4th Annual Florida Hospital Research Forum 2017

May 9 & 10, 2017
Presented by Florida Hospital Nicholson Center and Florida Hospital Research Institute

Course Director Bret Goodpaster, PhD
May 9, 2017

We’d like to personally welcome each of you to the 4th Annual Florida Hospital Research Forum! We look forward to having you with us over the next 2 days as we deepen our knowledge and learn about the research being conducted by Florida Hospital investigators as well as our invited speakers. It is thrilling to be able to gather our community of investigators, coordinators, and all those who support research so that together we can ensure that Florida Hospital remains at the cutting edge in our local community and to position Florida Hospital to be a global leader in research.

Year-by-year, the research enterprise continues to grow and evolve making 2017 an exciting year for research at Florida Hospital. While healthcare faces challenges, we know that research has the ability to push healthcare forward. Today, we now have almost 600 studies in our research portfolio, being conducted by 18 research departments, reaching hundreds/thousands of patients. This year, we will be adding a population health/informatics department. We have transformed the procedures in our centralized research services to reduce study start-up times and we will continue our journey on this important task. A Research Compliance Oversight Committee was established in January to elevate our ability to oversee and manage compliance concerns. We are in the 2nd year of our Research Leaders Council of physicians and scientists, who provide input and guidance into the direction and future of the Florida Hospital Research Institute. These two committees were created to entrain and integrate physician leaders in these important areas of our Research Institute.

We’d like to thank each of you for all you do to support research at Florida Hospital. The collective vision, knowledge, and dedication to research are essential to accomplishing our mission of expediting ground-breaking and globally-recognized healthcare research that leverages the scale and diversity of our population.

Warmly,

Steven R. Smith, M.D.
SVP & Chief Scientific Officer

Rob Herzog
V.P. Research Operations
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KEYNOTE SPEAKER
Douglas Wallace, PhD
Michael and Charles Barnett Endowed Chair in Pediatric Mitochondrial Medicine and Metabolic Disease
Director – Center for Mitochondrial and Epigenomic Medicine (CMEM), Children’s Hospital of Philadelphia
Professor – Department of Pathology and Laboratory Medicine, University of Pennsylvania, Philadelphia, Pennsylvania
Title of Presentation: “A Mitochondrial Etiology of Common Complex Diseases”

PARTNER PRESENTATIONS
Doug Lewandowski, PhD
Senior Scientist/TRI Faculty
Sanford Burnham Prebys Medical Discovery Institute
Orlando, Florida
Title of Presentation: “Targeting Metabolic Remodeling in Heart Failure”

Michael Masternak, MD
Associate Professor - UCF College of Medicine, Burnett School of Biomedical Sciences
Orlando, Florida
Title of Presentation: “Role of Adipose Tissue in Longevity: Good vs. Bad Fat”

Glenn Walter, PhD
Professor of Physiology – Department of Physiology and Functional Genomics, McKnight Brain Institute at the University of Florida
Powell Gene Therapy Center
University of Florida Cancer Center
National High Magnetic Field Laboratory
Gainesville, Florida
Title of Presentation: “Magnetic Resonance at the Cross Roads of Muscle Pathophysiology and Function”
OBJECTIVES

1. The participant will be able to relate and discuss their own research with other departments more effectively.

2. The participant will be able to conduct better research henceforward utilizing collaborative knowledge instead of individualized based research.

3. The participant will be able to assess the wide amount of departmental resources available and utilize those resources more efficiently within their own projects.
Dr. Wallace and his colleagues founded the field of human mitochondrial genetics. It was while at graduate school at Yale that Dr. Wallace developed his passion for what would become his life work: mitochondrial DNA (mtDNA). At the time, most geneticists were searching for genes in the nucleus of cells. Dr. Wallace, however, was intrigued by a much smaller set of genes found in cellular structures known as the mitochondria. Located in the cytoplasm of all human cells, mitochondria are often described as the cell’s primary “power plants” because they convert energy from food into a form that the cell can use. But mitochondria also contain a tiny strand of DNA—essentially, a second human genome. Dr. Wallace showed that the mtDNA is inherited exclusively from the mother and that genetic alterations in the mtDNA can result in a wide range of metabolic and degenerative diseases as well as being important in cancer and aging.

After studying genetics and developmental biology at Cornell University, Dr. Wallace went on to graduate school at Yale, where he received his PhD in 1975 in microbiology and human genetics. He took an assistant professorship at Stanford University in 1976 and then, in 1983, went to Emory University where he stayed for the next 19 years, establishing the Center for Molecular Medicine and the Department of Genetics and Molecular Medicine. In 2001, Dr. Wallace left Emory for the University of California in Irvine, where he founded the Center for Molecular and Mitochondrial Medicine and Genetics. Then in 2010, he moved his center to Philadelphia where he became the founding director of the Center for Mitochondrial and Epigenomic Medicine at the Children’s Hospital of Philadelphia and a professor of Pathology and Laboratory Medicine at the University of Pennsylvania.

Dr. Wallace has received numerous honors and awards during his distinguished career, including memberships in the National Academy of Sciences in 1995, the American Academy of Arts and Sciences in 2004, and the Institute of Medicine in 2009.
E. Douglas Lewandowski, PhD

Dr. Lewandowski is a Professor in the Center for the Metabolic Origins of Disease and Director of Cardiovascular Translational Research at the Sanford Burnham Preby Medical Discovery Institute at Lake Nona with a joint appointment at Florida Hospital as Senior Principal Investigator at the Translational Research Institute for Metabolism and Diabetes (TRI-MD).

He holds a Bachelor of Arts in Biology from the University of Chicago. He received his Master of Science in Physiology from the University of Illinois and completed his PhD in Radiological Sciences at the University of Texas Southwestern Medical Center at Dallas. He has held faculty appointments in the Section of Cardiology at the Baylor College of Medicine in Houston TX, Harvard Medical School and Massachusetts General Hospital in Boston, MA, and the University of Illinois College of Medicine at Chicago. Before arriving at SBP, he was the Director of the UIC Center for Cardiovascular Research and also served as the Interim Head of the Department of Physiology and Biophysics at the University of Illinois College of Medicine at Chicago.

Dr. Lewandowski is an elected Fellow of the American Association for the Advancement of Sciences (AAAS), the International Society for Heart Research (FISHR), the American Heart Association (FAHA), and the American Physiological Society. He has served on and chaired numerous grant review panels for federal granting agencies and private research foundations. He also serves on the editorial boards of numerous medical journals.

Dr. Lewandowski’s research generally addresses the metabolic basis of contractile dysfunction in diseased hearts with a focus on metabolic remodeling in heart failure. His work has pioneered the assessment of metabolic flux and targeted detection of enzyme activity and transport within the cardiomyocytes of intact beating hearts using novel stable isotope methodologies that combine NMR spectroscopy and mass spectrometry. He has identified therapeutic protocols for heart disease using both gene therapy, pharmacological interventions, and improvement in contractility and energy metabolism of the failing heart through adjusted delivery of dietary fats. He has recently published novel observations of multi-organ crosstalk responses to pathological stress on the heart.
Michael Masternak, MD
Dr. Michal M. Masternak is an Associate Professor at the Burnett School of Biomedical Sciences at the University of Central Florida College of Medicine. Dr. Masternak received his Ph.D. in biological sciences from Karol Marcinkowski University of Medical Sciences (Poznan, Poland) in 2002 and completed his postdoctoral fellowship at the Department of Internal Medicine at Southern Illinois University before he was promoted to the Assistant Professor position in 2004. Dr. Masternak is a National Institutes of Health (NIH) supported investigator with a focus on aging and longevity research. He has published over 80 research articles, has served on NIH study sections and has been invited to present his work at many top tier research institutes.

The goal of the Masternak laboratory is to study the genetic mechanisms that regulate longevity. Current research is focused on relating somatotropic and insulin signaling pathways to metabolic alterations in adipose tissue and their effects on longevity and aging. New findings indicate that visceral fat affects insulin signaling differently in long-living Ames dwarf and growth hormone receptor knockout (GHRKO) mice in comparison to their normal littermates. This suggests that lack of activation of the growth hormone (GH) signaling pathway in visceral fat tissue alters the function of adipocytes in a way that acts positively on whole-body insulin sensitivity. Better understanding of this mechanism could help in developing therapeutic interventions to improve human health.
Glenn Walter, PhD

Dr. Glenn Walter is a Professor in the Department of Physiology and Functional Genomics at the University of Florida and is Core Director of the NMR Core, Southeast Center for Integrated Metabolism. He holds a Bachelor of Arts in Biology/Physics from Franklin and Marshall College and his PhD in biophysics from the University of Pennsylvania. His doctoral work focused on in vivo metabolism using MR under the guidance of the late Drs. Jack Leigh, Britton Chance, and Mildred Cohn at the University of Pennsylvania. Dr. Walter’s post-doctoral fellowship was performed with Dr. H. Lee Sweeney in the Department of Physiology at the University of Pennsylvania, during which time he expanded his knowledge of MR to study the in vivo physiology and metabolism of dystrophic muscle, prior to and following gene transfer of therapeutic genes as well as marker genes encoding for unique metabolic pathways. Ever since then, Dr. Walter has been using these combined biophysics, MR, and physiology foundations to develop comprehensive ways to monitor and study muscle structure, function, and metabolism in vivo.

Dr. Walter’s research focuses on the pathophysiology of muscle damage and the development of novel molecular imaging techniques. In addition, Dr. Walter develops stem cell therapies and utilizes viral delivery of therapeutic genes to mitigate muscle damage and to restore the regenerative potential of muscle. Throughout his career, he has developed cutting edge magnetic resonance and optical imaging technology in order to answer clinically relevant physiology questions. His primary area of research focus has been the development of translational noninvasive magnetic resonance imaging (MRI) and spectroscopy techniques for clinical applications, with extensive experiences in both animal models and patients. This work has led to the development of sensitive MRI based biomarkers for the tracking of disease progression and therapeutic interventions for the muscular dystrophies.
# Day 1: Tuesday, May 9, 2017

<table>
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<th>Time</th>
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| 8:00 am| Welcome & Opening Remarks  
         Steven Smith, MD - CSO, FH Research Institute |
| 8:10 am| Introduction of Keynote Speaker  
         Bret Goodpaster, PhD - Research Forum Conference Chair |
| 8:15 am| KEYNOTE LECTURE  
         Douglas Wallace - Children’s Hospital of Philadelphia Research Institute  
         A Mitochondrial Etiology of Common Complex Diseases |
| 9:15 am| Session Chair: Richard Pratley, MD - FH Diabetes Institute and Translational Research Institute for Metabolism and Diabetes  
         Lauren Sparks, Ph.D., - Translational Research Institute for Metabolism and Diabetes  
         Short-term aerobic and interval training improves muscle mitochondrial function and reveals a new role for an old protein |
| 9:30 am| Robert Standley, Ph.D. - Translational Research Institute for Metabolism and Diabetes  
         Weight loss exercise induced improvement in insulin sensitivity is associated with improved mitochondrial respiration in skeletal muscle of older obese subjects |
| 9:45 am| Mary Gaines, RN - Glycemic Management, Department of Nursing  
         The basal insulin inpatient glucose outcomes (BINGO) study: Evaluation of a standardized insulin dosing regimen in hospitalized patients with hyperglycemia |
| 10:00 am| Ali Amirkhosravi, PhD - Center for Thrombosis Research  
         A novel role for the membrane protein G6f in platelet activation induced by weak stimulation |
| 10:15 am| Break & Poster Presentations |
| 10:35 am| PARTNER PRESENTATION  
         Session Chair: Jeremy Burt, MD - FH Department of Radiology  
         Doug Lewandowski, PhD - Sanford Burnham Prebys Medical Discovery Institute  
         Targeting metabolic remodeling in heart failure |
| 11:20 am| Monica Davila, PhD - Center for Thrombosis Research  
         Induction of immune thrombocytopenia in mice expressing human Fcγ receptors: an improved experimental model that better reflects the inflammatory state associated with ITP. |
| 11:35 am| Brian Vickaryous, MD - Orthopaedic Research, Fracture Care Center  
         Intraoperative O-arm imaging of AO-OTA C2 and C3 distal radius fractures identifies malreduced final reductions in up to 30% of cases |
| 11:50 am| Jeremy Burt, MD - Department of Radiology  
         Evaluation of the use of coronary computed tomography angiography as a follow up to an inconclusive or negative cardiac stress test in young adult patients |
| 12:05 pm| Lunch & Poster Presentations |
# Day Two: Wednesday, May 10, 2017

## Time  | Speaker/Title
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8:00 am | Welcome & Opening Remarks  
Rob Herzog - VP of Research Organization, FH Research Institute

8:15 am | PARTNER PRESENTATION  
Session Chair: John Francis, PhD - Center for Thrombosis Research  
Michael Masternak, MD - UCF College of Medicine  
Role of adipose tissue in longevity: good vs. bad fat

8:30 am | Session Chair: John Francis, PhD - Center for Thrombosis Research  
Michael Masternak, MD - UCF College of Medicine  
Role of adipose tissue in longevity: good vs. bad fat

9:00 am | Sally Litherland, PhD - FHCI Translational Research Core  
Patient-derived 3-D spheroid cultures for characterizing remnant tumor cell burden and personalized targeted treatment

9:15 am | Annette Khaled, PhD - UCF Burnett School of Biomedical Sciences, College of Medicine  
CCT levels correlate with client proteins in breast cancer

9:30 am | Preya Wisner, DO - FHCI, Department of Gynecologic Oncology  
Evaluation of sentinel lymph node isolated tumor cells in endometrial cancer

9:45 am | Sally Litherland, PhD - FHCI Translational Research Core  
Lipidomics analysis revealed significant changes of plasma lipids in pancreatic cancer patients

10:00 am | Break & Poster Presentations

10:20 am | PARTNER PRESENTATION  
Session Chair: Bret Goodpaster, PhD - Translational Research Institute for Metabolism and Diabetes  
Glenn Walter, PhD - University of Florida Cancer Center  
Magnetic Resonance at the Cross Roads of Muscle Pathophysiology and Function

10:40 am | Scott Bush, PhD - FH Celebration Health  
Eye Movement Desensitization Re-processing as Treatment for Chronic Pelvic Pain

11:00 am | Eduardo Martinez Castillo, PhD - Magnetoencephalography Lab, FH for Children  
Brain mapping of associative memory using MEG: Profiles in healthy volunteers and patients with refractory epilepsy

11:20 am | Hussnain Mirza, MD - Florida Hospital for Children  
Delayed pulmonary vascular transition and BPD in extremely premature infants

11:50 am | Closing Remarks  
Bret Goodpaster, PhD - Research Forum Conference Chair.
KEYNOTE PRESENTATION
PODIUM PRESENTATION ABSTRACT#1

Notes:

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PODIUM PRESENTATION ABSTRACT #2:

Short-term aerobic and interval training improves muscle mitochondrial function and reveals a new role for an old protein

Lauren M Sparks, Natalie A. Stephens; Stephanie A. Parsons; Maria F. Pino; Andrew Hodges; Fanchao Yi; Steven R. Smith

Translational Research Institute for Metabolism and Diabetes

Attenuated mitochondrial oxidative capacity (function) is associated with the development of insulin resistance (IR) and type 2 diabetes (T2D). Exercise training has well-documented beneficial effects on skeletal muscle (muscle) mitochondrial dysfunction, which can be evaluated from clinical and molecular aspects within the same individual. In the present study, we harnessed the power of our cutting-edge technologies and examined in vivo and ex vivo muscle mitochondrial function, as well as transcriptomics in two cohorts: 1) lean/overweight sedentary (LOS) and 2) lean active (LA). We also investigated the effects of a short-term (Schedule of Events) combined aerobic and interval exercise training protocol on mitochondrial function in LOS participants (Table 1).

All assessments (including muscle biopsies of v. lateralis) were performed before (pre) and following (post) the intervention (Schedule of Events). In vivo mitochondrial function was assessed by 31P-MRS (ATPmax). Ex vivo mitochondrial function was measured via 14C-palmitate oxidation assays and high-resolution respirometry. Transcriptomic profiles were examined by microarrays combined with in-depth bioinformatics analyses (e.g., Viper-KR) and validated via qRT-PCR and Western blot assays.

