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

Presents the

32nd Annual Yash P. Kataria Internal Medicine Research Day

April 11, 2018

32nd Annual Yash P. Kataria Internal Medicine Research Day 2018

Wednesday, April 11th, 2018
9:30 AM – 4:00 PM
East Carolina Heart Institute

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

Research Day Advisory Committee
Badih Kabchi, MD, Co-Chair
Arjun Mohan, MD Co-Chair
Cindy Kukoly
Cathy Munson
Kayla Thompson
Bobbie Harris

"Science is not only a disciple of reason but, also, one of romance and passion."
Stephen Hawking

The Brody School of Medicine

Department of Internal Medicine

32nd Annual Yash P. Kataria Internal Medicine Research Day

Wednesday, April 11th, 2018

9:00am		**Refreshments-** ***ECHI Atrium & Conference Room***	*Poster Presentations available for viewing*
9:30am		**Welcome –** ***ECHI Auditorium***	*Paul Bolin, Jr., MD, Chair Department of Internal Medicine*
9:35am		**Administrative Comments –** ***ECHI Auditorium***	*Arjun Mohan,MD & Badih Kabchi,MD Co-Chairs Research Committee*

First Oral Session, ECHI Auditorium
Moderator: Almond Drake, MD

9:45am	OP1	**SENSORY CUTOFF VALUES FOR PREDICTING POSTURAL INSTABILITY IN PEOPLE WITH PERIPHERAL NEUROPATHY SECONDARY TO DIABETES**	NL Aung, CC Lin, S Meardon, RJ Tanenberg
10:00am	OP2	**EFFECT OF ANTIBIOTIC USE ON OUTCOMES IN LUNG CANCER PATIENTS TREATED WITH IMMUNE CHECKPOINT BLOCKADE.**	A Hegde, T Do, C Cherry, CRG Stroud, N Sharma, S Cherukuri, M Bowling, P Walker.
10:15am	OP3	**THE TRAJECTORY OF PHYSICAL ACTIVITY FOLLOWING OUTPATIENT PULMONARY REHABILITATION**	P Chandrika, T Troo, E Swart, L Nici, L Trow, CL Rochester, RL ZuWallack
10:30am	OP4	**ROLE OF ALVEOLAR MACROPHAGE ATP-BINDING CASSETTE LIPID TRANSPORTERS IN A MURINE MODEL OF CARBON NANOTUBE INDUCED GRANULOMATOUS LUNG DISEASE.**	M McPeek, A Malur, BP Barna, MJ Thomassen
10:45am	OP5	**BARRIERS TO OPIOID TREATMENT IN RURAL NORTH CAROLINA: USER AND LAW ENFORCEMENT PERSPECTIVES**	R Lawton, W Leland

11:00 am

Keynote Address: ECHI Auditorium

"It's all about the Extracellular Environment!"

Lynn M Schnapp, MD
Professor of Medicine
Director, Division Pulmonary, Critical Care, Allergy, and Sleep Medicine
Medical University of South Carolina, Charleston

12:00pm

ECHI Conference Room
Lunch followed by
Poster Session (12:00 – 2:00pm)

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

2:00pm	OP6	**PRIMARY APPRAISAL OF INTRADIALYTIC EVENTS AND STRESS TOWARDS HEMODIALYSIS**	S Johnson, P Crane, J Neil, C Christiano
215pm	OP7	**LEO JENKINS CANCER CENTER (LJCS) CLINICAL EXPERIENCE STUDY – UTILIZATION OF LIQUID BIOPSY TO DETERMINE TIME TO DIAGNOSIS AND TREATMENT IN NON-SMALL CELL LUNG CANCER (NSCLC).**	S Jonnalagadda, A Hegde, M Bowling, P Walker.
2:30pm	OP8	**PROHIBITIN-1 AND -2 HAVE DIVERSE CELL-AUTONOMOUS EFFECTS ON INFLAMMATORY SIGNALING DURING SEPSIS**	CE Psaltis, J Aloor, S Reece, BJ Kilburg-Basnyat, J Robidoux, MB Fessler, EJ Anderson, KM Gowdy
2:45pm	OP9	**ENGINEERING A DYSFUNCTIONAL HIGH-DENSITY LIPOPROTEIN MIMETIC PEPTIDE**	MJ Yaeger, B Muller-Borer, S Reece, B Kilburg-Basnyat, B Lou, MJ Thomassen, MB Fessler, K, Kew, WE Allen, T Zeczycki, L Yang, E Krewson, KM Gowdy
3:00pm	OP10	**GPR4 AS A POTENTIAL THERAPEUTIC TARGET IN INFLAMMATORY DISEASES**	LV Yang, EJ Sanderlin, EA Krewson, L Dong
3:15pm	OP11	**EPIGENOME-WIDE ASSOCIATION STUDY OF PERIPHERAL BLOOD MONONUCLEAR CELLS IN SYSTEMIC LUPUS ERYTHEMATOSUS: IDENTIFYING DNA METHYLATION SIGNATURES ASSOCIATED WITH INTERFERON- RELATED GENES BASED ON ETHNICITY AND SLEDAI.**	EL Treadwell, S Joseph , NI George , B Green-Knox, B Word , S Yim, B Lyn-Cook

3:45pm

Closing Remarks and Award Presentations
Paul Bolin, Jr., MD, Chair Department of Internal Medicine

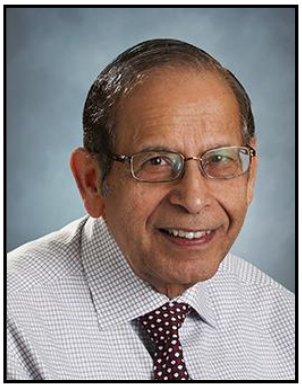
Poster Presentations, ECHI Conference Room
Research

