged as a new frontier for interventional radiologists to add value and provide minimally invasive therapies for debilitating conditions. The goal of this manuscript is to review the anatomy of the thoracic duct, describe various percutaneous techniques for accessing the duct, and briefly discuss outcomes as reported in the literature.

Poster #81

Presenter: Ananya Kondapalli

Authors: Ananya Kondapalli MD, Haekyung Jeon-Slaughter PhD, Houman Khalili MD, Ehrin J. Armstrong MD, Nicolas W. Shammass MD, Anand Prasad MD; Ian Cawich MD, Gerardo Rodriguez MD, Mazen Abu-Fadel MD, Emmanouil S. Brilakis MD, PhD, Subhash Banerjee MD

Title: Comparative Assessment of Subintimal Versus Intraluminal Crossing of Infringuinal Peripheral Artery Chronic Total Occlusions

Abstract:

Background: Subintimal (SI) and intraluminal (IL) crossing of infringuinal chronic total occlusion (CTO) lesions is frequently used, however, comparative outcomes are lacking. This study compares 30-day and 12-month clinical outcomes, as well as periprocedural complications between these two techniques for femoropopliteal and infrapopliteal peripheral artery CTO lesions.

Methods: We selected 1,335 CTO interventions in 1,001 patients from the multicenter Excellence in Peripheral Artery Disease (XLPAD) registry from January 2005 to October 2015. Outcomes are 30-day and 12-month all-cause mortality, major adverse cardiovascular events, repeat endovascular or surgical revascularization, target limb major amputation, and procedural complications.

Results: A SI crossing technique was used in 388 lesions (27%) with lower procedural ($p<0.01$) and technical ($p<0.01$) success than the IL technique. There were no significant group differences in procedural complications and 30-day and 12-month postprocedural outcomes between the two groups, except a higher dissection rate in the subintimal crossing group than the intraluminal groups in femoropopliteal target vessels ($p=0.04$). Lesions in the SI group were significantly longer (111.6 ± 24.4 vs. 107.7 ± 24.1 , $p<0.01$) and had a larger reference vessel diameter (4.6 ± 0.3 vs. 4.5 ± 0.4 , $p<0.01$) compared to the IL group. Duration and fluoroscopy times were significantly longer in the subintimal crossing group.

Conclusion: Subintimal crossing of infringuinal chronic total occlusion lesions was employed to cross longer and more complex lesions. Subintimal crossing can be successfully performed with low periprocedural complications, and favorable short and intermediate term outcomes compared with an intraluminal approach.

Poster #82

Presenter: Anh Nguyen

Authors: Anh D. Nguyen MD, Stuart J. Spechler MD, Monique N. Shuler MS, Rhonda F. Souza MD, Kerry B. Dunbar MD, PhD

Title: Clinical Features of Los Angeles (LA) Grade D Esophagitis Differ Significantly from LA Grade A Esophagitis: Evidence that Factors other than GERD Contribute to the Development of LA Grade D Esophagitis

Abstract:

Background: The Los Angeles (LA) grade of reflux esophagitis (A to D) is assumed to reflect severity of the underlying GERD. Thus, LA-D esophagitis patients might be expected to have the most conditions predisposing to GERD (e.g. obesity, hiatal hernia), and the highest frequency of GERD symptoms.

Goals: To compare clinical features of patients with the most severe (LA-D) and mildest (LA-A) grades of esophagitis.

Study: For this comparative study, we searched our endoscopy database for patients diagnosed with LA-D or LA-A esophagitis, reviewed their endoscopic images, and reviewed medical records of the first 100 we confirmed to have LA-D or LA-A esophagitis.

Results: Compared to LA-A patients, LA-D patients were older (mean age 65 ± 13.4 vs. 56 ± 13.4 years, $p < 0.001$), had lower BMIs (25.9 ± 5.6 vs. 29.4 ± 5.3 , $p < 0.001$), were more frequently hospitalized (70% vs. 3%, $p < 0.001$) and in the ICU (15% vs. 0%, $p < 0.001$), and had significantly more serious cardiopulmonary disorders and gastrointestinal bleeding. Conversely, a GERD history was more common in LA-A than LA-D patients (67% vs. 45%, $p = 0.002$). Hiatal hernia was more frequent in LA-A patients than LA-D patients though this was not statistically significant (48% vs. 36%, $p = 0.09$).

Conclusions: LA-D esophagitis is not usually an outpatient disorder. It primarily affects hospitalized, older, non-obese patients who often have cardiopulmonary disorders and gastrointestinal bleeding, and no history of GERD or hiatal hernia. In contrast, LA-A patients are generally younger, obese outpatients who often have a history of GERD and hiatal hernia without serious comorbidities. These profound differences between LA-A and LA-D patients suggest that factors other than typical GERD contribute to LA-D esophagitis pathogenesis.