Three weeks of combined aerobic/interval training was sufficient to improve aerobic fitness and muscle mitochondrial function in lean/overweight sedentary participants [to the level of lean active participants] without affecting fiber type or mitochondrial content. Thus, these improvements were likely intrinsic to the mitochondria. Transcriptomics revealed a novel target related to exercise-induced improvements in muscle mitochondrial function and highlight a potential new role for Tribbles 1 in muscle oxidative phosphorylation beyond its highly documented role in hepatic lipogenesis.
PODIUM PRESENTATION ABSTRACT #3:

Weight loss and Exercise Induced Improvement in Insulin Sensitivity is Associated with Improved Mitochondrial Respiration in Skeletal Muscle of Older Obese Subjects

Robert A. Standley, Giovanna DiStefano, Paul M. Coen, Bret H. Goodpaster
Translational Research Institute for Diabetes and Metabolism

Background: Insulin resistance in aging and obesity has been linked to impaired skeletal muscle mitochondria. Weight-loss and exercise improve insulin sensitivity (IS) and provide a conceptual and practical framework to explore relationships between IS and mitochondria function. We tested the hypothesis that weight loss and exercise induced improvement in IS would be related to change in mitochondrial respiration and cardiolipin species, an intramyocellular lipid that is critical to mitochondrial function.

Methods: Twenty-two older adults with obesity were randomized to one of two 6-month interventions; Health Education Control (CON: n=12 5M/7F, age=71±1, BMI=35.8±1.5) or Weight-loss and Exercise (WLEX: n=10 5M/5F, age=68±1, BMI=37.1±2.0). CON subjects participated in biweekly health education sessions with no specific exercise/dietary advice. WLEX subjects had a goal of 10% weight-loss through calorie restriction and completed a supervised exercise program. Testing before and after the interventions included: 1) Hyperinsulinemic euglycemic clamp to determine IS 2) Vastus lateralis biopsies to quantify intramyocellular lipids by mass spectrometry and mitochondrial function in fiber bundles by high-resolution respirometry.

Results: WLEX subjects lost 10.5kg (11.6%) and improved in IS (Glucose infusion rate (GIR), CON: -0.7±0.4, WLEX: 2.0±0.5 mg/FFMkg/min; p=0.053). Mitochondrial respiration also improved with WLEX following the intervention, compared to control (State 3), CON: -33.8±22.5, WLEX: 41.2±25.4 pmol/(s*mg); p=0.04). Improvement in GIR was associated with an increase in State 3 respiration (r=0.50, p=0.035). Total cardiolipin (CL), an index of mitochondrial content was not significantly different between the groups (CON: -0.29±0.52, WLEX: 0.49±0.28 nmol/mg; p=0.19). However, CL species 18:2-18:2-16:0-16:1 was reduced in the WLEX group compared to CON (CON: 0.0006±0.0003, WLEX: -0.0002±0.0002 nmol/mg; p=0.049).

Conclusions: Weight-loss and exercise induced improvement in insulin sensitivity is related to increased mitochondrial respiration within skeletal muscle.

This work was supported by the National Institutes of Health/National Institute on Aging (R01 AG021961 awarded to B.H.G.)
PODIUM PRESENTATION ABSTRACT #4:

The Basal Insulin Inpatient Glucose Outcomes (BINGO) Study: Evaluation of a Standardized Insulin Dosing Regimen in Hospitalized Patients with Hyperglycemia

Mary Gaines; Kristin Elias; Hong Tao; Anika Bilal; Lynn Rowe; Damon Tanton; Richard Pratley
Nursing Clinical Excellence and Research; Translational Research Institute for Metabolism and Diabetes

Background: Hyperglycemia in hospitalized patients is associated with poor patient outcomes including increased complication rates, longer length of stay, increased readmission rates and higher costs. Providers frequently manage hyperglycemia using correctional scale insulin alone despite consensus recommendations to use the more effective basal-bolus insulin regimen.

Design/Intervention/Methods: The BINGO study was a prospective study testing whether provider education using a simplified basal-bolus insulin regimen improved insulin dosing practices and whether this was associated with improved glucose outcomes. Providers at Florida Hospital Altamonte were educated about basal-bolus insulin dosing and encouraged to adopt a standardized insulin dosing regimen for patients with a blood glucose (BG) > 180 mg/dL and to initiate treatment within 24 hours of admission. Insulin dosing recommendations included basal insulin (glargine, 0.2 units/kg) or basal plus bolus (total 0.4 units/kg) with a low correctional scale. The providers were encouraged to discontinue the use of all oral anti-hyperglycemic agents. In lieu of the recommended insulin regimen, providers could choose to continue patients’ pre-hospital insulin regimen, if determined to be more appropriate. During the 4-month intervention stage a coordinator monitored the use of the preferred scheduled insulin regimen and glucose control and provided real-time feedback. Data were collected during three 4-month time periods: prior to intervention (PRE), during the intervention (INT) and post intervention (POS). The primary outcome was the change in basal insulin orders. Secondary objectives included the proportion of patients at goal (average BG 70-180 mg/dL) and the incidence of hypoglycemia (BG < 70 mg/dL).

Results: The patient demographics were similar during all periods, except for weight and Case Mix Index (CMI) (Table 1). A significantly larger proportion of patients received basal insulin during the INT and POS periods compared to PRE. The proportion of patients at goal increased during INT and POS relative to PRE, controlling for weight, CMI, age, GFR and HbA1C. Fasting BG on Day 1 of hospitalization decreased significantly during INT and POS, whereas fasting BG on Days 2 and 3 of the hospitalization were not significantly different. There were no significant differences in the incidence of hypoglycemia (BG <40 mg/dL or <70 mg/dL) across the different time periods.

Conclusion: Provider education using a simplified basal-bolus insulin regimen improved insulin dosing practices and was associated with improved glucose outcomes without increasing the rates of hypoglycemia.
PODIUM PRESENTATION ABSTRACT #5:

A novel role for the membrane protein G6f in platelet activation induced by weak stimulation

Ali Amirkhosravi; Monica Davila; Liza Robles-Carrillo; Meghan Brodie; John Francis  
Center for Thrombosis Research

Introduction: The lymphocyte antigen 6 complex locus protein (G6f) is a type I transmembrane protein of the immunoglobulin super family that is expressed on the surface of human platelets. The intracellular tail of G6f contains a single tyrosine in a single YXXI motif, which undergoes phosphorylation in response to GPVI and αIIbβ3-mediated platelet activation. This leads to the binding of the adaptor protein Grb2 to G6f. G6f is currently considered to be platelet-specific, but its function remains unknown. In this study, we investigated if antibodies against this membrane protein can influence platelet activation and aggregation caused by various agonists.

Methods: Washed platelets were stimulated with low doses of agonists: thrombin (0.03-0.05 U/ml), ADP (10 µM), IgG immune complexes (IC, 40-100 nM) and collagen related peptide (CRP, 0.25-1 µg/ml) with or without anti-G6f antibodies. Platelet aggregation and dense granule release were assessed by aggregometry and the serotonin release assay, respectively.

Results: Platelet aggregation and granule release induced by low dose thrombin, ADP (aggregation only) and IC were strongly inhibited (>80%) by the anti-G6f antibodies whereas CRP-induced platelet activation was inhibited by 40%. These effects were not observed with higher agonist concentrations.

Conclusion: Our results suggest a novel role for G6f in platelet activation caused by a broad range of agonists. The results also indicate that anti-G6f antibody promotes an inhibitory effect against agonist-induced platelet activation and aggregation. G6f may therefore represent a possible anti-thrombotic target. However, additional mechanistic studies are required to address this.
PODIUM PRESENTATION ABSTRACT #7:

Induction of immune thrombocytopenia in mice expressing human Fcγ receptors: an improved experimental model that better reflects the inflammatory state associated with ITP.

Monica Davila; Todd Meyer; Liza Robles-Carrillo; Hina Desai; Mildred Rivera-Amaya; John Francis; Ali Amirkhosravi

Center for Thrombosis Research

**Introduction:** Fcγ receptors (FcγRs, e.g. FcγRIIa) contribute to the pathophysiology of immune thrombocytopenia (ITP). Mouse models are often used to study the biology of ITP. In these, thrombocytopenia is achieved by passive administration of anti-platelet antibodies. However, they fail to reflect the inflammatory state associated with human ITP. Differences in the types and expression patterns of FcγRs between humans and mice may contribute to this discrepancy. Here, using mice transgenic for human FcγRs, we assessed ITP induced by native or chimeric anti-mouse platelet antibodies.

**Methods:** Mice transgenic for either the entire human Fcγ-receptor family (huFcγR) or only FcγRIIa (hFc), and wild type (WT) mice, were injected i.v. with anti-mouse platelet antibodies: MWReg30, 6A6 or chimeric 6A6 (c6A6), containing rat, mouse or human Fc domains, respectively. Core temperature and platelet counts were measured before and 30 min after injection. Alternatively, MWReg30 and c6A6 were injected i.p. and platelets counted daily for 7 days. Plasma IFN-γ, TNF-α, IL-2, IL-6 and IL-10 were measured 30 min after i.v. and on days 0, 3, 5 and 7 after i.p. injections.

**Results:** MWReg30 injected i.v induced severe thrombocytopenia (>90% platelet loss), hypothermia, and shock in huFcγR and hFc but not WT mice. 6A6 caused severe thrombocytopenia in huFcγR and hFc but hypothermia and shock only in huFcγR. In contrast, c6A6 caused mild thrombocytopenia (30% platelet loss) without hypothermia or shock in all strains. Severe sustained thrombocytopenia was achieved in all strains injected i.p. Significant elevation of IFN-γ, TNF-γ, IL-6 and IL-10 levels was observed in huFcγR mice injected i.v. or i.p. with MWReg30, and in both huFcγR and hFc mice with c6A6, but not in WT mice.

**Conclusions:** The use of anti-platelet antibodies having a human effector region in mice expressing human FcγRs is an improved model that more closely reflects the pathophysiology of human ITP and reveals its inflammatory nature.
PODIUM PRESENTATION ABSTRACT #8:

Intraoperative O-arm Imaging of AO-OTA C2 and C3 Distal Radius Fractures Identifies Malreduced Final Reductions in up to 30% of Cases

Brian Vickaryous; Robert Meuret
Orthopaedic Research, Florida Hospital Fracture Care Center

Background: Fractures of the distal radius are one of the most common orthopaedic injuries, and treatment, both surgical and non-surgical, requires that radial height, inclination, carpal anatomy, and articular congruity be restored to a normal range. Restoration of articular congruity for displaced intra-articular distal radius fractures has been found to correlate with posttraumatic degenerative changes and long term outcome. Utilizing minimally invasive technology, it was theorized that in complex intra-articular distal radius fractures, 3D imaging would identify malreductions in fractures that were thought to be anatomically reduced via standard fluoroscopic means.

Purpose: The study objective was to assess the quality of intraoperative definitive provisional reduction of AO-OTA C2 and C3 distal radius fractures through 3D O-arm visualization in comparison with intraoperative standard C-arm fluoroscopic imaging and effects on intraoperative management of fracture reductions and short-term radiologic outcomes.

Method: Distal radius intra-articular fractures with >2mm displacement or step off were retrospectively reviewed for period June 2015 to July 2016. All fractures were classified by AO/OTA and Medoff and had preoperative CT imaging. Primary reduction was deemed adequate for final fixation in the operative suite via standard C-arm fluoroscopy. Confirmation of adequacy of reduction was assessed through operative suite O-arm® imaging. The reduction and O-arm process was continued until an adequate reduction, defined as <2mm intra-articular displacement and removal of any intra-articular loose body that was not previously recognized.

Results: A total of 76 patients were included in the analysis, comprised of 74 OTA 23C and 2 OTA 23B fractures. It was noted that inaccurate assessment of reductions performed via C-arm fluoroscopic imaging occurred in 22 cases (28.9%), and corrections were made via O-arm® imaging. Seven (31.8%) of 22 patients had dorsal ulnar corner fragments, in addition to cases of unrecognized loose bodies, free impacted articular components and unrecognized step offs. An average of 3.4mm displacement was seen in 19 patients (25%). Average surgical time was 1 hour and 21 minutes. The average time to run an O-arm cycle and interpret the study was 6 minutes, and most patients received two cycles.

Conclusion: Standard intraoperative fluoroscopic imaging is often insufficient when assessing adequate reduction and displacement of distal radius fractures, particularly at the articular surface. Fixation efforts in complex distal radius fractures benefited from the use of intraoperative 3D O-arm® imaging. 3D visualization technology may represent a significant advance in procedural technique, potentially eliminating the need for revision surgery and decreasing the likelihood of future morbidity.
PODIUM PRESENTATION ABSTRACT #9:

Evaluation of the use of Coronary Computed Tomography Angiography as a Follow Up to an Inconclusive or Negative Cardiac Stress Test in Young Adult Patients

Melissa Kendall, Ali Agha, Raul Loya, Joseph Limback, Bo Liu, TJ Ward, Jeremy Burt

Department of Radiology

Background: Coronary artery disease (CAD) or coronary heart disease (CHD) is a major cause of mortality and morbidity in developed countries. It is estimated that nearly one half of all middle age men and one-third of middle age women in the United States will develop some manifestation of CAD during their lifetime.

There is clear evidence that both a CCTA and cardiac stress testing demonstrate clinical utility in the diagnosis of CAD in at risk patients. A CCTA is commonly used as a follow up procedure to a negative or inconclusive stress electrocardiogram for suspected CAD. However, there is no clear evidence for this diagnostic algorithm in patients under the age of 40.

The primary objective of this study was to determine the prevalence of abnormal coronary arteries on the coronary CTA in the diagnostic follow up of young adult patients aged <40 years with cardiac symptoms who had a negative or inconclusive cardiac stress test (stress EKG or nuclear stress myocardial perfusion imaging). We also sought to determine clinical variables that may influence the decision to perform CCTA following a stress test (including cardiac disease risk factors, age, gender, date and location of stress test, etc.), determine the subspecialty of clinicians who order CCTAs as a follow up test, and perform a cost-benefit analysis.

Methods: 100 subjects 40 years of age or younger with CCTA performed at Florida Hospital between January 1, 2008 and January 15, 2017 were evaluated. CCTA findings, specialty of ordering physician and multiple clinical variables were recorded for each patient and analyzed to identify any statistically significant associations. We determined the results of the stress test, EKG, and CCTA (based on CAD-RADs reporting method). We also correlated these findings with clinical correlates including age, ethnicity, presenting symptoms, lipid profile, Framingham risk score, tobacco use, recent or remote cocaine use, marijuana use, and other comorbidities including diabetes, hypertension, anxiety disorder, and obesity.

Findings: Our preliminary data supports the low prevalence of CAD in younger patients with a direct correlation between increasing age and risk of developing CAD. The prevalence of CAD in patients with a negative or indeterminate stress test is very low.

Conclusion: There is a very low prevalence of coronary artery disease, as determined by coronary CT angiography, in patients age 40 or younger with a negative or indeterminate stress test.
Patient-Derived 3-D Spheroid Cultures for Characterizing Remnant Tumor Cell Burden and Personalized Targeted Treatment

SA Litherland, Milan Srivastava, Ryan Sause, Paula Veldhuis, N Fanaian, E Griffith, Y Shao, S George, JP Arnoletti
FHCI - Translational Research Core, Institute for Surgical Advancement, FH Department of Pathology & Laboratory Medicine

The development of patient-derived ex-vivo tumor cell models (PDTM) allows for more accurate tumor characterization that includes both tumor and supporting immune/stromal cells, enhancing their potential to develop personalized treatment strategies. However, the prolonged length of time (1 to 5 months) required to adequately establish such models from surgically resected carcinomas negatively impacts their effective application in the everyday clinical setting. We have developed PDTM by isolating and culturing portal blood mononuclear cells (PoBMC), which include circulating tumor cells (CTC) that remain in the portal venous circulation following surgical resection of peri-ampullary cancers. PoBMC harvested at the time of pancreatico-duodenectomy were used to establish PDTM with ‘spheroid-like’ stem cell characteristics that are functionally useful for analyses of metastatic potential and drug susceptibility studies within 5-7 days of collection. In these PDTM cultures, we have identified different cell types and assessed their relative importance to the perpetuation of tumor cell viability and growth.