PR1	**PROTECTIVE ROLE OF MICELLAR SOLUBILIZATION AGAINST PHENOLIC ENDOCRINE DISRUPT**	M Alfhili, Y Dong, T Faten, C Dong, Z Baohong, P Xiaoping, L Myon-Hee
PR2	**TDAG8 REDUCES INTESTINAL INFLAMMATION IN A MOUSE MODEL OF CHRONIC DSS-INDUCED COLITIS**	EJ Sanderlin, SP Satturwar, H Hong, K Lertpiriyapong, and LV Yang.
PR3	**DO LYMPHOCYTES FROM THE MEDIASTINAL LYMPH NODES OF CARBON NANOTUBE + ESAT-6 INSTILLED MICE PRODUCE AN ADAPTIVE IMMUNE RESPONSE?**	V Sanderford, N Leffler, A Malur, BP Barna, A Mohan, MJ Thomassen
PR4	**CHRONOLOGICAL EXPRESSION OF MATRIX METALLOPROTEINASE-12 IN GRANULOMATOUS DISEASE.**	N Neequaye, D Vargas, A Malur, W Knudson, A Mohan, MJ Thomassen
PR5	**ASSESSMENT OF ANAL PAPANICOLAOU SMEAR SCREENING AND FOLLOW-UP RATES IN EASTERN NORTH CAROLINA FOR HIV-POSITIVE PATIENTS WHO ARE MEN WHO HAVE SEX WITH MEN**	N Doshi, N Roebuck, C Dortche, N Fadul
PR6	**"PRE-EXPOSURE PROPHYLAXIS FOR HIV PREVENTION IN A SOUTHERN RURAL CLINIC: A DESCRIPTIVE STUDY"**	RL Harrison, CJM Dortche, NA Fadul
PR7	**DARUNAVIR AND DOLUTEGRAVIR COMBINATION THERAPY IN ANTIRETROVIRAL THERAPY EXPERIENCED HIV-INFECTED PATIENTS: A PRELIMINARY REPORT**	A Stang, T Perry, N Fadul
PR8	**IMPROVING HIGH-RISK BREAST CANCER PATIENTS' REFERRAL TO GENETIC COUNSELING WITH ELECTRONIC MEDICAL RECORD**	N Lawing, J Wong, NA Vohra, D Mascarenhas, E Gottsch, B Carpenter, A Meyer, E Harris, D Liles, M Muzaffar
PR9	**CYCLOPHOSPHAMIDE BASED IMMUNOMODULATION IN LUNG CANCER PATIENTS TREATED WITH NIVOLUMAB.**	A Hegde, C Cherry, CRG Stroud, R Pinnamaneni, N Sharma, S Cherukuri, M Bowling, A Ju, H Arastu, P Walker.
PR10	**OUTCOMES OF IMMUNOMODULATORY RADIATION STRATEGIES IN COMBINATION WITH NIVOLUMAB COMPARED WITH SINGLE AGENT NIVOLUMAB IN LUNG CANCER PATIENTS.**	A Hegde, C Cherry, CRG Stroud, R Pinnamaneni, N Sharma, S Cherukuri, M Bowling, A Ju, H Arastu, P Walker.
PR11	**CONCORDANCE OF COMMERCIALLY AVAILABLE BLOOD BASED MUTATION TESTING AND TISSUE BASED NEXT GENERATION SEQUENCING IN NON SMALL CELL LUNG CANCER**	A Hegde, S Jonnalagadda, N Sharma, S Cherukuri, A Oliver, J Speicher, M Iannettoni, M Bowling, P Walker.
PR12	**CONCOMITANT USE OF AGENTS TARGETING THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM PREVENT TRASTUZUMAB-INDUCED CARDIOTOXICITY**	M Moey, D Liles and B Carabello

Poster Presentations, ECHI Conference Room
Vignette

PV1	**LARGE LEFT VENTRICULAR THROMBUS AS A CAUSE OF RECURRENT CARDIOEMBOLIC STROKE WHILE ON DABIGATRAN**	M Moey, A Tomdio, O Achike, D Kabirdas
PV2	**WHEN A RASH ISN'T JUST A RASH – MULTICENTRIC CASTLEMAN DISEASE**	M Chai, T Blair, S Pancholi
PV3	**FROM BONE TO BONE – A CASE OF BILATERAL CLAVICULAR OSTEOMTYELITIS**	P Chandrika, MC Chai, S Pancholi
PV4	**CALCIPHYLAXIS IN THE UNEXPECTED**	S Thomas-Nadler, J Powell
PV5	**LATENT AUTOIMMUNE DIABETES WITH HIGH TITER GAD ANTIBODIES MASQUERADING AS INSULIN RESISTANCE**	K Sheth, C Houston, F Cook
PV6	**"METFORMIN AND ALCOHOL, A DANGEROUS COCKTAIL"**	J Denis, B Hoffman, M Shayna, S Sundaram, B Patel, S Nandimandalam
PV7	**DISSEMINATED INTRAVASCULAR COAGULATION DEMONSTRATING RECURRENCE OF METASTATIC PROSTATE CANCER**	T Vasamsetty, T Blair, S Macherla, M Navaid
PV8	**PRIMARY SMALL CELL CARCINOMA OF THE GALLBLADDER**	EM Gochanour, A Hamed, M Muzaffar
PV9	**CLASSICAL HODGKIN'S LYMPHOMA PRESENTING WITH IDIOPATHIC THROMBOCYTOPENIC PURPURA AND INTRA-RETINAL HEMORHAGES**	T Blair, E Gochanour, S Baig, A Weil MD
PV10	**INITIAL PRESENTATION OF PRIMARY INTRAVASCULAR SYNOVIAL SARCOMAS AS PULMONARY TUMOR EMBOLUS**	E Appah, S Jonnalagadda, M Mahvish, P Walker.
PV11	**A CASE OF INTERMITTENT UPPER AIRWAY OBSTRUCTION: SUDDEN RECURRENT CHOCKING SENSATION**	S Awadallah, H Sarwar, Z Rehman
PV12	**MALIGNANT PLEURAL EFFUSION WITH UNKNOWN PRIMARY CANCER: A SINGLE CENTER EXPERIENCE OF THREE CASES WITH NON-REVEALING RADIOGRAPHIC STUDIES**	S Awadallah, A Mohan
PV13	**UNUSUAL RIGHT-SIDED HEMOTHORAX AFTER DEVELOPMENT OF TYPE-B AORTIC DISSECTION WITHOUT RUPTION: A CASE REPORT AND REVIEW OF LITERATURE**	F Houshmand, SA Marco, V Maddipati,
PV14	**AIRWAY MUCOSAL INJURY DUE TO TRAUMA FROM CLOSED SUCTION CATHETER SYSTEM IN MECHANICALLY VENTILATED PATIENTS: FINDINGS ON AUTOPSY**	S. Durrett, K. Kelly, V. Maddipati
PV15	**CLINICAL GESTALT IN IDENTIFYING LOCKED IN SYNDROME QUICKLY**	K Parikh, H Kim
PV16	**A CASE OF REFRACTORY SALICYLATE TOXICITY**	M Dauterive, S.Marco