Poster #83

Presenter: Maria Clarissa Tio

Authors: Maria Clarissa Tio MD, L Parker Gregg MD, Xilong Li, Beverley Adams-Huet MS, James de Lemos MD, Susan Hedayati MD

Title: Monocyte Chemoattractant Protein-1 (Mcp-1) Is Associated With Death In CKD

Abstract:

MCP-1 is an inflammatory marker implicated in atherogenesis. While observational studies suggest an inverse association between plasma MCP-1 and GFR, data regarding the association of MCP-1 with death in non-dialysis CKD samples is lacking.

We studied 3,257 participants of the Dallas Heart Study multiethnic community-based cohort with median 12.5 years follow-up. There were 285 (8.8%) with CKD (eGFR <60 mL/min/1.73m² or albuminuria ≥17 mg/g in men or ≥25 in women). Proportion with stages 1, 2, 3, and 4-5 CKD were 48, 27, 21, and 4%. Plasma MCP-1 levels were compared in CKD vs. non-CKD groups and across advancing CKD stages using the Wilcoxon Rank Sum and Jonckheere-Terpstra tests. Cox proportional hazards assessed the association of log transformed MCP-1 with death, adjusting for traditional CV risk factors (age, sex, race, hypertension, diabetes, current smoking, total and HDL cholesterol) and eGFR.

Our sample was 50% Blacks, 31% Caucasians, 17% Hispanics, and 2% other races. Median (IQR) MCP-1 was 164.7 (120.3, 220.9) pg/mL in non-CKD vs. 192.2 (143.6, 269.8) in CKD subjects, P<0.0001. Median MCP-1 increased across advancing CKD stages: stage 1, 177.5 (134.4, 244.8); stage 2, 184.3 (144.0, 249.1); stage 3, 233.3 (164.7, 323.7); and stage 4-5, 294.6 (219.4, 353.2), P<0.0001 for trend. There were 332 deaths; 234 (8.7%) died in the non-CKD group vs. 98 (37.4%) in the CKD group, P<0.0001. MCP-1 was associated with death in participants with and without CKD in unadjusted models and when adjusted for traditional CV risk factors and eGFR. However, there was not a significant CKD x MCP-1 interaction.

Plasma MCP-1 is elevated in albuminuric early stage CKD and across advancing CKD stages, and is independently associated with death in both CKD and non-CKD individuals.

Poster #84

Presenter: Deepika Satish

Authors: Deepika Satish MD, Zhouwen Tang MD, Jayaprakash Sreenarasimhaiah MD, Deepak Agrawal MD

Title: Prescription Practices of Pancreatic Enzyme Replacement Therapy in a Public Health System

Abstract:

Background: Exocrine pancreatic insufficiency (EPI) can be the result of chronic pancreatitis, cystic fibrosis, pancreatic duct obstruction, pancreatic resection, and gastroduodenal bypass. Chronic pancreatitis is the leading cause of EPI worldwide. Pancreatic enzyme replacement therapy (PERT) is the mainstay of treatment for maldigestion due to EPI, especially for steatorrhea. However, efficacious treatment for steatorrhea requires personalized dosages, with at least 20,000 to 30,000 units of lipase per meal.

Objective: We aim to analyze the indications for and the objective evidence supporting the prescription of PERT, to examine the dosages of PERT initiated, and to evaluate the practices of prescribing PERT at large.

Design: We performed a cross sectional study of all PERT prescriptions at an 862 bed urban public hospital. A database of indications for and dosages of prescription, imaging studies, biochemical studies, and documentation of steatorrhea was constructed.

Results: One hundred and fourteen patients have had active prescriptions for PERT, of which chronic pancreatitis was the initial indication for prescription for 54 (47%) patients. However, of these 54 patients who were prescribed PERT for chronic pancreatitis, only 26 (48%) patients had cross-sectional CT or MRI evidence and 8 (15%) had EUS evidence of chronic pancreatitis at the time of initial prescription. Of the 114 patients who have been prescribed PERT, 40 (35%) patients had documented clinical steatorrhea; however, only 22 (19%) patients had a fecal fat study, with 12 (11%) positive, and 5 (4%) patients had a fecal elastase tested, with 4 (4%) positive. Additionally, 83 (73%) patients were prescribed less than 20,000 units of lipase per meal.

Conclusion: At the time of initial prescription, the majority of patients were prescribed PERT for indications other than chronic pancreatitis. Of those prescribed PERT for chronic pancreatitis, a significant number of patients did not have imaging findings in support of the diagnosis or have documented steatorrhea. Even fewer had objective evidence of steatorrhea, as measured by fecal fat and elastase tests. Furthermore, the vast majority of patients were prescribed subtherapeutic dosages of PERT.