A pilot study of PDTM with PoBMC collected from 16 consented surgical patients (7 ampullary carcinoma, 2 PDAC, 2 IPMN, 2 cholangiocarcinoma, 3 non-malignant pancreatitis) showed a positive correlation between viable proliferating CTC and other cell types including myeloid derived suppressor cells (MDSC, p<0.0001, r²= 0.5394), dendritic cells (DC, p<0.0001, r²= 0.6265), and fibroblasts with monocyte markers (M-FB, p<0.0001, r²= 0.5294) when cultured in Matrigel and in fibronectin-stimulated monolayer. When PoBMC from patients with carcinomas were cultured in 3-D Matrigel, both CTC proliferation and the presence of MDSC populations were directly correlated to the emergence of M-FB (p<0.0001, r²= 0.7096). Disruption of the cultured CTC spheroid clusters by removing either CTC or M-FB results in decreased CTC viability. These findings suggest that MDSC may promote portal CTC survival and growth not only by blunting immune response but also by differentiation into or recruitment of stromal cell types such as M-FB. These studies point to the potential of portal CTC to recruit other blood cell populations to provide both protection from immunological attack and metabolic support while in transit from the primary tumor to distant sites constituting metastatic cell clusters. Therapeutic treatments targeting the integrity of portal CTC spheroid-like clusters may interfere with their metastatic potential among patients with peri-ampullary carcinomas.
PODIUM PRESENTATION ABSTRACT #12:

CCT Levels Correlate with Client Proteins in Breast Cancer
Burnett School of Biomedical Sciences, College of Medicine, UCF; FHCI Translational Research Core; Orlando VA Medical Center

Background and Purpose: To develop a therapeutic for treatment of advanced and metastatic breast cancer, we discovered CT20p, a cytotoxic peptide that kills breast cancer cells and causes tumor regression in xenograft models of breast cancer. Using a proteomics approach, we found that CT20p directly binds to multiple subunits of a type II chaperonin called chaperonin containing TCP-1 or CCT. CCT is a large macromolecular protein-folding complex composed of 8 subunits. Inhibition of CCT by CT20p depletes the pool of obligate client proteins, leading to cancer cell death. To advance the clinical application of CT20p, we examined levels of one CCT subunit, CCTbeta, in breast cancer patient tumor tissues and cell lines to determine whether high levels of CCT correlate with tumor subtypes, stage and grade as well as levels of client proteins.

Methods: Tissue microarrays (TMAs) with duplicate cores were prepared using archival tumor tissue from 25 breast cancer patients. Twenty specimens were from ductal carcinoma and five specimens were from tubulolobular or lobular carcinoma and represented a range of cancer stages and tumor grades. Immunohistochemistry (IHC) was performed to detect tissue levels of the CCTbeta subunit and the CCT client protein, STAT3. Staining was scored high, borderline or low by a pathologist. Using the CRISPR-CAS9 system, CCT2, the gene for CCTbeta, was decreased in MDA-MB-231 cells, a triple negative breast cancer cell line, and using a lentiviral expression system, CCT2 was overexpressed in the normal breast epithelial cell line, MCF-10A.

Results: We found that tissue levels of CCTbeta were high in 50% of the ductal carcinomas (10/20) as compared to 20% of lobular carcinomas (1/5). Within the subset of high grade (G3) ductal carcinomas, 82% (9/11) had high to borderline CCTbeta staining. Within the subset of low grade (G1, G2) ductal carcinomas, 66% (6/9) had high to borderline CCTbeta staining. No differences in CCTbeta levels were noted among cancers of different stages. Of the ductal carcinoma specimens that had high CCTbeta staining, 90% also had high STAT3 levels (9/10), while 100% of tissue specimens with borderline or low CCTbeta staining had corresponding borderline or low STAT3 levels. These results were confirmed using the MDA-MB-231 cells with reduced CCT2, which had decreased amounts of STAT3, and the CCT2-overexpressing MCF-10A cells that had increased levels of STAT3.

Conclusion: These results suggest that CCT is a promising target for therapeutic intervention due to its increased expression in high grade breast cancers that tend to be invasive such as ductal carcinomas. CCT expression highly correlated with STAT3 levels, indicative of the chaperonin’s protein-folding activity, and suggest that inhibitors of CCT, such as CT20p, could significantly reduce the levels of client proteins like STAT3 shown to be mediators of cancer progression. The detection of CCT and STAT3 in tumor tissues could thus inform the therapeutic application of CT20p for a precision medicine approach to treat breast cancer.
PODIUM PRESENTATION ABSTRACT #13: Evaluation of Sentinel Lymph Node Isolated Tumor Cells in Endometrial Cancer

Ketura Preya A. Wisner; Sarfraz Ahmad; Charanjeet Singh; Jasmine L. Gise; Sweta Pattanaik; Sarika Gupta; Amanda J. Stephens; Peter J. Pernicone; James E. Kendrick; Robert W. Holloway

FHCI, Department of Gynecologic Oncology; FH Department of Pathology & Laboratory Medicine

Background: Sentinel lymph node (SLN) mapping has been shown to be more sensitive for detection of lymph node (LN) metastasis than routine lymphadenectomy. There is no consensus on pathological assessment of SLN in endometrial cancer (EC). There is an emerging need to standardize the pathological processes and staging terminology with respect to low-volume metastases in EC.

Objectives: To evaluate clinico-pathologic characteristics of EC patients with ITC SLN metastases detected with enhanced pathology procedures.

Methods: We retrospectively analyzed patients (n=308) with early-stage EC who underwent robotic-assisted hysterectomy from 03/2011 to 01/2015. All patients were assessed in terms of clinico-pathologic data, size of LN metastasis, FIGO stage, tumor grade, GOG risk categories, myometrial depth-of-invasion (DOI), lymphovascular space invasion (LVSI), tumor size. SLN were evaluated via H&E and IHC stains. The metastasis size (macro-, micro, ITC) were compared for patient’s age, tumor grade, DOI, LVSI, histopathology, and tumor size.

Results: Patients’ mean was 63.5±9.6 years and BMI 32.9±8.4 kg/m2. Total LN counts were 19.4±11.4 [mean pelvic LN=16.4±8.3, mean aortic LN=6.2±3.7 (n=157)]. Majority of cases were Stage I (71%), Grade 1 (47%), Grade 2 (29%). 19% of cases met Mayo low-risk criteria. Majority of cases were Type I histology (84%). Mean lesion size was 4.3±3.3 cm, LVSI 28% cases, DOI (>50%) in 25% cases. 69 (22.4%) cases had LN metastases, of which 62 (90%) were SLN metastases. LN metastases were stratified as: macro-metastasis (n=30, 43.5%), micro-metastasis (n=15, 21.7%), ITC (n=24, 34.8%). There were 60 (19.5%) Mayo low-risk (G1, G2, < 2 cm, <50% DOI) cases and 3 (5%) had ITC metastasis, and no macro-/micro-metastases. There were 124 (40.3%) “intermediate-risk” (G1, G2, <50% DOI, >2 cm lesion) cases that had 15 (12.1%) SLN metastases, comprised of 9 (7.3%) ITC, 3 (2.4%) micro-, and 3 (2.4%) macro-metastases. There were 124 (40.3%) “high-risk” (G3, any grade >50% DOI) that had 44 (35.5%) SLN metastases comprised of 10 (8.1%) ITC, 11 (8.9%) micro-, and 23 (18.5%) macro-metastases.

Conclusions: In this population of low- and high-grade histology EC, 34.8% of metastases were ITC, and IHC analysis was required for detection of ITC in 58% of these cases. Three (5%) of 60 Mayo low-risk cases had ITC metastasis and no micro-/macro-metastases, seemingly validating the good prognosis of this category. The majority (i.e., two-thirds) of Mayo low-risk and intermediate-risk cases with SLN metastases are ITCs. Because the independent-risk of recurrence related to ITC metastases is unknown, decisions about adjuvant therapy should be made carefully with consideration of the primary tumor until more data is available.
Lipidomics Analysis Revealed Significant Changes of Plasma Lipids in Pancreatic Cancer Patients

Jianing Wang, Chunyan Wang, Miao Wang, SA Litherland, JP Arnoletti, and X Han
Sanford Burnham Prebys Medical Discovery Institute; FH Cancer Institute Translational Research Core; FH Institute for Surgical Advancement

Pancreatic ductal adenocarcinoma (PDAC) is one of the most difficult cancers to detect and treat. At present there are no specific biomarkers or strong imaging characteristics to aid in early detection, when surgical treatment can be curative. Lipids play many key roles in the basic processes at all stages of tumor development. Lipids are essential to multiple cell signaling pathways, both intrinsic and extrinsic, that converge to alter core cellular metabolism and provide support for the three basic needs of dividing cancer cells: rapid ATP generation to maintain energy status; increased biosynthesis of macromolecules; and tightened maintenance of appropriate cellular redox status. Our study has focused on developing a lipid profile to act as an identifying signature of PDAC to use as a screening biomarker in its early detection and as targets in its treatment. Portal blood samples from 25 patients consented under IRB protocol 507397 were collected intraoperatively during pancreateo-duodectomy for suspected PDAC.

Multi-dimensional MS-based shotgun Lipidomics (MDMS-SL), a technology platform for quantitative analysis of lipids, was used to screen plasma samples for 20 lipid classes and around 300 lipid species. Preliminary data from the first 10 patient sample set has helped to narrow the focus of the screening to lipid classes and species that show the most variation between pancreatic cancer (stages I-IV) and non-malignant inflammatory pancreatitis (control)/IPMN (early stage). The strongest cancer-stage related change detected was in the levels of ceramide. Ceramide is a lipid important by signaling programmed cell death by apoptosis and appears to build up in more advanced stage cancers that are very resistant to apoptotic death, suggesting this signal’s effectiveness may be being blocked in cancer cells. Cancer specific changes in other lipid classes including PIP (phosphoinositol phosphate), PIP2 (phosphoinositol bisphosphate), LPC (lysophosphatidyl choline), AC (acyl carnitine) and LPE (lysophosphatidyl ethanolamine) were also identified in a preliminary stage screening of 10 samples. Additional sample analyses are being conducted to determine whether these lipids will prove to be a reliable lipid signature profile for PDAC.
PARTNER PRESENTATION
PODIUM PRESENTATION ABSTRACT #15:

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PODIUM PRESENTATION ABSTRACT #16:

Eye Movement Desensitization Re-processing as Treatment for Chronic Pelvic Pain

Karen Wiercinski; Scott Bush

FH Celebration Health

Objectives: Chronic pelvic pain (CPP) presents a persistent and significant clinical challenge to healthcare providers due to its often unknown etiology and poor response to treatment. CPP often requires multidisciplinary care for appropriate management, which may include psychological intervention. Eye-movement-desensitization and re-processing (EMDR) therapy, utilized for the treatment of post-traumatic stress disorder, has recently been identified as an effective mode for the treatment of chronic pain psychologically linked to disturbing emotional events. To our knowledge, there are no studies of the effects of EMDR on pelvic pain. We, therefore, report our preliminary findings on the effectiveness of this type of therapy for chronic pelvic pain.

Methods: The patient population included females with chronic pelvic pain resulting from gynecological issues, including endometriosis and adhesions. Patients rated their pain using a numeric rating scale with intensity ranging from lowest level to highest level of pain (0 to 10). After assessment of baseline pain rating scores, each patient was seen by a psychotherapist who administered EMDR therapy for a minimum session of two hours. Following the therapy, pelvic pain was again rated. Pain scores were expressed as the mean ± SEM and a student t-test was used to assess statistical difference between the two measurement periods at a probability <0.05.

Results: Pain scores prior to the EMDR session averaged 6.92 ± 0.62, range = 4 to 10, median = 7.00. Post-therapy, all but one of patient experienced significant reduction in perceived pain. Mean pain intensity scores following therapy averaged 3.46 ± 0.67 with a range of 0 to 10 and a median score of 3.0. Pain intensity scores significantly (p=0.0002) differed between the examination periods.

Conclusion: The data show that 92% of patients experienced significant reduction of chronic pelvic pain, and some experienced total relief from pain, with EMDR therapy.

Summary: EMDR may be an effective alternative therapy for the treatment of chronic pelvic pain. Future investigations are needed to examine the effectiveness of the therapy with larger CPP patient populations and longer follow-up.
Brain mapping of associative memory using MEG: profiles in healthy volunteers and patients with refractory epilepsy

Martinez Castillo, Eduardo; Kleineschay, Tara; Korostenskaja, Milena; Chen, Po-Ching; Baumgartner, James; Seo, Joohee; Skinner, Holly; Lee, Ki Hyeong

Comprehensive Epilepsy Center, Functional Brain Mapping and Brain Computer Interface Lab, FH for Children

Background/Purpose: Evaluation of the functional integrity of medial and lateral temporal lobe structures is clinically relevant in patients with refractory epilepsy and candidates for surgical treatment. There is no consensus on a MEG procedure (including activation task and signal of interest) that is suited for the purpose of assessing the functional integrity of cortico-hippocampal networks and its contribution to memory. Here we describe our ongoing experience using MEG recordings collected in the context of a bimodal association memory task.

Methods: Data from 6 healthy controls and 8 epileptic patients is presented. For all epileptic patients, results from phase I evaluation were available. MEG recordings were conducted while the participants performed a bimodal association memory task. During the encoding stage, participants are asked to learn the association between a pictogram (visual input) and a word (auditory input) with overlapping presentation. Six pairs (pictogram-word) are presented during each block of the encoding phase. Following each block of the encoding phase, they are presented with each of the pictograms (visual cue) and are asked to recall the associated word. Signal analysis was centered in the characterization of changes during encoding versus recall in two frequencies of interest (Gamma and Theta) and two regions of interest (MTL vs lateral temporal). Using Brainstorm toolboxes and following the averaging of the MEG evoked fields derived during the encoding and cued recall (visual) conditions, a time-frequency decomposition (TF) of the MEG data was conducted with source localization of Theta and Gamma generators.

Results: Behaviorally, the performance during cued recall was significantly lower in the group of patients with epilepsy. Healthy volunteers demonstrated a sharp and positive learning curve with >90% retention of newly established audio-visual associations. Patients showed difficulties to establish bimodal associations and lower ability to retain information. In healthy controls, there was a significant (p > 0.05) increase in Theta power bilaterally during the encoding phase and a marginal increment of Gamma power (p > 0.08) during successful recall. Sources of Theta activity were primarily distributed in the MTL (p > 0.05) while sources of Gamma activity did show a distinct (lateral Vs medial) distribution (p > 0.01). In patients, poor performance was associated to inexistent (or unilateral) increase of Theta power during the encoding phase and lack of lateral temporal Gamma activity during the recall stage.

Conclusions: Our results suggest that the differential functionality of MTL and lateral temporal structures during the encoding and recall of multimodal information can be characterized by using MEG. Successful bimodal associative encoding is associated with changes in MTL functionality (increase in Theta power) and successful cued recall is associated with increase in Gamma power in lateral temporal lobe structures.
Background: Pulmonary hypertension (PH) in preterm infants is associated with bronchopulmonary dysplasia (BPD)/death but most optimal time to screen infants for PH is not known. Elevated pulmonary artery pressure (PAP) is characteristic of fetal circulation. After delivery, pulmonary vascular transition (PVT) takes place and PAP decreases to less than half of systemic systolic arterial pressure. Natural history of PVT in preterm infants is unknown.

Objective: To report the temporal profile of PVT in preterm infants and to find any association between delayed PVT or PH and BPD and/or death.

Design/Methods: Prospective cohort study of infants born at <29 weeks. Initial echocardiogram was at <48h of life and repeated every 24-48h for 14 days. Incidence of PH was calculated at 0-2, 3-6, 7-10 and 11-14 days of life and temporal profile of PVT was charted. Cohort was divided in 3 groups i.e. Normal PVT, Delayed PVT or intermittent PH and persistent PH (PPHN). Resolution of PH at <72 hours of life was considered normal PVT. Delayed PVT was defined as continued PH at >72 hours of life. PH noted after PVT was called intermittent PH. PPHN was diagnosed if PH continued till 14 days of life. BPD was defined as need for positive pressure ventilation or supplemental oxygen at 36 weeks corrected gestation. Risk of BPD and or death was calculated for each group. Multivariable analysis was performed to adjust for significant co-variables.