PV17	**INCOMPLETE HEERFORDT'S SYNDROME AS AN INTIAL PRESENTATION OF SARCOIDOSIS**	M Hafiz, AS El-bakush, ON Obi
PV18	**ATYPICAL PRESENTATION OF SARCOIDOSIS RESULTING IN DELAYED DIAGNOSIS**	D Thomson, R Obi, H Lai
PV19	***NOT* GUILTY BY ASSOCIATION: A CASE OF PERSISTENT ENCEPHALOPATHY AND BILATERAL CAROTID DISSECTION LEADING TO DIAGNOSIS OF FIBROMUSCULAR DYSPLASIA**	D Thomson, R Obi, H Lai
PV20	**A NORMAL CHEST X-RAY DISGUISING MULTI DRUG RESISTANT (MDR) PULMONARY/DISSEMINATED TUBERCULOSIS**	J Hussain; A Stang; R Ghimire; Paul Cook.
PV21	**CYTOMEGALOVIRUS GASTRITIS IN A RENAL TRANSPLANT PATIENT.**	J Hussain; R Ghimire.
PV22	**AN IMMIGRANT WITH A CHRONIC BACK PAIN**	J Hussain; D Markham
PV23	***BARTONELLA HENSELAE* OPTIC NEUROPATHY**	J Hussain; D Lebron
PV24	**INFLAMMATORY PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY AS AN INITIAL PRESENTATION OF ACQUIRED IMMUNODEFICIENCY SYNDROME**	J Hussain; N Fadul
PV25	***PARVIMONAS MICRA* NATIVE JOINT SEPTIC ARHTRITIS.**	J Hussain; N Ahmad; A Stang; A Abubaker; N Fadul
PV26	**ISOLATED HYPERBILIRUBINEMIA: A RARE ADVERSE EFFECT OF COMBINATION CHEMOTHERAPY OF CYTARABINE AND IDARUBICIN**	N Gollol-Raju, A Taiwo, S Jayananda, H Khalid
PV27	**ORIENTAL CHOLANGIOHEPATITIS: HONG KONG DISEASE IN THE UNITED STATES**	A Hamed, A Hamed, N Talaat
PV28	**A CURIOUS CASE OF MASSIVE SPLENOMEGALY: OVERLAP OF AUTOIMMUNE HEPATITIS AND PRIMARY BILIARY CHOLANGITIS**	A Hamed, MYY Moey, E Ali
PV29	**OLMESARTAN INDUCED ENTEROPATHY**	A Hamed, A Hamed, N Talaat
PV30	**RECURRENT ANAPHYLAXIS CAUSED BY ALPHA GAL ALLERGY**	A Hamed, O Taha, A Hamed, MD
PV31	**SIGNET RING CELL CARCINOMA OF THE COLON PRESENTING AS LARGE BOWEL OBSTRUCTION IN A PATIENT WITH 4 DIFFERENT PRIMARY CANCERS**	A Hamed, A Hamed, N Talaat
PR32	**GRANULOMATOUS HEPATITIS: A RARE CASE OF EXTRA PULMONARY TUBERCULOSIS**	A Hamed, A Hamed, D Lebron
PV33	**A RARE CASE OF PASTEURELLA MULTOCIDA CAUSING SPONTANEOUS BACTERIAL PERITONITIS**	A Hamed, N Jampala , K Kuo , G Harvin
PV34	**A RARE CASE OF ATYPICAL HUS**	A Hamed, E Taylor



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

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

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

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

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

Keynote Address:

"It's all about the Extracellular Environment!"

Lynn M Schnapp, MD

Professor of Medicine
Director, Division of Pulmonary, Critical Care, Allergy, and Sleep Medicine
Medical University of South Carolina, SC

Dr. Schnapp is a tenured professor of medicine and the division chief of Pulmonary, Critical Care Allergy and Sleep Medicine at the Medical University of South Carolina (MUSC), in Charleston. She received her BS from MIT, her MD and medicine residency training from the University of Pennsylvania, and her pulmonary and critical care fellowship training at UCSF, where she remained on faculty for several years before moving to Mount Sinai School of Medicine in NY. She moved to the University of Washington in 2000, where she rose to the rank of professor. There, she directed the Respiratory Cell Molecular Biology Research Track and led the Career Development Core for the NIH Clinical and Translational Science Award. In 2013, she was recruited to MUSC to assume the position of division chief.

Dr. Schnapp leads a successful, NIH-funded research program in lung injury and repair, including HIV-related lung disease. She has expertise in a variety of mouse models of organ injury, including analysis of tissue injury, inflammation and fibrosis, as well as expertise on identifying novel biomarkers of organ injury, using bioinformatics and state-of-the-art computational and pathway-focused network analysis. Her recent work has focused on the role of pericytes in the lung. Using a variety of novel mouse models, she demonstrated that lung pericytes are important myofibroblast progenitors, and can function as immune sentinel cells.