Poster #85

Presenter: Jasmine Singh

Authors: Jasmine Singh MD, Farjana Fattah, Tam Burks, Jie Zheng, Xingya Jiang, Pamela Kurian, Sehresh Saleem, Jean Pearson, Saad Khan MD

Title: Homemade Silver Nanoparticle Pharmacology and Dramatic Activity in Highly Refractory Metastatic Head and Neck Squamous Cell Cancer

Background: Silver nanoparticles (SNPs) show high efficacy as targeted therapy against cancer cell lines, but have never been tested as systemic therapy in patients. SNPs have also been marketed as anticancer agents and are available in a number of commercial products, although data regarding its medical utility remains lacking. We present the first in-human trial of SNPs in a cancer patient with a dramatic outcome and further investigate this compound.

Methods: Homemade SNP solution is prepared by the patient with online instructions. Current from 3 9-volt batteries is passed across 99.99% pure silver-bar electrodes in distilled water, until the metal content of the water measures 0.09-0.15 parts per million. The manufacturer is a 78-year-old male who developed multiple recurrences of nasal cavity squamous cell cancer. Over 2 years he progressed on platinum and taxane based-chemotherapy, radiation twice and 2 surgical resections. Large hepatic and pulmonary metastases were observed on PET, MRI and CT. While on hospice and without informing his oncologist, he began manufacturing and consuming the SNP solution.

Results: The patient ingested 120 ml daily of the solution for 3 months leading to rapid clinical recovery and complete resolution of cancer at all sites. He received no anti-cancer therapy during this time, nor was there an obvious alternate explanation for his spontaneous regression.

Electron microscopy of the silver solution revealed bimodal SNP size distributions; 3 & 12 nm. Inductively coupled plasma mass spectrometry showed the basal blood silver ion concentration of 32 ng/g. One hour after ingesting 60 ml of silver solution it rose to 46 ng/g. Physiologic studies with simulated gastric fluid showed SNP's aggregate into larger nanoparticles, which were not detectable in the blood. Urine showed no SNPs. Toxicities were not noted with this silver solution; no evidence of myelosuppression, liver or kidney abnormalities on repeated testing over 18 months. The patient underwent reconstructive surgery with excellent wound healing, and his functional/performance status is normal. He has had no clinical or radiographic evidence of cancer 18 months after being placed on hospice.

Conclusion: Ingestion of SNPs is associated with complete regression of highly refractory head and neck cancer, in the absence of any anticancer therapy. Ingesting silver solution causes a noticeable and nearly immediate rise in blood silver concentration. SNP gastric absorption and blood transport is complex, though urinary excretion is not a major route for clearance. Given these dramatic results possibly related to SNP combined with promising preclinical efficacy, further patient testing of SNP should be done to confirm its role in head and neck cancer.

Poster #86

Presenter: Gurshawn Singh

Authors: Gurshawn Singh MD, Amit Singal MD, Deepak Agrawal MD

Title: Interobserver reliability between gastroenterologists and anesthesiologists of the ASA physical status classification in patients for endoscopy

Abstract:

Background: The American Society of Anesthesiologists (ASA) scale is a widely used subjective, six-point ordinal scale that allows anesthesiologists to assign a risk score to each patient scheduled for anesthesia. It is routine to assign ASA score to patients undergoing invasive procedures including endoscopy. ASA score is used to determine whether the patient should have endoscopy done with deep versus moderate sedation, or the site of endoscopy i.e. at an ambulatory/outpatient surgery center versus hospital setting and also to determine the amount of payment for endoscopy. Use of ASA score for these reasons assumes robustness of this classification and agreement between its users.

Objective: To determine agreement between gastroenterologists and anesthesiologists when assigning ASA scores to patients before endoscopy.

Methods: We sent a survey with 10 validated hypothetical clinical scenarios to anesthesia providers (residents, attendings, and certified registered nurse anesthetists) and gastroenterology providers (attendings and fellows). In the survey, respondents were asked to assign an ASA score between 1 and 5 in each clinical scenario. The survey also assessed if the respondent felt comfortable assigning ASA scores. The responses were analyzed using the Pearson's chi squared analysis.

Results: A total of 78 complete responses were received. These were divided into 55 anesthesia providers, and 23 gastroenterology providers. In 4 out of 10 cases the gastroenterologists and anesthesiologists assigned significantly different ASA scores indicating that the type of sedation, site of endoscopy, or reimbursement would be different depending on whether the anesthesiologist or the gastroenterologist assigned the score. There was no statistical difference in the responses between the attendings and trainees or nurses. When assessing comfort level for assigning ASA scores, 84% of anesthesiologists were very comfortable, 16% were somewhat comfortable. For gastroenterologists and trainees, 30% were very comfortable, 65% were somewhat comfortable, and 4% were uncomfortable.

Conclusion: There is a significant discrepancy between gastroenterology and anesthesia providers when assigning ASA scores. The subjectivity of the classification and distribution of score variability suggests that the ASA score is not a reliable measure to determine the type of sedation for endoscopy, site where the endoscopy should be performed and should not be the primary determinant for insurances to cover for anesthesiologist administered sedation.