Results: From March 2015 to April, 2016, 60 infants were enrolled. The incidence of PH decreased from 71% at 0-2d to 30% at 11-14d of life. Three distinct patterns of PVT were recognized i.e. normal PVT, delayed PVT or intermittent PH and PPHN. Two infants with elevated PAP died before 72 hours (3%). No infant with normal PVT (n=20) died or developed BPD. Among infants with delayed PVT or intermittent PH (n=28), 18 had BPD or death. All infants with PPHN (n=10) had BPD or death. Infants with normal PVT had higher gestation and birth weight. On logistic regression, delayed PVT was independently associated with higher risk for BPD/death (p<0.001).

Conclusion: In extremely premature infants, incidence of PH progressively decreases over the first 14 days of life. Normal PVT occurs in only 33% infants, 47% may have delayed PVT or intermittent PH. Up to 14% infants may have PPHN up to 14 days of life. Delayed PVT increases the risk for BPD/death in preterm infants.
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POSTER ABSTRACT #1

Automatic Task Classification from RTFM Signals in Epilepsy Patients

Harish RaviPrakash; Milena Korostenskaja; Eduardo Martinez Castillo; James Baumgartner; Ki Lee

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Accurate language localization in the brain is vital for expanding surgical options and reducing the risk for post-surgery language deficits. Electrical cortical stimulation mapping (ESM) is gold standard in this manner; allowing to study the relationship between cortical structure and systemic function by localizing the function of specific brain regions through direct electrical stimulation. However, with the potential hazards of ESM, including inevitable random seizures, there is a need to shift to a safer alternative such as Real Time Functional Mapping (RTFM). This transition can only be made possible with the validation of the approach with performance of the gold standard ESM. Towards this aim, we studied both ESM and RTFM approaches in 5 epilepsy patients (all adults) undergoing the speech comprehension/language tasks for the Wernicke’s area localization. Our aim was to quantitatively compare RTFM signal with ESM and explore its predictive power and potential limitations. We have utilized advanced signal processing and machine learning/artificial intelligence methods to conduct this comparison as follows.

A 128-electrode model was used to capture signal information with a sampling rate of 1200Hz. All the positive and negative response channels with respect to the gold standard were considered in our evaluations. First, an auto-regressive power spectral density estimate of signal blocks of 30 seconds each were made from all channels. Second, machine learning algorithms were applied to processed data to discriminate positive and negative response channels. Third, the effective frequency components that contribute to this classification task were also tested. The preliminary results show promising findings, yielding ~83% accuracy in classification of negative/positive channels. We also found an interesting observation that is challenging the current paradigm the frequencies of interest in such experiments: there may be a need to move away from the Gamma frequency band for the analysis of negative/positive response channels. Table 1 indicates the accuracy, sensitivity, and specificity values obtained in machine learning based classification scheme utilizing features of the signals collected from all channels. In conclusion, RTFM is found to be a strong alternative to ESM, with potential rooms to further improve its quantitative characteristics. Our next experiments will include extensive feature extraction from time and frequency domains and apply machine learning algorithms to further improve these results. To our best of knowledge, this is the first study applying artificial intelligence methods to classify language localization tasks with automatic identification.
Myocardial Fatty Foci in Tuberous Sclerosis Complex: Imaging Findings

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Radiology Specialists of Florida

Tuberous sclerosis complex (TSC) is a rare autosomal dominant genetic syndrome. The hallmark of the disease is multiple hamartomatous lesions in multiple organ systems. Common cardiac manifestations of TSC are rhabdomyomas, which are a benign tumor of striated muscle. In some patients with TSC, myocardial fatty foci (MFF) deposition has been described with or without the presence of rhabdomyomas.

We present the case of a 24-year-old female with TSC and refractory seizures, who was evaluated with cardiac magnetic resonance (CMR) for an intracardiac right ventricular mass thought to be rhabdomyoma on echocardiography and for multiple areas of myocardial fatty deposition. Myocardial fatty deposition is a common finding in patients at cardiac imaging. In patients with TSC, it is critical that fatty deposits and lipomas are clearly distinguished from rhabdomyoma. CMR is an integral part of characterizing cardiac masses as it has superior soft tissue characterization and a wider field of view compared to echocardiography. A positive correlation has been shown between the number of MFF and the degree of extracardiac tuberous sclerosis (TS) manifestations suggesting that MFF may indicate more severe multiorgan disease in patients with TSC.

Cardiac MR is superior to echocardiogram in evaluating and distinguishing intracardiac lipomas and fatty deposits from rhabdomyomas. Published studies have indicated that in patients with TSC, the presence of MFF correlates with the severity of multiorgan disease as was seen in our case.
POSTER ABSTRACT #3

The interrelationship between functional co-morbidities and reported outcome measures in lumbar rehabilitation: Clinical implications

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Objective: The purpose was to 1) Determine if functional co-morbidities in lumbar spine rehabilitation patients, lead to higher or lower scores on the Modified Oswestry Disability Index (MODI) and 2) Determine if a relationship exists between patient reported outcome measures.

Study Design: A retrospective sample of 2,430 discharged orthopedic patients from 15 hospital physical therapy clinics involving 90 therapists in the Adventist Health- Florida Hospital Sports Medicine and Rehabilitation system from January 2016 – December 2016. All patients were receiving physical therapy for lumbar rehabilitation in an out-patient setting.

Data collection/extraction methods: Functional Comorbidities were collected using the Functional Comorbidity Index per patient report and medical history. The Modified Oswestry Disability Index and pain scores (VAS) were assessed pre-treatment and at discharge. The Pain Catastrophizing Scale (PCS) was scored at initial evaluation and the Global Rating of Change (GROC) was recorded at discharge.

Principal Findings: The group with the lowest average change in MODI are people with Arthritis and Asthma. There was a group of 84 patients with both arthritis and asthma who had an average change in the MODI of 6 percentile points as compared to the 852 patients without either co-morbidity where the average change was 11 percentile points. A group of 274 patients with both degenerative disc disease and arthritis had an average change in the MODI of 7 percentile points as compared to the 753 patients without either co-morbidity where the average change was 12 percentile points. The MODI difference is statistically correlated with the GROC score with a correlation coefficient of .400 (p-value<0.001). There is a linear association of pain score and the GROC; as the reported pain level increases the GROC decreases (Spearman correlation coefficient -.402, p-value<0.001). There is no statistically significant correlation between the MODI and the PCS (p-value=.418). Using a regression model for the MODI change and initially entering GROC then pain score, there was no additional modeling improvement by including pain score. Thus GROC and pain score provide similar information.

Conclusions: This study demonstrated the inter-relationship between functional co-morbidities in patients receiving physical therapy for lumbar pathology and the effect it can have on prognoses for a lower change in score on the Modified Oswestry Disability Index outcome measure. It also demonstrated the relationship between multiple patient reported outcome tools including the GROC, MODI, VAS, and PCS. Greater understanding of patient specific variables which may influence prognosis for lumbar rehabilitation is an imperative subject for future research in order to improve appropriateness and timeliness of health care services in an effort to reduce cost-utilization and ineffectiveness within the health care system.
POSTER ABSTRACT #4

Quantifying frontal plane knee kinematics in subjects with anterior knee pain: The reliability of 2D motion analysis vs. visual observation.

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FH Rehabilitation & Sports Medicine

Purpose: The use of three-dimensional (3D) video analysis is the “gold standard” for movement quantification, however other methods of evaluation with increased practicality have the potential to provide reliable examination of lower extremity kinematics. The purpose of this study was to assess the inter and intra-rater reliability of a 2D motion analysis video application vs. using visual observation alone. The Sparkmotion Pro (Sparkmotion LLC, USA) mobile application was used to analyze dynamic genu valgus in subjects with anterior knee pain.

Methods: Nineteen adult male and female subjects experiencing anterior knee pain completed a single leg hop test on their symptomatic and non-symptomatic lower extremities. Two investigators using visual observation alone and 2D motion analysis software with goniometric function recorded dynamic knee valgus during three trials of the single leg hop test on each lower extremity. Inter-rater reliability was calculated using model 2, k. The Intra-Class Correlation Coefficients (ICC) were calculated using model 3,k. Standard error of the mean (SEM), minimal detectable change (MDC) and concurrent validity were calculated.

Results: The ICCs using the goniometer on the 2D application demonstrated excellent reliability on the symptomatic lower extremity (ICC: 0.927) when compared to the non-symptomatic extremity (ICC: 0.792). Poor intra-rater reliability was demonstrated using visual observation alone (ICCs: 0.682-0.685). The concurrent validity for 2D analysis and visual observation for rater A and rater B on the symptomatic lower extremity were between ICC values of 0.96 and 0.85 respectively. The non-symptomatic lower extremity demonstrated concurrent validity ICC values of 0.95 and 0.65 for rater A and rater B respectively. The SEM when using the 2D application was 1.64° on the symptomatic LE and 2.71° on the non-symptomatic LE. When using visual observation alone without the application the chance for error in symptomatic subjects increased to 3.89° and 3.25° in non-symptomatic subjects.

Conclusion: This study supports the use of a 2D mobile application as a reliable tool for measuring knee valgus in symptomatic subjects.
POSTER ABSTRACT #5

Sight and Sound: Retinal Detachment and Ultrasound

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Introduction: Retinal detachment (RD) is a serious sight threatening condition caused by the separation of the inner light sensing retina from the outer pigmented epithelial layer. The three types of RD include rhegmatogenous, tractional and exudative. Diagnosis is often made under direct visualization by dilated fundoscopic exam (DFE), however certain conditions exist were this is not possible.

Case Presentation: A 24-year-old poorly controlled, type 1 diabetic with proliferative diabetic retinopathy and new bilateral eye pain. Visual changes were not clearly discernible.

Management and Outcome: Due to the patient’s complaint of eye pain, ophthalmology was consulted. Complete right eye evaluation was not possible under DFE so an ocular ultrasound was performed. A hyperechoic, thick, lifted membrane in the posterior globe lead to a diagnosis of tractional retinal detachment with subretinal hemorrhage. The patient was counseled regarding surgical intervention but deferred.

Discussion: Sonographic imaging for the detection of RD is a useful alternative when DFE is limited by visualization (e.g. vitreous hemorrhage) or setting (e.g. emergency department). Ocular ultrasound is easily accessible, timely and provides a high level of diagnostic accuracy.
Multimodality Imaging of Calcinosis of Chronic Renal Failure

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A 45-year-old male with end-stage-renal-disease (ESRD) and secondary hyperparathyroidism presented with shoulder and hip pain with associated periarticular masses. The prevalence of periarticular masses in ESRD patients is 0.5%-1.2% (1). Our patient was found to have calcinosis of chronic renal failure (CCRF), also referred as secondary tumoral calcinosis (STC). This is indistinguishable radiologically and histologically from primary tumoral calcinosis. Laboratory values and history of ESRD are distinguishing factors in making the diagnosis. (1) PTC patients have normal serum calcium levels and elevated phosphate levels. STC patients have decreased calcium levels, as with our patient who presented with slightly decreased calcium levels (8.1 mg/dl) and elevated phosphorus (5.7 mg/dl). We present multimodality imaging including radiography, sonography, and computed tomography (CT) that illustrate findings typical of calcinosis of chronic renal failure (CCRF).
Pathways to Address Early Weight Regain
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Background: Long-term (10 year) follow-up of Roux-en-Y gastric bypass (RYGB) patients find that a regain of 20 to 25% of initial weight loss is not uncommon. However, we have observed among our bariatric population that some individuals begin to regain weight as early as one to two years post-surgery. Such early weight regain, if not addressed, may contribute over time to failed weight loss success and a recurrence of associated co-morbidities.

Methods. The study population included 404 bariatric patients (330 totally robotic RYGB and 74 sleeve gastrectomy; SG) with postoperative follow-up for 24 months or greater. Preoperative BMI of patients averaged 47.0±7.5 (SD), mean weight was 290.8±56.7 lbs (132.2 kg), and mean age was 51.6±12.8. Total percentage weight loss for the study population averaged, 34.1% at year one, and 34.2% at year two. Individuals who regained ≥5% of their first year weight loss from postoperative years 1 to 2 were grouped as weight ‘regainers’. Those who lost ≥5% of their initial weight loss were grouped as weight ‘losers’, and individuals whose weight remained stable (<5% change) were categorized as weight loss ‘sustainers’.

Results. At postoperative year one, average weight loss was 99.5±31.5 lbs (45.2 kg) for all patients, 102.3±31.4 lbs (46.5 kg) for the RYGB and 86.4±3.4 lbs (39.3 kg) for the SG (p<0.001 between surgical procedures). By postoperative year two, 30% of patients had maintained their initial one-year weight loss (sustainers); 33% (weight losers) had lost additional weight (mean = 15.0 lbs or 6.8 kg); and 37% of the study population had regained ≥5% of their initial weight loss (regainers), with 21% of patients having regained ±10%, for an overall increase of 15.4% (13.3 lbs; 6.0 kg). Both the proportion of patients who experienced early weight regain and the extent of weight gained were greater following SG than RYGB. For all bariatric patients and each surgical procedure there were no significant differences (p>0.050) between weight gainers vs. losers with regard to gender, age, initial BMI or initial weight loss; none of these measures were significant predictors of weight gain. Based upon the relatively high incidence of early weight regain following surgery, we established pathways to address the issue. These now include: 1) education regarding early weight regain and the need for frequent monitoring, 2) the development of ‘Back on Track’ classes to review food choices, vitamin needs, adequate protein, fluid, and physical activity, 3) behavioral classes and counseling, 4) referral to our intensive multidisciplinary lifestyle program, 5) medical management, and 6) surgeon consultation.

Conclusions. Following the first postoperative year, more than 1/3 of bariatric patients experience early weight regain. Neither the magnitude of weight loss over the first year nor patient age, gender or initial body size are predictors of this early regain of surgery-induced weight loss. As early weight regain may be detrimental to long-term weight loss success and health, it is important to continue efforts to identify individuals at risk and provide early and appropriate intervention including education, nutritional and multidisciplinary classes, intensive lifestyle programs, medical management and surgical revision.
POSTER ABSTRACT #8

Early Weight Regain with Roux-en-Y Gastric Bypass versus Sleeve Gastrectomy

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Background. Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) cause massive weight loss over the first postoperative year. In a subpopulation of bariatric patients, such massive weight loss is followed by early weight regain that commences between postoperative years 1 and 2.

Objectives. The objectives of this study were: 1) to determine the extent to which early weight regain occurs following RYGB and SG and 2) to attempt to identify potential predictors, i.e. first-year weight changes, age, gender, and initial BMI.

Methods. The study population included 100 SG and 100 RYGB patients who were matched for gender, baseline BMI, and age. Individuals who gained >5% of their initial first year weight loss between 1 and 2 postoperative years were considered early weight ‘regainers’.

Results. Over the first postoperative year, SG patients lost significantly (p=0.001) less weight than did their RYGB cohort, i.e. 36.3% vs. 32.4%, respectively. Between 1 and 2 years, 36% of RYGB patients regained >5% of their initial one-year weight loss and 22% regained >10%, for a total early weight gain of 12.9%. In contrast, 50% of SG patients experienced weight regain >5% and 37% gained >10%, for an average gain of 18.1%. Early weight regain was not associated significantly (p>0.05) with age, initial BMI, gender, or first year weight loss.

Conclusions. Early weight regain occurs among a relatively high number of bariatric patients; the prevalence and extent being significantly greater for the SG than RYGB.
Outcomes of Totally Robotic Primary Versus Secondary Roux-en-Y Gastric Bypass (RYGB)

Keith Kim, Sharon Krzyzanowski, Michelle Young, Cynthia Buffington

Department of Bariatrics, FH Celebration Health

Background and Purpose. Studies find that secondary surgeries have a higher rate of morbidity and mortality than do primary bariatric procedures. In this study, we compare the outcomes of primary versus secondary RYGB performed totally robotic (TR).

Methods. The study population included 1234 primary TR-RYGB procedures and 130 TR secondary operations (surgical conversions to RYGB including: 86 bands to RYGB, 11 sleeves, 21 vertical banded gastroplasties, 1 JIB, 3 Billroth I, II, 5 Nissen, 1 horizontal gastroplasty, and 1 mini-bypass to RYGB). Outcome measures included operative time, length of stay (LOS), and 30-day readmissions, reoperations and mortality.