She remains active clinically, attending on the MICU and pulmonary consult service. She is passionate about developing the next generation of leaders and increasing the representation of women and underrepresented minorities in our field. She has received numerous honors in this area including: the ATS Elizabeth Rich Award, NIH Mid-Career Mentoring Award, UW School of Medicine Award for Mentoring, and MUSC Advancement of Women Faculty Award.

The Keynote Address - Celebrating 32 Years

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2013 ***Paul W. Nobel****, MD*
Chair, Department of Medicine
Director, Women's Guild Lung Institute
Cedars-Sinai, Los Angeles, California

2014 ***Vishva Dixit,*** *MD*
Vice President
Early Discovery Research
Genentech, Inc.

2015 ***Jerry R. Mendell, MD***
Curran-Peters Chair in Pediatric Research
Professor of Pediatrics and Neurology
Nationwide Children's Hospital and The Ohio State University

2016 ***Manoocher Soleimani, MD***
James F Heady Professor of Medicine
Department of Medicine, Nephrology and Hypertension
University of Cincinnati

2017 ***Barbara Dudley Alexander, MD***
Professor of Medicine and Pathology
Director, Transplant Infectious Diseases Service
Duke University

W. James Metzger, Jr., MD Award

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

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

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

2001 Recipients:
Carlos A. Estrada, MD, MS
Paul Mehlhop, MD

2003 Recipient:
Lisa Staton, MD

2004 Recipient:
Cassandra Salgado, MD

2005 Recipient:
Barbara J. Muller-Borer, PhD
Cardiology

2006 Recipient:
Timothy P. Gavin, PhD
Human Performance

2007 Recipient:
Christopher Newton, MD
Endocrinology

2008 Recipient:
Li Yang, PhD
Hematology/Oncology

2009 Recipient:
Li Yang, PhD
Hematology/Oncology

2010 Recipient:
Sunil Sharma, MD
Pulmonary

2011 Recipient:
Sunil Sharma, MD
Pulmonary

2012 Recipient:
Maria Ruiz-Echevarria, PhD
Hematology/Oncology

2013 Recipient:
Moahad Dar, MD
Endocrinology

2014 Recipient:
Mark Bowling, MD
Pulmonary

2014 Recipient:
Mark Bowling, MD
Pulmonary

2015 Recipient:
Hsaio Lai, MD
Nephrology

ABSTRACTS

In Presentation Order

OP = Oral Presentation
PR = Poster Research
PV = Poster Vignette

OP1

SENSORY CUTOFF VALUES FOR PREDICTING POSTURAL INSTABILITY IN PEOPLE WITH PERIPHERAL NEUROPATHY SECONDARY TO DIABETES

NL Aung, CC Lin, S Meardon, RJ Tanenberg

Background: People with peripheral neuropathy (PN) secondary to diabetes have higher risks of falls due to loss of the somatosensation of the feet. The purpose of this study was to investigate the cutoff values of the vibration threshold and the monofilament test to predict postural instability.
Methods: Ten healthy younger adults, ten healthy older adults and ten people with PN secondary to diabetes were recruited in this study. A handheld bio-thesiometer and a set of monofilaments were used to measure the vibration threshold (VT) and tactile sensitivity (TS), respectively. VT and TS were measured at six different sites on the plantar surface, including big toe, 1st metatarsus, little toe, 5th metatarsus, middle arch, and calcaneus (heel), plus the lateral and medial malleoli. Subjects also underwent a Sensory Organization Test (SOT) to identify postural instability, defined as equilibrium scores less than age matched norms. Linear regression was used to determine which site(s) was able to predict the balance test performance. Receiver operating characteristic curves were used to compute the VT and TS cutoff values associated with postural instability.
Results: A cutoff value of 10V for lateral malleolus VT was able to predict postural abnormality with 100% Sensitivity and 54.5% Specificity. A cutoff value of 3.61for middle arch TS was able to predict postural abnormality with 100% Sensitivity and 86.4% Specificity.
Conclusion: Postural instability appears earlier than the current recommended clinical cutoff values for peripheral neuropathy (25V for VT and 5.07 for TS). Although current cutoff values of the vibration threshold and the monofilament test are useful for detecting a propensity for neuropathic foot ulcer, they may not be adequate for detecting early postural instability. Fall prevention strategies may be needed early in the progression of PN.

Notes:

OP2

EFFECT OF ANTIBIOTIC USE ON OUTCOMES IN LUNG CANCER PATIENTS TREATED WITH IMMUNE CHECKPOINT BLOCKADE.

A Hegde, T Do, C Cherry, CRG Stroud, N Sharma, S Cherukuri, M Bowling, P Walker.

Background: Immunotherapy responses appear to be majorly impacted by the gut microbiome according to recent studies. There is some evidence that antibiotic use may diminish response to immunotherapy and survival by altering the gut microbiome. This has been reported in renal cell carcinoma and melanoma. We examined our institutional antibiotic use and its influence on survival of lung cancer patients treated with the anti- PD1 antibody, nivolumab.
Methods: Lung cancer patients who started nivolumab between April 2015 and May 2017 were identified by retrospective chart review. Patients who received antibiotics 30 days before, during and 30 days after nivolumab were identified. Hyperprogression was defined as death from lung cancer progression within 3 months of starting nivo. Pts were followed up to 31 December 2017. Kaplan Meier analysis was used to estimate overall survival and Cox proportional hazard model was used to estimate hazard ratios.
Results: A total of 109 patients received nivolumab of which 87 (79.8%) received antibiotics and 22 (20.2%) did not. Of the 87 pts who received antibiotics, 12 (13.8%) got penicillins, 11 (12.6%) got quinolones, 7 (8.1) got other antibiotics and 57 (65.5%) got multiple antibiotics. Hyperprogression was seen in 24 (27.6%) patients who got antibiotics and only 2 (9.1%) of patients who did not get antibiotics. Survival estimates are as follows-

Group	1 year OS (%)	mOS (95% CI) (months)	HR (95% CI)	p- value
No Antibiotics	62.0	17.2 (8.8- 17.2)	0.29 (0.15- 0.58)	0.0004
Antibiotics	24.3	5.4 (3.1- 7.7)	-	-

Conclusion: Antibiotic use is prevalent and is associated with diminished overall survival in lung cancer patients receiving nivolumab. Further studies are needed to determine reasons for high antibiotic use. Strategies such as measuring C- reactive protein and procalcitonin may help differentiate immune related adverse events from true infections and therefore minimize antibiotic use.