Results. Mean operative times for the primary and secondary TR-RYGB procedures were 123.7±0.96 vs. 182.1±5.3 min, p<0.001, respectively, and LOS was 2.3±0.05 vs. 2.9±0.23, p=0.0005. Perioperative mortality was 0% for both surgeries and, for the primary TR-RYGB, 1 conversion to open due to patient anatomy. Total 30-day readmission rates for the primary TR-RYGB was 6.5%, with 3.7% resulting from malaise and 2.9% from physical complications. The 30-day readmission rate for the secondary surgeries was 7.6% (4.6% malaise, 3.0% physical). Postoperative leak rate was 0.08% for primary and 0% for secondary TR-RYGB. 30-day reoperations averaged 3.4% and 3.8% for the primary and secondary surgeries, respectively. Mortality rates were 0.2% for primary and 0% for secondary TR-RYGB.

Conclusion. Secondary RYGB surgeries require more operative time and hospital stay than primary procedures. However, using the totally robotic system, rates of morbidity and mortality are relatively comparable.
Comparative Outcomes of Totally Robotic Roux-en-Y Gastric Bypass (TR-RYGB)
Between Individuals with Super-Super vs. Morbid Obesity

Sharon Krzyzanowski; Keith Kim; Cynthia Buffington
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Background and Purpose: Individuals with super-super obesity, i.e. body mass index (BMI) > 60, as compared to their less severely obese cohorts, are at greater risk for complications with Roux-en-Y gastric bypass (RYGB) due, in part, to a higher incidence of co-morbidities at the time of surgery. Such a severe state of obesity also imposes a number of technical challenges to the surgeon in performing laparoscopic RYGB, including increased torque and a significantly reduced visual field. The robotic platform system may be helpful in lowering surgical risks for individuals with super-super obesity due to its 3-D vision, intuitive motion, enhanced dexterity and ergonomic advantages over the conventional laparoscopic approach. In this study, we have assessed surgical risks and outcomes of TR-RYGB for super-super obese patients and compared these outcomes to a matched group of patients with a less severe stage of obesity (BMI 40-49).

Methods: The study population included 1,231 TR-RYGB patients, with 125 or 10.1% of the population having a BMI > 60 and follow-up visits > 24 months post-surgery. These individuals were gender- and age-matched to an equal number (n=125) of RYGB patients with a BMI < 50 (40 to 49). Outcome measures included: operative time, intra-operative complications and conversions, length of hospital stay (LOS), in-hospital complications/reoperations, 30-day readmissions and reoperations, 30-day mortality, and total % change in BMI and in excess weight loss (EWL) at postoperative months 6, 12, and 24.

Results: As patient groups were gender- and age-matched there were no differences in these preoperative variables, mean age = 42.7 years and female-to-male gender distribution = 87/38 for both populations. Health status (ASA and co-morbidities) for individuals with super-super obesity was significantly (p<0.01) worse than for the leaner cohort. Operative times were significantly (p<0.0001) longer for those with super-super obesity vs. morbid obesity (128.5 + 2.52 and 119.8 + 2.73 min, respectively) and there was a trend (p=0.09) toward a longer hospital stay for patients with super-super obesity (2.31 + 0.08 vs. 2.12 + 0.07). Intra-operatively, neither patient population experienced complications or required a conversion to a traditional laparoscopic or open procedure. The complication rates during the hospital stay were identical (1.6%) between the groups, as were the number of surgical reoperations (2 per group). There were also no differences in 30-day readmission rates between the populations (4.8%), and 30-day reoperations averaged 0.8% (n=1 cholecystectomy) for the super-super obese and 0% for the less obese cohort. Mortality rates for the first 30 days were 0% among patients from both study groups. Weight loss (% change in BMI) was similar (p >0.05 = NS) between the comparative groups at 6, 12, and 24 months.

Conclusions: Individuals with super-super obesity have no higher morbidity and mortality risks with TR-RYGB than do their less obese counterparts and all TR-RYGB patients experience low rates of complications, along with 0% 30-day mortality and 0% anastomotic leaks.
POSTER ABSTRACT #11

Effects of The REST of Your Life Program on Sleep Quantity and Quality
Scott Bennie; Manoucher Manoucheri; Rebecca Robbins; Lucy Boers; Chelsea Hartman; Andrew Crofton
Adventist University of Health Sciences; CREATION Health Employees, FH Publishing

Background and Purpose: According to the National Commission on Sleep Disorders Research, approximately 70 million Americans suffer from sleep problems including sleep disorders, sleep deprivation, and sleepiness, which add an estimated $15.9 billion annually to national health care costs. Furthermore, fatigue is costing U.S. businesses over $150 billion annually in absenteeism, workplace accidents, poor and delayed decision-making and other lost productivity. Notably, a study by Groeger et al. suggests that perception of sleep duration might be as important as actual duration since reporting less sleep is associated with poor performance and quality of life even though sleep hours are unchanged.

Methods: This single-site longitudinal quasi-experimental study compared quantity and quality of sleep in a cohort of Florida Hospital employees before (n=58) and after (n=50) completing The REST of Your Life course, which is part of the CREATION Health program. This course is an evidence-based intervention that offers practical solutions to sleep deprivation through a one-time 4-hour class. Each subject completed the National Sleep Foundation Sleep Diary to report their daily sleep hours for two weeks prior to the intervention and four weeks immediately following, while the Pittsburgh Sleep Quality Index (PSQI), a self-rated questionnaire, was used to assess sleep quality and disturbances. The PSQI has seven component scores which, when totaled, create a “global” score from 0-21, with lower scores implying better quality sleep. Global scores of <5 are associated with good sleep quality. The PSQI was completed by each subject for two weeks before the intervention and four weeks after. Forty subjects completed both the Diary and PSQI and their pre-/post-intervention scores were analyzed by paired t-test.

Results: No significant change in mean total hours of sleep each day was found from pre- (6.69±0.16 hrs; mean ± SEM) to post-intervention (6.85±0.16 hrs; t(39)=1.78, p=0.08). However, there was a significant decrease in the PSQI Global score from pre- (8.40±0.55) to post-intervention (6.43±0.53); t(39)=4.65, p<0.0001). Despite a non-significant increase of 10 minutes in actual sleep reported, subjects’ perception of their sleep improved.

Conclusion: Results suggest The REST of Your Life program can improve perception of sleep in the four weeks after completion even without a significant increase in sleep duration. Improved perception of sleep is linked to reduced rates of illness, improved alertness and focus, and reduced errors. A six-month post-intervention follow-up is planned to determine the long-term duration of The REST program’s impact on sleep duration and perception.
POSTER ABSTRACT #12

Effects of The REST of Your Life Program on Physical and Psychological Health

Scott Bennie; Manoucher Manoucheri; Rebecca Robbins; Lucy Boers; Chelsea Hartman; Andrew Crofton

Adventist University of Health Sciences; CREATION Health Employees, FH Publishing

Background and Purpose: Sleep deprivation and poor sleep affect 20% of Americans and are known to impact overall health and well-being. To help address this issue in the Florida Hospital (FH) workforce, a novel course, The REST of Your Life that consists of a single four-hour class was developed for FH and beyond. The REST course is designed to help employees understand positive effects of good sleep habits and identify their sleep habits, methods to potentially improve their sleep habits, and support in learning these new behaviors. The REST course has been shown to improve sleep perception, despite not significantly increasing daily sleep duration within 4 weeks of completion. We hypothesized, based on existing literature evidence, that this improvement in sleep perception and or completion of the REST program would also improve overall physical and psychological health.

Methods: We tested our hypothesis in a cohort of 38 FH employees who completed the REST course and completed assessments/questionnaires and physiological testing 4-weeks post-intervention. Physiological parameters that have been established as indicators of overall health, including heart rate (HR), blood pressure (BP), and body mass index (BMI) were assessed pre- and post-intervention using standard methods. Assessments and questionnaires that assess both physical and psychological health status were also administered pre- and post-intervention and included the Generalized Anxiety Disorder 7-Item Scale (GAD-7), Health Behavior Inventory (HBI), Patient Health Questionnaire (PHQ-9), ARES-Epworth Sleepiness Scale, Dysfunctional Beliefs and Attitudes about Sleep (DBAS-16) and the Insomnia Severity Index (ISI). Data were analyzed by both paired and unpaired t-tests and subgroup analyses of night vs. dayshift workers were also performed.

Results and Conclusion: There was no significant difference in HR, BP, or BMI 4-weeks post-intervention compared to baseline values for the full cohort or the subgroups. There was also no significant difference in the ARES-Epworth, ISI, or GAD-7 questionnaires pre- vs. post-intervention. However, there was a significant decrease in the PHQ-9 (p<0.01) and the DBAS-16 (p<0.05) in the full cohort after the REST program, but only the dayshift PHQ-9 remained significantly decreased (p<0.05) in the subgroup analysis. In the full cohort analysis, there was also a trend toward a decrease in the HBI questionnaire scores, but the difference fell just short of statistical significance (p=0.06). There were also no significant differences between nightshift and dayshift workers on any of the variables measured. The significant decrease in DBAS-16 scores suggests an improvement in subjects’ understanding of sleep, their ability to cope with sleep loss, and or their expectations for sleep after completing the REST program. The decreased PHQ-9 score suggests improved psychological health based on decreased feelings of depression after completing the REST program. This study provides strong preliminary evidence that the REST program is effective in improving psychological and physical health of subjects who complete the REST course.
POSTER ABSTRACT #13

Effect of Implementing an Integrated Breast Education Class on Existing Breast Cancer Program

Nicole Centers; Olga Ivanov; Kathy Payares; Courtney Krantz; Bill Kelley
FH Celebration Health

Background: Interventions to instruct patients must be made to accommodate a cost-effective format for the treating facility in a structure that can be absorbed by the majority of patients for high compliance rates and participation in available programming. Due to the multitude of papers received, difficulty of education absorption at time of diagnosis and treatment, and varying efficacy of all patients receiving the same type and amount of education, many patients exhibit behaviors of poor compliance to diagnosis and treatment education and attendance at available services offered. We implemented a new breast surgery education class to increase patient compliance and participation in programing. The class included a hospital tour of essential departments to care, PowerPoint presentation for peri-operative instructions, survivorship planning, and additional program information. Multidisciplinary oncology certified staff (dietician, exercise physiologist, OCN®, department marketing personnel, and LCSW®) led the instruction portion of the class relevant to their respective area. This study monitored course efficacy.

Methods: The study population included 158 new breast cancer patient enrollees and 208 undifferentiated surgical patients for a total of 366 participants from one physician’s practice. All patients scheduled for surgery were invited to the weekly-offered class from January to June 2016 and the class became mandatory on July 1. We then monitored participation in programming and pre- and post-course phone calls related to surgery questions, Pathway to Wellness encounters, individual ACS registrations, and support group participation.

Results: Class participation before July was 31 and after was 69 with surgeries numbering 109 and 99 in the same respective time frames. Patient calls numbered 407 prior to July 1 and declined to 220 from July 1-December 1. Pathway to Wellness encounters following initiation of the course increased by 41%. Prior to the course, there were zero ACS registrations and 73 following commencement of the class. Support group attendance was 17 prior to the course and 86 following intervention.

Conclusion: A classroom-style course with integrated instruction is efficacious in improving patient knowledge and participation in available programing.
Objectives: To determine the differences in the care needs for patients undergoing gynecologic surgeries (robotic and laparotomy) before and after their procedures.

Methods: A descriptive exploratory design was used in this IRB approved study, comprised of 205 gynecologic surgery cases [robotic (R)=144, laparotomy (L)=61], consented to participate during March-Sept, 2016 at a tertiary care hospital. Data were collected using the Participant Description Questionnaire, Patient Care Needs Determination Form, and Patient Learning Needs Scale (PLNS). Using SPSS-22, categorical variables were summarized with counts and percentages. Continuous variables were summarized with mean±SD. Independent sample t- & Chi-square tests were used for statistical comparisons.

Results: Patients’ mean age was similar in R and L groups (55±14 years), BMI 29±9 kg/m2. Pre-op diagnoses were: 6.4% cervical, 28.2% endometrial, 20.8% ovarian cancers, and 44.6% were benign. Before surgery, there was no difference in patients’ perceived care needs between R and L. After surgery, R cases were less likely to need support (family/professional) for managing their care at home [daily living/physical activity 15% vs. 70% (p=0.010), complications 14% vs. 47% (p=0.017), pain management education 13% vs. 39% (p=0.022), assistance with household activities 10% vs. 39% (p=0.009)]. R cases had lower pain scale (2.5±1.8 vs. 3.5±2.4, p=0.018) and required less analgesics (86% vs. 98%, p=0.009) during first 24 h. Recovery room length-of-stay (LOS) was less in R (99±8 vs. 127±16 min, p<0.001), and hospital LOS was shorter (1.1±0.6 vs. 3.3±1.0 days, p<0.001). PLNS total score for R were higher than L cases [186±37 vs. 162±47, p<0.001]. For R and L groups, patient reported symptoms within 10-days after surgery were: tenderness at incision site 70% vs. 77%, fatigue 69% vs. 62%, bloating 64% vs. 45% (p=0.012), and loss of appetite 39% vs. 55% (p=0.034).

Conclusions: Patients undergoing robotic procedures were less likely to need help with managing their daily living needs at home. Robotic cases experienced less pain and had shorter hospital LOS. Although robotic cases required less care after surgery, they desired more information about their treatment/illness, perhaps related to the short LOS. This suggests more resources are required in the preoperative education of robotic surgical patients.
POSTER ABSTRACT #15

Outcome of the Da Vinci Xi Single Site Robotic Gynecologic Surgery

Aileen Caceres, Cynthia Buffington, Eva Reina, Karen Wiercinski
FH Celebration Health

Objectives: Robotic single site surgery minimizes the technical difficulties associated with laparoscopic single site incision but it still limits the user to only one articulated instrument. The aim of this study was to assess the incidence, outcome and feasibility of gynecologic surgeries performed via the latest advanced da Vinci Xi Single Site robotic platform.

Methods and Procedures: All patients who underwent da Vinci Xi Single Site (SS) surgery between June 2016 and January 2017 were included for analysis at a single institution. This is a retrospective study analyzing incidence and outcomes of gynecologic procedures using electronic medical records.

Results: We identified 35 patients undergoing Xi SS robotic surgery over a 7-month period. Mean age was 42.5±3.0 (47-70 y) and BMI was 27.9±6.4 (18-42). Twenty-four patients underwent Xi SS Robotic-assisted total hysterectomy +/- bilateral salpingo-oophorectomy. Additional procedures included: SS myomectomy (n=3), excision of endometriosis lesions (n=5), trachelectomy (n=2) and ovarian mass/paratubal cyst removal (n=1). Port entry, docking, console, and cuff closure times averaged a respective 16.4, 6.9, 49.9 and 17.7 minutes and inversely correlated (p<0.05) to surgery order. Intraoperatively, there were 2 conversions to multiple port sites. Length of stay was ≤ 23 hrs for 94% of patients. Pain scores (1-10) averaged 2.52, 3.25, 2.66 at 6, 12 and 24 hrs and 1.25 and 0.0 at 2 and 6 weeks. Patient satisfaction and cosmesis scores were high.

Conclusion: In highly select patients for gynecologic surgery, the da Vinci Xi Single Site platform is associated with acceptable operative times and perioperative outcomes.
The interaction between humans and microbes that colonize the human body is a topic of great interest among the scientific community. Furthermore, the relationship between these probiotic bacteria and prebiotics has also gained attention. The most common prebiotics used in human nutrition are fibers; therefore, learning how fibers can affect the growth of probiotics is a priority. Furthermore, fiber supplementation has been proven beneficial and recommended by the American Heart Association. However, fiber consumption has not increased substantially over the last few decades. Therefore, finding a new benefit of fiber consumption may result in improved intake. We have previously shown that supplementing growth media with different fibers (prebiotics) can stimulate the growth of Lactobacilli. However, some of the supplemented fibers did not stimulate growth as expected. Therefore, it was hypothesized that heat-treating the fibers before exposure to the bacteria would improve their availability, which would improve bacterial growth. To test this hypothesis, L. acidophilus (LA, ATCC 4356™) and L. rhamnosus (LR, ATCC® 53103™) were used as the bacterial inoculum grown on MRS (de Man, Rogosa and Sharpe) broth supplemented with different fiber.

Four different fibers (inulin, fructooligosaccharide -FOS, psyllium, and β-glucan) were used in the study mixed in the media at a concentration of 1%. Fibers were added to the broth before autoclaving for sterilization and heat treatment. After inoculation, tubes were incubated at 37 °C in microaerophilic environment for 24 h, then plated onto the MRS agar plates and grown for 48-72 h at 37°C in microaerophilic environment. Colonies were counted and expressed in colony forming units (CFU). Data of our previous study was used for comparison. The pH of the broth was measured and compared between treatments and bacteria. After statistical analysis, psyllium and β-glucan supplementation significantly increased the growth of LR (p=0.02) after the heating process. LR growth was significantly higher than LA both in the current study (8.8 vs. 7 log CFU/ml, p<0.001) and in the previous (9 vs. 7.5 log CFU/ml, p<0.001). After the data was compared to the previous study (without heat treatment), on average LA (7.5 vs. 7 log CFU/ml, p=0.0361) as well as LR (9 vs. 8.8 log CFU/ml, p=0.0213) showed significantly higher populations without heat-treating the fibers. pH reduced significantly after growth in all treatments, but it was significantly lower for LR than for LA (4.2 vs. 5.3, p<0.001).

In conclusion, LA is a more fastidious organism compared to LR, which might account for the lack of improvement in growth after fiber supplementation. The pH of the medium decreased after growth, but it was not influenced by the treatments. Even though the treatment effect was not as significant compared to the previous study, LR was still influenced by fiber supplementation, in which for the second time, psyllium showed to improve LR growth. Therefore, after the comparison of the two experiments, heating treatment did not improve the use of supplemented fiber as predicted. Lastly, more studies are needed to elucidate how bacterial cells react when exposed to higher fiber concentrations.
POSTER ABSTRACT #17

Platelet activation by antiphospholipid antibodies through the IgG Receptor FcγRIIa: possible role in thrombosis associated with APS?

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Introduction: Antiphospholipid antibodies (aPLAbs) targeting beta-2 glycoprotein I (B2GPI) are of primary importance in thrombosis associated with antiphospholipid syndrome (APS). The predominance of the IgG isotype in APS is conspicuously linked with increased risk of thrombosis, raising the question whether the platelet IgG receptor, FcγRIIa, may play a role in thrombosis caused by aPL, as is the case in heparin-induced thrombocytopenia in which heparin Abs directly activate platelets through FcγRIIa. We have previously shown that: (1) goat anti-human B2GPI-Abs ± human B2GPI strongly activate human platelets in vitro, and that this activity is abolished by the anti- FcγRIIa antibody IV.3; (2) anti-B2GPI immune complexes are thrombotic in mice transgenic for human FcγRIIa but not in wild type mice.

Aim: We sought to investigate if IgG from patients with aPLAbs can activate platelets in a manner dependent on FcγRIIa.

Methods: IgG was purified from plasma of 46 patients with aPLAbs and/or lupus anticoagulant. The capacity of the IgG to activate platelets (±B2GPI) was evaluated by serotonin release assay (SRA) and washed platelet aggregation (WPA). With WPA, platelets ± IV.3 were either: (a) primed with ADP followed by IgG introduction or (b) incubated with IgG (30 min) followed by introduction of low thrombin concentrations.

Results: With or without B2GPI, IgG from 10 of 46 (22%) patients caused platelet dense granule release. In all cases this was abolished by IV.3, indicating the dependence of FcγRIIa. Aggregation of ADP-primed platelets was observed with 1 of 2 of the above 10 IgGs. Preincubation of platelets with aPL IgG from 2 patients sensitized platelets to aggregate in response to otherwise subaggregatory thrombin stimuli. This effect was also abolished by IV.3.

Conclusion: These findings suggest that aPLAbs from patients can directly activate and/or sensitize platelets in a FcγRIIa-dependent manner. This mechanism may contribute to thrombosis in patients with aPLAbs.
POSTER ABSTRACT #18

Natriuretic Peptide Receptor Regulation in Human Obesity and the Effect of Exercise and Caloric Restriction

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Introduction: Natriuretic peptides (NP), ANP and BNP stimulate lipolysis and energy expenditure in adipocytes via NP receptor-A (NPRA). In human adipocytes and in animal studies, NPs activate a brown fat gene expression pattern. Plasma NPs are lower in obesity and correlate with BMI. The strength of the NP response depends on the relative amounts of the two receptors – NP receptor ratio (NPRR).

Methods: We performed 3 clinical studies to examine the relationship of adipose tissue NP receptors (NPR) gene expression to obesity and insulin sensitivity in humans; and to explore the effect of physical activity and weight loss on NPRs expression in abdominal subcutaneous adipose tissue and skeletal muscle. We measured gene expression of NPRA and NPRC in abdominal subcutaneous adipose tissue and skeletal muscle by quantitative real-time PCR.
1) A cross-sectional study of 51 subjects with a wide range of BMI (18.3-60.3 kg/m²) and glucose tolerance (NGT, IGT, T2DM).
2) A cross-sectional study of 24 subjects with various level of general fitness and physical activity: active (BMI 22 to 29.9 kg/m²; VO2max ≥ 45ml/kg FFM/min) (n=6); sedentary obese (BMI ≥ 30 kg/m²) (n=8); and sedentary lean or overweight (BMI 22 to 29.9 kg/m²) (n=10). Sedentary lean or overweight underwent 3 weeks of combined aerobic and interval training with increasing intensity.
3) An interventional study of 35 healthy overweight to obese (BMI 35.5±0.5 kg/m²) men and women that consumed low calorie diet (LCD) (900-1000 kcal/day), consisting of meal-replacement shakes for 14 days.

Results: In obesity, adipose tissue mRNA expression of the receptor that mediates NP activity (NPRA) is downregulated and the ‘clearance’ receptor (NPRC) is upregulated. The NPRA/NPRC mRNA ratio in adipose tissue of obese was lower compared to lean subjects (p≤0.001). Independently of BMI, NPRA/NPRC was reversed in T2DM comparing to subjects with normal and impaired glucose metabolism (p≤0.01) and strongly correlated with insulin sensitivity (r=0.5841, p≤0.001). Higher physical activity significantly decreases adipose tissue NPRC mRNA (p≤0.05), while sedentary lifestyle plus increase of body fat increases NPRC in adipose tissue (p≤0.05) as compared to lean subjects. Both, exercise and diet significantly increase gene expression of NPRA in skeletal muscle (p≤0.001). NPRA/NPRC ratio in adipose tissue and muscle was improved after both exercise and diet, however only the change with weight loss was significant.

Conclusion: Dysregulation of the NP system may play a role in the development of insulin resistance in obesity and can be improved by non-pharmacological interventions – exercise and diet. The NP system could represent a novel therapeutic target for the treatment of obesity and insulin resistance.
Micro RNA (miRNA) are small non-coding RNA that play a central role in RNA interference, regulating the expression of ~30% of genes. Aside from local intracrine and paracrine actions, miRNA circulate in the systemic circulation in extracellular vesicles (EVs; microvesicles or exosomes) that harbor distinctive signatures depending on the tissue and its condition from which they are released, suggesting endocrine actions. We propose that dysregulated release of miRNA in EVs is an additional factor by which abnormal adipose tissue contributes to skeletal muscle insulin resistance in humans, which plays an important role in the pathogenesis of type 2 diabetes.

To this end, we recruited a total of 18 subjects who were either lean insulin-sensitive (HOMA IR ≤ 2.5), obese insulin-sensitive or obese insulin-resistant (HOMA IR > 2.5) (N = 6/group). Subcutaneous adipose tissue was collected from the participants’ abdominal region and immediately used for explant culture for 24 h resulting in generation of condition medium. EVs were isolated by differential centrifugation and suspended in DPBS. Transmission Electron Microscopy (TEM) of the suspension showed intact circular structures of varying sizes (30-280 nm), confirming EVs. Presence of adipocyte enriched miRNAs in EVs was confirmed by qPCR. EVs protein were immunoblotted positive for the exosomal markers CD9, CD63, Flotillin-1, as well as the adipocyte specific markers fatty acid binding protein 4 (FABP4) and adiponectin, and negative for calnexin (ER membrane protein). Most importantly, fluorescent confocal microscopy demonstrated uptake of adipose tissue EVs by cultured human myotubes, supporting the potential of adipose tissue miRNA to contribute to the regulation of skeletal muscle insulin sensitivity via endocrine actions in humans. This work is in progress and future experiments will determine the biological effects of adipose tissue miRNA from insulin-sensitive and insulin-resistant individuals on cultured myotubes.
POSTER ABSTRACT #20

A Comparison of Transcriptional Profiles between Adipogenic Progenitor Cells Isolated from Intermuscular Adipose and Skeletal Muscle Tissues in Individuals with Obesity

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Background/Objective: Recent clinical reports have indicated that intermuscular adipose tissue (IMAT) is positively associated with obesity, insulin resistance and aging (1). In culture, conditioned media from human fibro/adipogenic progenitor cells (FAPs) [isolated from skeletal muscle (SM)] impair insulin action and signaling in human myotubes (2). Whether FAPs resident within SM are representative of IMAT itself is unexplored. In the present study, we directly compared adipogenic potential and associated lipid metabolism transcriptional profiles of adipogenic progenitor cells isolated from IMAT and SM (FAPs) from individuals with obesity.

Subjects/Methods: Biopsies of the vastus lateralis (for IMAT and SM) and the abdominal subcutaneous region (for SAT) were performed in individuals participating in institutional clinical studies at the TRI-MD. Progenitor cells were isolated from the stroma-vascular fraction of IMAT and SAT. FAPs were isolated via sorting for CD56-/CD15+ cells from SM. Progenitor cells from IMAT and SM were paired. All progenitor cells were differentiated using an established adipogenic protocol for 11-14 days and subjected to β-adrenergic stimulation (1mM dibutyryl [db]-cAMP for 4h). RNA was isolated from all three differentiated cells and gene expression profiles were quantified via qRT-PCR.

Results: Differentiated FAP and IMAT cells had similar adipogenic potential (quantified via lipid droplet content by Oil Red O staining) compared with classical white adipocytes (eg, SAT cells), and mRNA expressions of PPARγ, adiponectin and leptin did not differ among the three cell types. Hoxc9 gene expression was significantly lower in FAP vs IMAT and SAT cells (p=0.002 and p=0.02, respectively). FABP4 gene expression was lower in FAP vs IMAT (p=0.08) and SAT (p=0.22) cells. Db-cAMP stimulation of IMAT cells significantly increased expressions of genes involved in lipid uptake, synthesis, esterification and hydrolysis compared with FAP and SAT cells (p<0.02 including LPL, GPAT, SREBP1, ACC1, FASN and ATGL).

Conclusion: Current literature in the metabolism field dictates that IMAT causes insulin resistance — a notion primarily based on correlative findings from clinical studies, coupled with a handful of in vitro studies using FAP cells isolated from SM. We show here definitively and for the first time that FAP cells isolated from SM are not similar to progenitor cells isolated from IMAT itself, and that IMAT cells are a unique population of adipocytes [resident within SM] with a robust transcriptional up-regulation of lipid metabolism in response to β-adrenergic stimulation. Further functional studies are warranted to determine the biology of IMAT and its potential contribution to whole-body metabolism and insulin sensitivity in obesity.
POSTER ABSTRACT #21

Preoperative Biliary Drainage is Associated with Increased Mortality in patients with Cholangiocarcinoma

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Objectives: Although preoperative biliary drainage (PBD) is frequently performed in patients with cholangiocarcinoma (CCA), few studies have evaluated its impact on patient survival. Our aim was to evaluate the impact of PBD on survival of patients with extrahepatic CCA.

Methods: Using the linked Surveillance, Epidemiology, and End Results (SEER)-Medicare data, we identified patients with extrahepatic CCA from 2001-2011. Patients who underwent biliary drainage within 3 months prior to and/or after diagnosis of CCA were included in the biliary drainage cohort. Patients who did not receive biliary drainage were included in the non-biliary drainage cohort. Cox proportional hazard regression was used to determine independent predictors of survival.

Results: Of 3862 patients with extrahepatic CCA, 433 (11.2%) underwent curative-intent surgical resection with a median survival of 14 months (95% confidence interval [95% C.I] 10-21) in the PBD (n=126) cohort vs. 31 months (95% C.I, 26-39) in the non-PBD (n=307) cohort. (p=0.0002) The median follow-up time for the surgical cohort was 26 months (range 1-60 months). On multivariable analysis in patients who underwent curative surgical resection, after controlling for patient demographics, tumor characteristics, SEER site, Charlson comorbidity index, radiation and chemotherapy, PBD was associated with increased mortality (Hazard Ratio [HR] 2.35, 95% confidence interval [CI] 1.34 - 4.10, p=0.003).

Conclusions: PBD appears to be associated with negative impact on long-term survival and must be avoided in patients if possible with potentially resectable CCA.
Transverse myelitis as a manifestation of graft versus host disease following haploidentical stem cell transplantation

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**Background:** Hematopoietic stem cell transplantation (HSCT) have been increasingly used in the treatment of hematological malignancies. We present a case of transverse myelitis as a form of atypical GVHD in a haploidentical stem cell transplant recipient. In a Pubmed review of literature, we identified 2 cases of transverse myelitis following allogeneic stem cell transplantation.

**Case Report:** Patient is a 40-year-old male with Philadelphia chromosome positive (Ph+) precursor B-cell ALL who underwent a G-CSF mobilized bone marrow-derived haploidentical allogeneic stem cell transplantation. He was started on Dasatinib at day +30 after normalization of his blood counts. His transplant course was complicated by parainfluenza-3 viral bronchitis and CMV viremia infection which resolved with antiviral therapy (foscarnet). On days +30 and +60 following transplantation, he received intrathecal Methotrexate with no complications. At no point prior or subsequent to his transplant, did the patient show any evidence of CNS involvement. Around day +100 post-transplant, he developed pancytopenia. At 8 months post-transplant, he began to slowly complain of progressing lower extremity sensory and motor weakness as well as profound muscle atrophy and weight loss despite adequate diet. He had significant pain and numbness with gait and coordination abnormalities. He had significant deep tendon reflexes with clonus not consistent with Guillain- Barre.

**Conclusion:** A case of transverse myelitis developed following a haploidentical stem cell transplantation which was responsive to high dose steroids. We believe this to be an atypical presentation of GVHD.
Nivolumab is effective in relapsed/refractory Hodgkins Lymphoma patient following HLA mismatched allogeneic stem cell transplantation

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Discussion: Allogeneic stem cell transplantation is the only potential curative option of relapsed Hodgkins patients following autologous stem cell transplantation.

Case Report: A 23-year-old male with Classical Hodgkins Lymphoma Nodular Sclerosing type who relapsed after autologous stem cell transplantation was treated with brentuximab vendotin and achieved a complete response. He underwent an allogeneic stem cell transplantation. The graft source was bone marrow from an HLA-A antigen mismatched unrelated donor. The patient had an uneventful post-transplant course with no evidence of graft versus host disease, but around day+100, he presented with night sweats and pruritus. A computerized tomography (CT) scan of the chest and abdomen subsequently showed small volume lymphadenopathy (LAD) in the pretracheal, supraclavicular and para-aortic region. A biopsy of the para-aortic lymph node confirmed relapsed disease. He was treated with five cycles of brentuximab without significant benefit and poor tolerance. The patient declined further therapy and chose to not seek further treatment for eight months. The patient sought treatment at a different facility and received a single cycle of bendamustine but returned to our facility with abdominal pain and palpable LAD. A PET scan confirmed further progression of his disease.