Notes:

OP3

THE TRAJECTORY OF PHYSICAL ACTIVITY FOLLOWING OUTPATIENT PULMONARY REHABILITATION

P Chandrika, T Troo, E Swart, L Nici, L Trow, CL Rochester, RL ZuWallack

Background: High-grade empiric evidence demonstrates the effectiveness of pulmonary rehabilitation (PR) on exercise capacity in COPD patients. The effectiveness of this comprehensive intervention on physical activity (PA), however, is less defined. Translating gains in exercise capacity realized in the pulmonary laboratory into meaningful PA at community settings probably requires corresponding changes in self-efficacy, which may require more time. Our study evaluated PA outcome trajectory following PR.
Methods: This IRB-approved study was a hypothesis-generating, longitudinal descriptive evaluation (48 weeks) of changes in outcomes following PR. While formal program lasted 6-8 weeks; maintenance sessions were offered following the active intervention. Clinically-stable COPD patients attending outpatient PR had traditional outcome assessments (six minute walk distance (6MWD); timed-up-and-go (TUG) testing; Chronic Respiratory Questionnaire (CRQ) assessment; and Hospital Anxiety and Depression (HAD) scoring at baseline and 12, 24, 36, and 48 weeks after outpatient PR. Corresponding measures of PA (mean time per day lying, sitting, standing, and in locomotion) were obtained using the Dynaport MoveMonitor worn on the lower back.
Results: Twenty-one patients were recruited. Evaluable traditional and activity data available at 0, 24, 36 and 48 weeks were for n= 21/21, 19/16, 18/14/, 16/13, 12/10, respectively. The mean age was 67 ± 8 years, the FEV1 was 47 ± 18%, the 6MWD was 312 ± 73 m, and the TUG was 9.9 ± 3.2 seconds. At 12 weeks, significant improvements were noted in the 6MWD (37 ± 11 (SE) m), TUG (-1.2 ± 0.4 sec), CRQ(25 ± 5 units), and HAD anxiety (-2.4 ± 0.8) and depression (- 2.4 ± 0.6) (all, p < 0.01). With the exception of the TUG and HAD scores, these positive outcomes remained significant for 48 weeks. In contrast, there was no significant changes or graphical trend in measures of PA over study period.
Conclusion: Despite showing expected improvement across traditional outcome areas (6MWD, TUG,health status, HAD), short-course PR did not result in similar changes in PA. More detailed activity instructions and other techniques (motivational interviewing or health coaching) and/or a longer, structured intervention may be needed for positive outcome in this area.

Notes:

OP4

ROLE OF ALVEOLAR MACROPHAGE ATP-BINDING CASSETTE LIPID TRANSPORTERS IN A MURINE MODEL OF CARBON NANOTUBE INDUCED GRANULOMATOUS LUNG DISEASE.

M McPeek, A Malur, BP Barna, MJ Thomassen

Pulmonary granuloma formation is a complex and poorly defined response to inhaled pathogens and particulate matter. To explore mechanisms of granuloma formation we developed a murine model of pulmonary granuloma formation elicited by multi-wall carbon nanotubes (MWCNT). We have shown the MWCNT model bears striking similarities to sarcoidosis pathophysiology, including increased expression of inflammatory mediators and decreased expression and activity of peroxisome proliferator activated receptor-γ (PPARγ) in alveolar macrophages. PPARγ is a known regulator of macrophage activation and serves a crucial role in pulmonary lipid homeostasis through the regulation of macrophage ATP-binding cassette (ABC) cholesterol transporter ABCG1. Further studies demonstrated that alveolar macrophages obtained from sarcoidosis patients and MWCNT instilled wild-type animals have decreased gene expression and protein levels of ABCG1 and ABCA1, a complementary cholesterol transporter. We hypothesized that macrophage specific deficiency of these lipid transporters would exacerbate the response to MWCNT. To test this hypothesis, macrophage specific knockout mice for ABCA1 (ABCA1-KO), ABCG1 (ABCG1-KO) or combined double knockout (A1/G1-DKO) animals were instilled with MWCNT. Sixty days following instillation, bronchoalveolar lavage (BAL) cells were collected and evaluated for the expression of genes shown to be involved in the formation and maintenance of pulmonary granulomas: CCL2, osteopontin (OPN) and matrix-metalloproteinase-12 (MMP-12). Interestingly, ABCA1-KO animals instilled with MWCNT do not exhibit a statistically different inflammatory response compared to wild-type animals bearing MWCNT. Evaluation of ABCG1-KO and A1/G1-DKO mice however show a significant increase in CCL2, OPN and MMP-12 following MWCNT instillation compared to wild type mice bearing nanotubes (n>5/treatment, p<0.01). No difference in gene expression was observed between BAL cells of ABCG1-KO and A1/G1-DKO animals instilled with MWCNT. These observations suggest that the lipid transporter ABCG1 is crucial to limiting the alveolar macrophage inflammatory response to inhaled particulate matter. These studies may provide new insight into potential therapies for limiting the granulomatous response to inhaled particulate matter or other granulomatous lung diseases.