Nivolumab, a programmed death 1 (PD-1) blocking antibody, is approved in relapsed or refractory Hodgkins lymphoma (HL). Nivolumab blocks a negative regulator of T-cell activation thus enhancing immune effector function against lymphoma. To our knowledge, Nivolumab has never been evaluated after allogeneic stem cell transplantation in the HLA-mismatched setting. The patient’s initial dosing of nivolumab was decreased by 50% to 1.5mg/kg due to concerns for GVHD in the mismatched setting. After two cycles of dose-reduced nivolumab with no obvious signs of GVHD, the nivolumab dose was increased to standard dosing of 3mg/kg. After two cycles, a repeat PET/CT scan showed significant improvement in LAD. The patient has currently completed nine cycles of nivolumab without any significant GVHD. Currently patient is continuing biweekly ‘maintenance’ treatment with nivolumab without any side effects.
POSTER ABSTRACT #24

Leukemic Myocardial Infiltration: A Case Report and Literature Review

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T-cell acute lymphoblastic leukemia (T-ALL) has a variety of extramedullary presentations, with skin, bone, liver, spleen and testicles described as sites of extranodal involvement. Although rare, cardiac leukemic involvement has also been described. Myopericardial leukemic infiltration is most commonly diagnosed postmortem, with only a few case reports describing antemortem leukemic presentation as heart failure. We discuss a unique case of T-ALL presenting as a non-ST-segment elevation myocardial infarction (NSTEMI) and conduct a literature review.
POSTER ABSTRACT #25

B-Cell Lymphoma in the Tricuspid Valve

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Lymphoma can involve any organ or tissue that contains lymphoid tissue and the heart is no exception. A few prior case reports have described lymphoma encasing a coronary artery or involving one or more cardiac valves. We present a rare case of diffuse large B-cell lymphoma (DLBCL) involving the tricuspid valve and right coronary artery diagnosed on coronary CT angiography. The clinical and imaging characteristics of cardiac lymphoma are discussed.
POSTER ABSTRACT #26

Chemoradiation and Local Excision for T2N0 Rectal Cancer Offers Equivalent Overall Survival Compared to Standard Resection: A National Cancer Database Analysis

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Purpose: Local excision (LE) alone is associated with worse survival compared to radical surgery for T2 rectal cancer; but LE with additional chemoradiation (CRT) may improve outcomes. The objective of this study was to compare combined CRT and LE versus radical surgery for T2 rectal cancer.

Methods: The 2004 to 2014 National Cancer Database was queried for patients with T2N0M0 rectal cancer undergoing LE with neoadjuvant (CRT+LE) or adjuvant (LE+CRT) chemoradiation, or radical surgery without CRT (RS). The main outcome measure was 5-year overall survival (OS). Cox proportional hazards model was used to determine the independent effect of treatment on OS.

Results: A total of 5247 patients were included (4680 RS, 234 CRT+LE, 333 LE+CRT). Mean follow-up was 48.5 (SD 28.5) months. There were no differences in age, gender, Charlson comorbidity score, insurance status, ethnicity, education, median income, or hospital characteristics between groups. Both CRT+LE (7.7%) and LE+CRT (24.6%) had higher rates of R1/R2 disease compared to RS (0.8%, p<0.001). 30-day readmissions were higher in RS (8.8% vs. CRT+LE 4.3% and LE+CRT 3.3%, p<0.001), but not 30- or 90-day mortality. 5-year OS was similar (RS 77.5% vs. CRT+LE 75.3% vs. LE+CRT 73.6%, p=0.283). Older age, male gender, and higher Charlson score were independently associated with worse OS, whereas treatment type was not (further adjusted for insurance, ethnicity, hospital type, tumor differentiation, and margin status). These findings did not differ if patients with 90-day mortality were excluded.

Conclusions: Chemoradiation delivered in the neoadjuvant or adjuvant setting after LE for T2N0M0 rectal cancer was not associated with worse OS compared to RS, and may be a viable treatment modality.
POSTER ABSTRACT #27

Perioperative Predictors of Major Morbidities and Mortality after Lung Resection for Lung Cancer: A Study at a Single Cancer Center

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Objective: The purpose of this study was to assess the major postoperative morbidities, mortality and readmission within 30 days after lung resection of lung cancer patients, and to identify possible risk factors associated with these complications.

Methods: A prospective database containing all lung cancer patients of >=18 years old, who underwent lung resection at a single institution between 2007 and 2015 was reviewed and analyzed. Perioperative, histopathologic, and outcome variables were assessed. Morbidities were measured as defined by the Society of Thoracic Surgeons General Thoracic Surgery. A multivariable logistic regression model was developed separately to predict morbidity, mortality and readmission using a panel of established preoperative and operative variables. The study was reviewed and approved by the Florida Hospital Research Institution Board.

Results: During the study period, 1,844 lung cancer patients (average age 65.5 years, ranging 18-95) underwent lung resection. Of them, 86 (4.7%) died at discharge; 108 (5.9%) died within 30 days after discharge; 573 (31.1%) had a post-operative adverse event, and 333 (18.1%) experienced readmission within 30 days after discharge. ASA class (OR=1.73, p=0.021), Zubrod index (OR=1.85, p<0.001) and surgery urgency (OR=4.32, p<0.001) were significant perioperative risk factors in determining the patient’s discharge mortality. These factors also significantly predicted the patient’s mortality rate within 30 days after discharge. Steroid level (OR=1.62, p=0.005), renal insufficiency (OR=1.18, p=0.048), and some surgeons were risk factors predicting 30 days readmission rate. Finally, patients’ age (OR=1.01, p=0.002), BMI (OR=0.97, p=0.003), hypertension (OR=1.40, p=0.005), ASA class (OR=1.32, p=0.008), thoracic reopen (OR=1.35, p=0.024), and surgical urgency (OR=1.58, p=0.037) were significant risk factors in predicting post-surgical adverse events, and the results were surgeon dependent.

Conclusions: A same set of variables can be used to predict patient’s mortality at discharge and mortality within 30 days after discharge. However, readmission within 30 days after discharge and post-operative adverse events were determined by different sets of variables. The surgeons’ role was important in reducing readmission and post-operative adverse events.
Renal Cell Carcinoma Metastasized to Pagetic Bone

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Paget's disease of the bone, historically known as osteitis deformans, is an uncommon disease typically affecting individuals of European descent. Patients with Paget's disease of the bone are at increased risk for primary bone neoplasms, particularly osteosarcoma. Many cases of metastatic disease to pagetic bone have been reported. However, renal cell carcinoma metastasized to pagetic bone is extremely rare. A 94-year-old male presented to the emergency department complaining of abdominal pain. A computed tomography scan of the abdomen demonstrated a large mass in the right kidney compatible with renal cell carcinoma. The patient was also noted to have Paget's disease of the pelvic bones and sacrum. Within the pagetic bone of the sacrum, there was an enhancing mass compatible with renal cell carcinoma. A subsequent biopsy of the renal lesion confirmed renal cell carcinoma. Paget's disease of the bone places the patient at an increased risk for bone neoplasms. The most commonly reported sites for malignant transformation are the femur, pelvis, and humerus. In cases of malignant transformation, osteosarcoma is the most common diagnosis. Breast, lung, and prostate carcinomas are the most common to metastasize to pagetic bone. Renal cell carcinoma associated with Paget's disease of the bone is very rare, with only one prior reported case. Malignancy in Paget's disease of the bone is uncommon with metastatic disease to pagetic bone being extremely rare. We report a patient diagnosed with concomitant renal cell carcinoma and metastatic disease within Paget's disease of the sacrum. Further research is needed to assess the true incidence of renal cell carcinoma associated with pagetic bone.
POSTER ABSTRACT #29

Targeting the Polyamine Addiction of Pancreatic Cancers
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The polyamines (putrescine, spermidine and spermine) are ubiquitous, small cationic molecules essential for cell growth. They play essential roles in transcription, translation, and chromatin remodeling. The pancreas has the highest levels of spermidine than any human tissue. These high levels are maintained by a balance between polyamine biosynthesis and import. We have shown that pancreatic ductal adenocarcinomas (PDACs) have high polyamine import rates and high spermine synthase expression. Therapies which target polyamine biosynthesis and import have shown synergistic activities and provide new approaches to target these deadly cancers. This report summarizes our efforts to develop new combination therapies for PDAC tumors which inhibit both polyamine synthesis and import.
POSTER ABSTRACT #30

Immune-Cancer Cell Mixed Cell Reaction Cultures Derived from Pancreatic Cancer Portal Vein Circulating Tumor Cells

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There is an enhancement of immunosuppressor functional cells in the portal venous circulation from patients with peri-ampullary cancers including pancreatic ductal adenocarcinoma (PDAC), ampullary carcinoma, and cholangiocarcinoma. This portal immunosuppressive environment correlates with increased mutant K-RAS (K-RASmut) gene transcription and may facilitate metastatic progression. We investigated the functional interactions of immune cells and portal circulating tumor cells (CTC) by ex vivo reconstitution of mixed cell cultures among patients with peri-ampullary cancers treated with pancreatico-duodenectomy. Portal venous blood from these patients was subjected to aseptic, high speed FACS to isolate myeloid derived immunosuppressor cells (MDSC, CD14+, CD11b+, CD33+, MHCDR-, CD11c-), dendritic cells (DC, CD11b+, MHCIIDR+, CD14-, CD11b-), CTC (CD45-, CD44+, CD147+, EPCAM+), and T lymphocytes (T cell, CD45+, CD3+). Isolated portal CTC proliferated exponentially in culture, obtaining over 8 cycles of replication in under 20 hr. Apoptosis-mediated ex vivo CTC death was markedly decreased when cultured in the absence of immune cell interactions or effects. Mixed culture with T cells had a limited effect on CTC proliferation and cell death (10% reduction compared to CTC alone).

Addition of CTC-primed DC did not improve T cell effectiveness in CTC suppression and in fact enhanced suppressed T cell populations through increased T cell AICD (reflected by increased expression of CTLA-4 on CD25+ T cells, p<0.0001). MDSC addition to the mixed T-DC-CTC cultures had the effect of reversing the limited T cell effects on CTC while fully restoring CTC capacity for survival and growth. Portal vein immune-suppression with CTC resistance to apoptosis was most notable among patients with PDAC and ampullary adenocarcinoma. PDAC patients treated with pre-operative chemotherapy had significantly lower CTC proliferation rates than untreated patients (p=0.0162). However, treatment with immune checkpoint antibodies anti-PD1, anti-PD1L1, or anti-CTLA4 improve immune sensitivity of CTC in the MCR cultures. Our studies suggest that the immune system in the portal venous circulation mounts a specific and strong effector T cell response to CTC in peri-ampullary cancers, but that response is particularly blunted in PDAC where the immunosuppressive influence of DC and subverted MDSC lead to rapid proliferation and low CTC death rate. Immunosuppression within the portal venous circulation of peri-ampullary cancer patients is associated with resistance to immune checkpoint targeted treatment and may contribute to metastatic progression.
Role of Interleukin-5 and IL-5 Receptor in Pancreatic Ductal Adenocarcinoma

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Pancreatic ductal adenocarcinoma (PDAC) is a deadly cancer with five-year survival rates below 10%. PDAC characteristically displays a desmoplastic microenvironment, with an abundance of fibrosis, damaged acinar cells, and proliferating duct-like cells. Type 2 immune responses, exemplified by interleukin-5 (IL-5) expression, are known to have a role in wound repair and tissue regeneration. We hypothesize IL-5 and its specific receptor (IL-5 Rα) contributes to PDAC-mediated desmoplasia favoring pancreatic cellular transformation, and/or tumor progression. Using murine genetic models, we showed that IL-5 expression is present at endogenous levels in pancreatic acinar cells, and also in serum following pancreatic damage. IL-5 Rα receptor expression was detected by immunofluorescence in both mouse and human pancreatic tumor cell lines. IL-5 Rα was found internalized and perinuclear in location, thereby suggesting a complex mechanism of regulation. Furthermore, IL-5 Rα was expressed during early stages of mouse PDAC initiation and its expression was increased throughout tumor progression. IL-5 Rα was also detected by immunohistochemistry in human PDAC arrays further supporting a role in PDAC tumorigenesis. IL-5 stimulation of both mouse and human PDAC cells results in increased migration, suggesting IL-5 receptors may have a role in invasiveness and metastasis. Our results point to potential association of IL-5 Rα and IL-5 mediated mechanism with PDAC invasiveness and progression. Specific targeting of the IL-5 pathway in PDAC may inhibit tumor-associated desmoplasia and provide a new therapeutic opportunity.
Diffuse dermal angiomatosis (DDA) is a rare variant form of reactive angioendotheliomatosis. Reactive angioendotheliomatosis is a skin disorder characterized histologically by endothelial cell proliferation within small capillaries (1). DDA is often found in the lower extremities of patients with severe peripheral vascular disease. It is associated with a variety of comorbidities including cardiovascular disease, hypertension, diabetes, and a history of heavy smoking. Rarely, DDA can present in the skin of the breast, usually in a woman with one or more of the associated comorbidities (2). DDA of the breast presents with painful, poorly circumscribed, erythematous plaques with possible central ulceration. Lesions may be confined to a single breast or may spread to the contralateral breast (3). Here we present a case of a 34-year-old female with history of type 2 diabetes who presented with a six-week history of inflammation and erythema of the right breast. Initial imaging studies revealed mild thickening of the skin in the area of focal pain. The patient was advised to consult a dermatologist and skin biopsy revealed DDA. Upon surgical resection of the primary right lesion, pathology revealed fat necrosis. Unfortunately, she continued to have recurrent lesions in both breasts with follow up imaging studies revealing recurrent multicentric fat necrosis. This case highlights the importance in considering alternative diagnoses to inflammatory breast cancer in a patient presenting with erythematous breast lesions.
**POSTER ABSTRACT #33**

**BRCA Mutation Carriers Undergoing Combined Mastectomy with Immediate Reconstruction and Gynecologic Risk-Reducing Surgery: An Analysis of Outcomes**

Olga Ivanov; Nicole Centers; Karen Weircinski; Cynthia Buffington; Eva Reina; Aileen Caceres  
*FH Celebration Health*

**Background:** The aim of this study was to assess outcomes of a multidisciplinary model for combined prophylactic and/or therapeutic mastectomy with immediate reconstruction and gynecologic risk-reducing surgery in patients with hereditary breast cancer syndromes.

**Methods:** Between 2012 and 2016, 12 patients with documented BRCA1 and BRCA2 mutations underwent combined surgery at our facility. Procedures included bilateral mastectomy, axillary lymph node staging, immediate expander-based reconstruction and minimally invasive salpingo-oophorectomy with added hysterectomy when indicated. All procedures were performed in a single operating room setting by rotating subspecialty teams.

**Results:** Patient characteristics included a mean (+SD) BMI of 32.1±6.7 (23-44) kg/m2 and ASA of 2.2±0.4 (2-3). Fifty-eight percent (7/12) were premenopausal. Patient’s average age was 45.8±10.8 (30-73). Therapeutic mastectomy for breast cancer was performed in 4/12 patients. Of the 4 affected patients 2 had neo-adjuvant chemotherapy for locally advanced cancer. The remaining 8/12 had prophylactic mastectomies. Risk-reducing salpingo-oophorectomy was performed in 12/12 patients. Seventy-five percent (9/12) underwent concurrent minimally invasive hysterectomy for suspected gynecologic malignancy, leiomyoma, complex endometrial hyperplasia, dysmenorrhea and menorrhagia. Two gynecologic specimens required mini-laparotomy for removal. Mean total operative time was 283.3±66.5 (206-447) minutes and estimated blood loss (EBL) was 209.2±139.2 (50-500) ml. Hospital length of stay (LOS) was 1.4±0.7 (1-3) days. There were no significant differences (p>0.05) in operative time, EBL, or LOS in comparing therapeutic to prophylactic mastectomies. Follow-up revealed no postoperative wound infections.