Notes:

OP5

BARRIERS TO OPIOID TREATMENT IN RURAL NORTH CAROLINA: USER AND LAW ENFORCEMENT PERSPECTIVES

R Lawton, W Leland

Background: In 2017, deaths from opioid overdoses hit a record high nationwide. The significance of law enforcement attitudes and their decision-making power is established, as are the significant differences in drug treatment between urban and rural areas. Opioid deaths throughout North Carolina increased 73% from 2005-2015. Edgecombe County is located in rural Eastern NC, and over the same 2005-2015 period, the number of opioid deaths doubled. There is little published evidence concerning the attitudes of first responders and attitudes of opioid users in rural settings. This study provides focused information from Edgecombe County, NC about the unique barriers to treatment in the area, and the opinions of local law enforcement.
Methods: Nine opioid users and twenty-four members of Edgecombe County law enforcement were interviewed using semi-structured interview protocols between June and September 2017. Thematic analysis was done to determine common themes related to barriers to treatment, lack of awareness of resources/treatment programs, attitudes toward program treatment options, and stigma associated with opioid use.
Results: Among the law enforcement population, the most common barriers to care cited were lack of area resources (66%) and the enhanced stigma of living in a local area (63%). In addition, only 33% of the law enforcement members were aware of the primary opioid-treatment program supported by local law enforcement. One-fourth of law enforcement interviewees stated they were against a needle exchange program as a harm-reduction strategy. Among the users surveyed, 88% stated lack of area resources as a key barrier to care, 66% mentioned the costs of treatment, 55% discussed lack of knowledge, and 55% discussed the elevated stigma of living in a rural community.
Conclusions: Both groups emphasized the lack of resources in the area. The information from opioid users and law enforcement involving barriers to care highlighted the extra burdens of stigma and absence of confidentiality in the smaller rural community. While lack of local programs and resources may be the most-cited barrier to care in the area, the combination of local stigmas, lack of knowledge of treatment options among opioid users, and the lack of program knowledge among law enforcement suggest that an educational intervention may be of high value.

Notes:

OP6

PRIMARY APPRAISAL OF INTRADIALYTIC EVENTS AND STRESS TOWARDS HEMODIALYSIS

S Johnson, P Crane, J Neil, C Christiano

Background: Persons on hemodialysis experience significant stress events intradialytically. Thus, it is important to understand how persons on hemodialysis appraise intradialytic events (IDEs). Determining the influence of cognitive appraisal of IDEs on stress towards hemodialysis is important, because the intradialytic event (IDE) associated psychological and physiological stressor may include decreased adherence to prescribed hemodialysis treatment plans, missed or shorten treatments, and increased number of hospitalizations. Therefore, the purposes of this study were to: a) describe the types and associations of IDEs to stress; and b) examine the primary cognitive appraisals (benign/irrelevant, threat, harm/loss, challenge) of IDEs on stress towards hemodialysis.
Methods: A cross sectional correlational design was used. A convenience sample of 73 persons on hemodialysis consented to participate in the study and completed the Hemodialysis Demographic Form, The Dialysis Symptom Index, the Cognitive Appraisal of Health Scale, and the Hemodialysis Stress Visual Analog Scale.
Results: The majority of the sample was African American (96%) and male (52%). The mean age was 57 (*SD* = 11.98) years, and participants averaged 41 (*SD* = 31.55) months on HD. The most frequently reported IDE included lack of energy (70%), followed by dry skin (64%), itching (54%), and cramping (53%). When controlling for age, sex and time on dialysis, primary cognitive appraisal significantly predicted stress R^2 = .22; (*F* (7, 65) = 2.58; *p* = .021).
Conclusion: The cognitive appraisal of an IDE by the person on hemodialysis may influence adherence to treatments and hemodialysis associated stress. Further investigation is warranted to understand how cognitive appraisal of IDE stress affect persons on hemodialysis.

Notes:

OP7

LEO JENKINS CANCER CENTER (LJCS) CLINICAL EXPERIENCE STUDY – UTILIZATION OF LIQUID BIOPSY TO DETERMINE TIME TO DIAGNOSIS AND TREATMENT IN NON-SMALL CELL LUNG CANCER (NSCLC).

S Jonnalagadda, A Hegde, M Bowling, P Walker.

Background: Although tumor tissue is the gold standard source for clinical molecular analyses, there are several technical and biological challenges. Liquid biopsy represents a non-invasive tool which provides us a circulating biomarker for optimizing and monitoring regimens. We set out to review the impact of multi-disciplinary patient management coupled with the use of the liquid biopsy testing strategy on patient experiences in the thoracic oncology clinic.

Methods: Medical records were reviewed to compare standard molecular testing strategies prior to March 2016 with liquid biopsy (March 2016-May 2017). Liquid biopsy testing utilized Biodesix Lung Reflex (BLR) assay at time of diagnosis. Patient demographics, time from diagnosis to treatment, time from diagnosis to molecular test results, time from diagnostic biopsy to treatment start and treatment selection was collected.

Results: The tissue group included 97 patients diagnosed prior to liquid biopsy and BLR group included 90 patients. The results are as follows:

	Patients tests with BLR at diagnosis (N=90)	Patients diagnosed prior to BLR (N=97)
Time from diagnosis to treatment start	Median: 8 days (IQR: 1-19)	Median: 10 days (IQR: 0-21)
% of patients with molecular test results prior to start of front-line treatment	72%	4%
Time from diagnosis to molecular test results	Median: 3.5 days (IQR: 2-5)	Median: 26 days (IQR: 18.5-42)
Time from diagnostic biopsy to treatment start	Median: 11 days (IQR: 4-21)	Median: 12 days (IQR: 2-23)
Time from diagnostic biopsy to diagnosis	Median: 1 day (IQR: 1-2)	Median: 2 days (IQR: 1-3)

Conclusion: This study demonstrates that with team approach and rapid blood-based testing at Leo Jenkins, patients consistently start treatment within a median of 8 days from diagnosis. But perhaps the most striking finding is the marked increase in availability of molecular results at the time of diagnosis which has led to use of targeted actionable therapies to improve long-term clinical outcomes. Rapid liquid biopsy allows for more informed treatment without delaying treatment start.