**Conclusions:** Combined mastectomy with immediate reconstruction and gynecologic risk reducing surgery had no untoward surgical complications with a zero postoperative wound infection rate. Although a small study population, results indicate this approach is a prudent and feasible multidisciplinary model that can be offered to BRCA mutation carriers.
Malignant phyllodes with concomitant, heterologous angiosarcoma of the breast—a case of rare dual malignancy

L. Vassiliades, M. Edison, P. Turner
Florida Hospital Cancer Institute

Angiosarcoma of the breast is a rare, aggressive, endothelial malignancy of the breast. Clinically, primary angiosarcoma of the breast most often presents as a rapidly enlarging mass. However, misdiagnosis is exceedingly common with up to 35% of these tumors initially thought to be benign. Here we present an atypical case of angiosarcoma of the breast in a 47-year-old female who initially presented for evaluation of a palpable right breast mass. This mass was biopsied twice with pathology showing benign fibroadenoma and dense fibrous tissue, respectively. The patient subsequently developed increasing erythema, pain, and swelling of the right breast post-procedurally and was treated with a course of antibiotics without clinical improvement. A CT of the chest was performed which showed thickened skin and a large, heterogeneous, solid mass of the right breast with a few small, round, internal calcifications and axillary lymphadenopathy. The patient elected to undergo surgical biopsy. Initial pathology report demonstrated a partially sclerotic and infarcted fibroadenoma with associated acute inflammation, extensive hemorrhage, focal fat necrosis, and marked reactive changes. The lesion was found to be negative for malignancy. Because the patient continued to worsen clinically, an MRI of the breast was performed which demonstrated a fungating mass with enhancing nodules which had more than doubled in size since the prior chest CT. Due to the radiological-histopathological discordance, a second opinion for tumor pathology was obtained. The final diagnosis was determined to be a malignant phyllodes tumor with heterologous angiosarcoma. This case highlights the critical importance in ensuring imaging concordance with pathologic diagnosis.
**POSTER ABSTRACT #35**


Sarika Gupta; Ketura Preya A. Wisner; Amanda J. Stephens; Sarfraz Ahmad; Jasmine L. Gise; Lorna A. Brudie; James E. Kendrick; Robert W. Holloway

FHCl Gynecologic Oncology

**Objective:** To determine surgical and oncologic outcomes for patients with stage IB2 cervical cancers treated with concurrent cisplatin, whole pelvic radiation therapy (WPRT), high dose rate (HDR) brachytherapy, and robotic hysterectomy (RH) with para-aortic lymphadenectomy (PAL).

**Methods:** 27 patients with stage IB2 cervical cancer who had pre-treatment PET scans without extra-pelvic disease were identified in our registry database (06/2008-08/2016). All patients received whole pelvic chemo-radiation (4,500-5,040 cGy) and HDR brachytherapy (1,500-2400 cGy) followed by RH/BSO with PAL.

**Results:** Mean age and BMI were 46.2±11.9 years and 27.7±7.1 kg/m2. Mean pre-radiation tumor size was 5.3±1.0 cm. Histology was 55.6% (n=15) squamous cell, and 44.4% (n=12) adenocarcinoma. Mean operative time was 124±33 min and estimated blood loss 71±43 mL. Median lymph node (LN) yield was 9 (range 3-40). Two patients underwent Type II radical hysterectomy/PAL for bulky residual cervical tumor and the remaining 25 underwent simple hysterectomy/PAL. Hospital LOS was 1-day for all cases. Two patients underwent excision of clinically suspicious PET positive pelvic LN that had viable carcinoma. Persistent cervical cancer was present in 33.3% (n=5) of squamous and 75% (n=9) of adenocarcinoma cases (p=0.054). Three (11.1%) cases had positive para-aortic LN (2 adenocarcinoma, 1 squamous cell carcinoma) and all vaginal margins were negative. Morbidity included one DVT, 1 port site infection, 2 symptomatic lymphoceles, 4 hydronephrosis requiring temporary ureteric stents, and no urinary/gastrointestinal fistula or vaginal stenosis. Median follow-up was 31 months (range 1-108). There were 11.1% (2 distant, 1 pelvic) recurrences. Three (11.1%) women died from disease that include one patient who refused additional treatment for node metastasis. One patient is alive with disease and 23 (85.2%) remain free of disease.

**Conclusions:** Robotic hysterectomy following chemo-radiation and brachytherapy is feasible. Adjuvant hysterectomy may reduce central recurrence and allows identification of occult para-aortic metastasis not identified on PET.
POSTER ABSTRACT #36

Poorly Differentiated, Ovarian Sertoli-Leydig Cell Tumor with Rhabdomyosarcoma: Diagnosis and Management of a Rare Neoplasm

Charanjeet Singh; Sarfraz Ahmad; Fouad M. Hajjar; Robert W. Holloway

Department of Pathology & Laboratory Medicine; FHCI Gynecologic Oncology; FHCI Pediatric Hematology-Oncology

Introduction/Background: Ovarian Sertoli-Leydig cell tumors (SLCT) represent <2% of primary ovarian tumors, and have clinico-pathologic characteristics that range from benign to malignant. The majority of malignant tumors are low-grade and are successfully treated with surgery. Herein, we present a rare case of a poorly differentiated SLCT with heterologous rhabdomyosarcoma, which was diagnosed and managed at our institution.

Case Presentation: A 12-year old pre-pubertal female patient presented with a history of slowly worsening abdominal pain of 2-weeks duration and vomiting. A contrast enhanced CT-scan of abdomen and pelvis showed an 11.7 x 10.1 x 7.9 cm heterogeneous cystic and solid, round mass, confined to the right adnexa. Radiologic differential included a torsed and hemorrhagic ovarian cyst versus an ovarian malignancy. Serological assessments showed elevated levels of LDH (351), CA-125 (77), AFP (65.3), and Inhibin-B (114). The levels of β-HCG, free testosterone, and CEA were normal. Exploratory laparotomy, right salpingo-oophorectomy, peritoneal staging biopsies, infra-colic omentectomy, and right pelvic and infra-renal aortic lymphadenectomy were performed. Histologic examination showed an extensively necrotic tumor with focal well-differentiated tubules of SLCT (both positive for inhibin and calretinin stains) but predominantly spindled and poorly differentiated Sertoli cell tumor. Additional foci of strap cells (positive for MyoD1 stain) and spindled cells with increased mitosis were seen, consistent with heterologous rhabdomyosarcoma. The tumor was FIGO stage-IA with negative lymph nodes, peritoneal biopsies and omentum. Post-operative CT-scan of chest was normal. Due to high-risk histology, 3-cycles of adjuvant chemotherapy were administered: cisplatin 33 mg/m2 on days 1-3, etoposide 167 mg/m2 on days 1-3, bleomycin 15 U/m2 on day-1. Patient’s AFP levels measured 3.7 and 4.3 at the 3 and 6 month follow-ups respectively, with no radiologic evidence of recurrence at 7-month follow-up.

Conclusions: We describe the diagnosis and management of a rare case of high-grade malignant sex-cord stromal tumor with dedifferentiation. High-grade sex-cord stromal tumors are exceedingly rare, usually present as low-stage disease, and have a good event-free survival following adjuvant chemotherapy. The rarity of these tumors presents a challenge in their diagnosis and treatment. A review of the peer-reviewed literature suggests that this case represents the youngest reported patient with SLCT and rhabdomyosarcoma de-differentiation.
POSTER ABSTRACT #37

An Index Case of Liddle Syndrome Complicated by Aortic Dissection
Aamer Abbass; Jason D’Souza; Maria Marquez; Joseph Limback; Rajesh Shah; Jeremy Burt
Radiology Specialists of Florida

Liddle syndrome (LS) is a rare form of monogenic hypertension first described by Sir Grant Liddle in 1963. Mutations in the genes encoding the β and γ subunits of the epithelial sodium channel (ENaC) of the distal convoluted tubule and collecting duct have been implicated in the pathophysiology of this disease. Liddle syndrome is characterized by an autosomal dominant inheritance and early penetrance. Laboratory findings generally reflect a pattern of pseudoaldosteronism with hypokalemia, metabolic alkalosis and suppressed plasma renin in addition to low aldosterone levels. Our knowledge about LS is evolving given its relative rarity. Prevalence is variable depending on the population and geographical location being studied. Two small single center studies have estimated the prevalence to be about 1.52% and 6%. LS typically manifests as early onset of resistant hypertension with either no response or sub-optimal response to conventional antihypertensive therapy. Therefore, uncontrolled hypertension can lead to target organ dysfunction such as stroke, heart failure, retinopathy, end stage renal disease, etc. To our knowledge, aortic dissection has not been reported in association with this disease. We report a case of dissecting aortic aneurysm occurring in association with Liddle syndrome.
Invasive Cardiac Lipoma: a case report and review of literature

Jason D’Souza; Ashley Ramirez; Rajesh Shah; Aamer Abbass; Aditya Goud; Chanukya Dahagam; and Jeremy R Burt
Radiology Specialists of Florida

Background: Cardiac lipomas are rare benign tumors of the heart. They are usually asymptomatic and are thus most often diagnosed on autopsies. Symptoms, when present, depend upon the location within the heart. Typical locations are the endocardium of the right atrium and the left ventricle. Diagnostic modality of choice is cardiac MRI. Treatment guidelines have not yet been established due to the very low prevalence of these tumors and are thus guided by the patient’s symptomatology.

Case presentation: We describe a case of an invasive cardiac lipoma, wherein the initial symptom of the patient was shortness of breath. Although the echocardiogram visualized the tumor in the right atrium, a cardiac MRI was performed for better tissue characterization. The MRI revealed a large, fat containing, septated mass in the right atrium with invasion into the inter-atrial septum and inferior cavoatrial junction. There was also invasion of the coronary sinus along the inferior and left lateral aspect of the posterior atrioventricular groove. Although the mass appeared to represent a lipoma by imaging characteristics, the unusual extension into the coronary sinus led to consideration of a low-grade liposarcoma in the differential. Thus a pre-operative biopsy was performed along with MDM2 gene amplification to rule out a liposarcoma preceding surgical excision.

Conclusion: Cardiac lipomas are well-characterized on cardiac MRI, which is the diagnostic modality of choice. Typical locations are the right atrium and the left ventricle. However, in those with atypical features such as invasion of the coronary sinus, pre-operative biopsy for histopathologic confirmation is imperative to exclude well-differentiated liposarcoma. Our patient with a simple lipoma underwent partial resection to relieve symptoms. We discuss prognosis and treatment of symptomatic cardiac lipomas.
POSTER ABSTRACT #39

Age-advanced Coronary Artery Disease Diagnosed on Coronary CT Angiography

Ali Agha, Jean-Paul Bryant, Maria Marquez, Melissa Kendall, Bo Liu, TJ Ward, Jeremy Burt
Radiology Specialists of Florida

Background: Coronary artery disease (CAD) or coronary heart disease (CHD) is a major cause of mortality and morbidity in developed countries. It is estimated that nearly one half of all middle age men and one-third of middle age women in the United States will develop some manifestation of CAD during their lifetime. This project was performed to determine the prevalence of “age-advanced” coronary artery disease (i.e. Women < 50, Men < 40) as diagnosed on computed tomographic coronary angiography (CCTA).

Methods: 600 men and 600 women with CCTA performed at Florida Hospital between January 1, 2016 and January 15, 2017 were evaluated. CCTA findings and multiple clinical variables were recorded for each patient and analyzed to identify any statistically significant associations. We identified the coronary artery most commonly associated with the greatest stenosis and the most common location/type of plaque formation. We also correlated these findings with clinical correlates including age, ethnicity, lipid profile, Framingham risk score, tobacco use, recent or remote cocaine use, marijuana use, and other comorbidities including diabetes, hypertension, anxiety disorder, and obesity.

Findings: Our preliminary data supports the low prevalence of CAD in younger patients with a direct correlation between increasing age and risk of developing CAD. Most of the risk factors assessed were positively associated with an increased prevalence of age-advanced CAD, with the exception of marijuana use and anxiety disorder (negative correlation). Our data also tracks the age distribution plot to determine the age of initiation of coronary artery disease as determined using CCTA in a general population.

Conclusion: CCTA is an excellent imaging modality to diagnose age-advanced coronary artery disease. We found a positive correlation between age and multiple clinical factors with the development of age-advanced CAD. Marijuana use and anxiety disorder were negatively associated with the diagnosis of age-advanced CAD in this patient cohort.
POSTER ABSTRACT #40

Undiagnosed Interrupted Aortic Arch without a Patent Ductus Arteriosus

Vincent Grekoski; Joseph Limback; TJ Ward; Jeremy R Burt
Radiology Specialists of Florida

A 24-year-old female with no prior medical history presented to her physician with worsening dyspnea. Physical examination revealed a murmur followed by echocardiogram with suspected interrupted aortic arch. Because unrepaired interrupted aortic arch is usually fatal, the echocardiogram findings were very surprising and cardiac magnetic resonance (CMR) of the chest was performed. This case report reviews the CMR findings and discusses the current literature.
POSTER ABSTRACT #41

Deep Learning for Quantitative Cardiac Imaging

Aliasghar Mortazi; Jeremy R Burt; Vincent Grekoski; Ulas Bagci
Radiology Specialists of Florida

Anatomical and biophysical modeling of left atrium (LA) and proximal pulmonary veins (PVs) is clinically important for management of atrial fibrosis, their ablation, and guiding other cardiac disease. This requires precise segmentation of left atrium and pulmonary veins, preferably with high efficiency and accuracy. This study explores the fast segmentation of LA and PVs from magnetic resonance (MR) images with high accuracy. We present a new deep learning algorithm, called multi-view convolutional neural network (CNN) with adaptive weights, leading to the-state-of-the-art segmentation results using publicly available STACOM 2013 cardiac segmentation challenge data sets. An overall specificity of 99% and sensitivity of 91% on 10 MR images using one-leave-out-cross-validation and test accuracy of 99% were obtained using 20 test MR images. Average time for segmenting a sample cardiac MR volume was measured as 15 seconds.
Pericardial Lipoma

Ashley Ramirez; TJ Ward; Jeremy R. Burt

Radiology Specialists of Florida

Pericardial lipomas are a rare entity. While only 10% of primary cardiac tumors are lipomas, those located in the pericardium are even rarer still. They are typically asymptomatic and are discovered incidentally. Pericardial lipomas are usually observed as low attenuating, well-circumscribed masses with no septation or enhancement. We present a rare case of pericardial lipoma.
POSTER ABSTRACT #43

Abdominal Cocoon Syndrome: A Rare Cause for Recurrent Abdominal Pain

Dzmitry Fursevich; Jean-Paul Bryant; TJ Ward; Antonio Gonzalez; Jeremy R Burt

Radiology Specialists of Florida

65-year-old female with past medical history of HIV and tubal ligation was referred to gastroenterology for long-standing abdominal cramping, bloating, and multiple episodes of nausea, vomiting and diarrhea. She had also complained of early satiety. On physical examination, the woman was extremely thin with a BMI of 14. Vital signs were normal, and abdominal examination suggested a palpable mass in the lower abdomen. Abdominopelvic computed tomography (CT) scan revealed that the patient’s small bowel loops were clustered in the lower abdomen and pelvis and were encased by a thickened visceral peritoneum, creating a mass-like appearance. Sclerosing peritonitis (also known as abdominal cocoon syndrome) was suggested based on the clinical and CT findings, and patient was taken to surgery. We review the case in detail and review the literature.
The Impact of a Pharmacist-Led Transition Clinic
Karen Francoforte; Amber Beals; Brian Leonard; Ashley MacWhinnie
FH East Orlando, Outpatient Clinical Pharmacy

Background: With the implementation of the Center of Medicare & Medicaid Services Readmissions Reduction Program, many hospitals are implementing programs to improve the transition from hospital to home to limit readmissions and improve patient care. As medication-related issues are a common contributing factor to hospital readmissions, pharmacy plays a critical role in avoiding re-hospitalization.

Methods: A retrospective chart review which evaluates the 30-day readmission rates of patients 18 years and older who attended at least one appointment at the pharmacist-led clinic compared to those who were referred but did not attend. Patients referred to the outpatient Transition of Care Clinic (TCC) between January 2015 through December 2016 were included. The primary outcome was readmission within 30-days of discharge; readmissions to other health systems were not considered. Medication-related discrepancies were also identified and categorized using a pre-specified tool.

Results: Of the 677 referred patients, 228 patients had at least one appointment with the TCC. Overall, 8% of the clinic patients were readmitted within 30-days of their initial hospitalization compared to 28% of the non-clinic patients. Patients evaluated at the TCC were 3.5 times less likely to be readmitted. In the most recent year of offering the service (2016), patients were 4 times less likely to be readmitted within 30-days of hospital discharge if they were seen in the clinic (readmission rate of 6.4% in clinic patients versus 26% in non-clinic patients). Over the 2-year period, 1,050 patient-level and 888 system-level medication-related discrepancies were identified (averaging 8.5 discrepancies/patient) in the clinic patients.

Conclusions: A pharmacist-led transition of care clinic significantly decreased the 30-day readmission rate, while also identifying medication-related discrepancies at both the system and patient level.
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