Notes:

OP8

PROHIBITIN-1 AND -2 HAVE DIVERSE CELL-AUTONOMOUS EFFECTS ON INFLAMMATORY SIGNALING DURING SEPSIS

CE Psaltis, J Aloor, S Reece, BJ Kilburg-Basnyat, J Robidoux, MB Fessler, EJ Anderson, KM Gowdy

Background: Sepsis, a systemic inflammatory response to infection, is a leading cause of mortality worldwide. Prohibitins (PHB1 and PHB2) are proteins that assemble in hetero-oligomeric complexes within the mitochondrial inner membrane and in the plasma membrane lipid rafts where they are at the nexus of metabolic and pro-survival decisions including inflammation. We have recently observed that mice intraperitoneal (i.p.) injected with lipopolysaccharide (LPS) have increased serum prohibitin (PHB), and injection of recombinant PHB1 (rPHB1) post LPS rescues cardiac function. However, the role of PHB in the inflammatory response to LPS is currently unknown.

Methods: Using an *in vivo* model of sepsis, we injected C57Bl/6J mice i.p. with LPS and 3 subsequent doses of rPHB1. Serum was tested for lactate dehydrogenase (LDH). Blood was analyzed for immune cell characterization by flow cytometry, and liver, kidney and lung tissue were harvested for pro-inflammatory cytokine expression. RAW264.7 cells (mouse macrophage lineage) deficient in PHB1 or PHB2 were stimulated with LPS, and cell supernatant and lysate were collected for cytokine production.

Results: Systemic LPS increased serum LDH, number of blood neutrophils (PMNs) ($CD45^{+}Ly6G^{+}$), PMN expression of the adhesion molecule CD11b, and tissue expression of pro-inflammatory cytokines TNF-α, IL-6, and IL-1β. Treatment with rPHB1 decreased serum LDH, blood PMN CD11b expression and expression of IL-6 in liver, kidney and lung tissues. Cell lines deficient in PHB2 had decreased TNF-α compared to macrophages sufficient in PHBs.

Conclusions: We found that rPHB1 decreases inflammatory signaling, neutrophil maturation/recruitment, and tissue/organ injury. However, *in vitro* experiments displayed an important role for PHB2 in pro-inflammatory signaling. These data suggest PHB1 and -2 have differential and complex effects on the innate immune response. Cell-associated PHB is required for acute pro-inflammatory signaling responses to LPS that initiate the sepsis response, but extracellular PHB, released in the later phase of sepsis, may feedback to dampen the response.

Notes:

OP9

ENGINEERING A DYSFUNCTIONAL HIGH-DENSITY LIPOPROTEIN MIMETIC PEPTIDE. MJ Yaeger, B Muller-Borer, S Reece, B Kilburg-Basnyat, B Lou, MJ Thomassen, MB Fessler, K, Kew, WE Allen, T Zeczycki, L Yang, E Krewson, KM Gowdy

Background: Cardiovascular and pulmonary diseases are leading causes of morbidity and mortality worldwide. Studies report an inverse correlation between levels of serum high density lipoprotein (HDL) and the severity of heart and lung diseases. However, HDL can become dysfunctional (D-HDL) in chronic inflammatory diseases. It is challenging to study D-HDL, in part, because it is found in populations commonly burdened with comorbidities and subsequent medications. Therefore, to better understand how D-HDL differs from HDL, we sought to design a D-HDL mimetic peptide inspired by an HDL mimetic peptide (L-4F) that has been shown to be biologically protective.
Methods: HDL isolated from blood samples of healthy subjects, L-4F, and an engineered D-HDL mimetic peptide (oxL-2W) were incubated with human umbilical vein endothelial cells (HUVECs) for 16 hrs. HUVECs were then scratched and exposed to lipopolysaccharide (LPS) or phosphate buffer saline (PBS) for 12 hours. Wound healing was assessed and HUVECs were collected 12 hrs after LPS exposure to measure expression of pro-inflammatory cytokines (TNF-α, IL-6, and IL-1β), neutrophil chemokine (IL-8), and adhesion molecules (ICAM-1 and VCAM) by real time PCR.
Results: We first assessed the impact of L-4F on endothelial cell wound healing and inflammatory response to LPS to serve as a comparison for oxL-2W. We determined that endothelial cells incubated with L-4F 16 hrs before challenge with LPS healed 22.75 ± 11.91 % more than cells incubated with PBS and exposed to LPS. L-4F incubation also significantly decreased the gene expression of ICAM-1, VCAM, and TNF-α in cells exposed to LPS. We have designed oxL-2W by substituting the N-terminus phenylalanine of L-4F for a tryptophan, which has been shown to increase the susceptibility of L-4F to become oxidized. We will oxidize the modified L-4F peptide (L-2W) with myeloperoxidase, to make oxL-2W, and assess its impact on endothelial cell wound healing and inflammatory response to LPS.
Discussion: The data generated from these experiments will be the first to provide a critical tool for studying how D-HDL may change the inflammatory environment inside the vasculature. Designing a novel tool such as a D-HDL mimetic peptide will be useful to better understand how D-HDL can influence the progression of cardiovascular and pulmonary diseases.

Notes:

OP10

GPR4 AS A POTENTIAL THERAPEUTIC TARGET IN INFLAMMATORY DISEASES
LV Yang, EJ Sanderlin, EA Krewson, L Dong

Background: Acidotic microenvironments commonly exist in inflammatory tissues due to glycolytic cell metabolism, hypoxia, and deficient blood vessel perfusion. The effects of acidic tissue microenvironments on inflammation and blood vessel function, however, are not well understood. GPR4, a member of the proton-sensing G protein-coupled receptors (GPCRs), is predominantly expressed in vascular endothelial cells. We have investigated the roles of GPR4 in inflammation and evaluated how GPR4 regulates endothelial cell function in response to acidosis. ***Methods:*** Human primary vascular endothelial cells were utilized in the study. GPR4 expression was modulated by stable overexpression or shRNA knockdown. Endothelial cells were treated with physiological pH and acidic pH. Gene expression was analyzed by quantitative RT-PCR and Western blotting. Leukocyte-endothelial cell adhesion was measured by the in vitro cell adhesion assay. Endothelial cell permeability was assessed using the in vitro dextran permeability assay. GPR4 inhibitors were used as a pharmacological approach to inhibit GPR4 activity. Genetic deletion of GPR4 in the knockout mice was also used to determine the function of GPR4 in a DSS (dextran sulfate sodium) induced colitis mouse model. ***Results:*** Activation of GPR4 by acidosis increased the expression of numerous inflammatory genes such as adhesion molecules and chemokines in endothelial cells, stimulated the endoplasmic reticulum (ER) stress response, enhanced leukocyte-endothelial cell adhesion, and augmented endothelial cell permeability. These biological effects were attenuated by GPR4 shRNA knockdown and GPR4 small molecule inhibitor. Moreover, genetic deletion of GPR4 in the knockout mice alleviated intestinal inflammation, reduced leukocyte infiltration, and decreased endothelial adhesion molecule expression in the DSS-induced colitis mouse model. ***Conclusion:*** GPR4 is a pro-inflammatory receptor expressed on endothelial cells and can be activated by acidic microenvironments to stimulate inflammatory responses. Inhibition of GPR4 alleviates inflammation and disease progression in a mouse model of inflammatory bowel disease. The data suggest that GPR4 can be exploited as a potential therapeutic target for the management of inflammatory diseases.

Notes:

OP11

THE OBESITY IN IBD IS ASSOCIATED WITH LOWER CLOSTRIDIUM DIFFICILE INFECTIONG

GR Kasarala, G Harvin

Introduction: The disruption of gut microbiome is implicated in the development of Inflammatory bowel disease (IBD), *Clostridium difficile* infections (CDIs) and obesity. IBD is a known risk factor for CDI, however the data evaluating the effects on Obesity on CDI resulted in the conflicting results, so we evaluated the CDI prevalence and mortality rates in IBD patients with obesity in one of the largest available inpatient databases

Methods: The National Inpatient Database(NIS) 2005-2014 was used to select the patients >or = age 18 years. Appropriate ICD9-CM codes were used to identify the IBD, CDI and obesity. We analyzed the Mortality and prevalence of CDI in both obese and Non-Obese group.

Results: 104,837(3.8%) patients with Clostridium Difficile Infection(CDI) and 179,048(6.5%) Obese patients were identified among the 2,740,142 Inflammatory Bowel Disease(IBD). CDI was less frequently observed among the obese patients than the Non-Obese patients, 2.9% and 3.9% respectively with OR: 0.74, 95% CI: 0.69-0.79, P<0.001. Similar trend was observed among the UC and Crohns subgroups too.
The Mortality rate in patients with CDI and IBD is 8.9%, seven times of the mortality rate in Non-CDI group in the IBD patients, 1.6% with OR:7.28, 95% CI: 7.11-7.46, P<0.001. In the CDI group, mortality in the obese patients is lower than the Non-Obese patients, 7% and 9%, with OR: 0.76, 95% CI: 0.62-0.98, P: 0.03. In the UC patients, mortality in the obese patients is 10.4% compared to the 12.60% in Non-Obese patients, with OR: 0.8, 95% CI: 0.72-0.91, P:0.0005. in the Crohns group, mortality in the obese patients is 1.7% compared to 2.8% in Non-obese patients with OR: 0.56, 95% CI: 0.39-0.80, P: 0.0019.
The colectomy rate is high in obese CDI patients than the non-obese patients, 10.4% and 9.6% respectively with OR: 1.098, 95% CI: 1.003-1.203, P: 0.045.

Conclusion: The obesity in IBD patients was associated with lower CDI prevalence and mortality.

Notes:

OP12

EPIGENOME-WIDE ASSOCIATION STUDY OF PERIPHERAL BLOOD MONONUCLEAR CELLS IN SYSTEMIC LUPUS ERYTHEMATOSUS: IDENTIFYING DNA METHYLATION SIGNATURES ASSOCIATED WITH INTERFERON- RELATED GENES BASED ON ETHNICITY AND SLEDAI.

EL Treadwell, S Joseph , NI George , B Green-Knox, B Word , S Yim, B Lyn-Cook

Background: Systemic lupus erythematosus (SLE or lupus) is a heterogeneous autoimmune disease characterized by the involvement of multiple organs and the production of antinuclear antibodies. DNA methylation plays an important role in the pathogenesis of lupus. We have performed an epigenome-wide DNA methylation study in lupus and healthy control (non-lupus) subjects to identify epigenetic patterns in lupus characterized by ethnicity and SLE disease activity index (SLEDAI).
Methods: A total of 57 women lupus patients (39 African American (AA) and 18 European American (EA)) and 33 healthy controls (17 AA and 16 EA) were studied from patients that were enrolled in an approved study from the rheumatology clinic at the East Carolina University School of Medicine. RNA and DNA samples were extracted from peripheral blood mononuclear cells using commercial PAXgene RNA and DNA kits. Differential DNA methylation between SLE patients and controls was assessed for approximately 485,000 CpG sites across the genome. Patients were diagnosed with SLE using the 1997 revised American College of Rheumatology criteria. Patient's disease activity was determined using the SLE disease activity index (SLEDAI) and physician global assessment method.
Results: We identified 41 differentially methylated sites (associated with 30 genes) between lupus and controls subjects, 85% of which were hypomethylated. Significant hypomethylation of differentially methylated sites was associated with several interferon-related genes, including MX1, IFI44L, PARP9, DT3XL, IFIT1, IFI44, RSAD2, PLSCR1, and IRF7. Several of these associated genes were also hypomethylated in comparisons between AA lupus and AA non-lupus subjects and between lupus patients with SLEDAI>6 and non-lupus subjects.
Conclusion: Our analysis of gene expression data through RT-PCR confirmed these findings. Thus, the results indicate epigenetics susceptibility in lupus, which may be associated with SLEDAI score and ethnicity. In addition, our findings support the importance of the Type 1 interferon pathway in lupus pathogenesis.

Notes:

PR1

PROTECTIVE ROLE OF MICELLAR SOLUBILIZATION AGAINST PHENOLIC ENDOCRINE DISRUPT

M Alfhili, Y Dong, T Faten, C Dong, Z Baohong, P Xiaoping, L Myon-Hee

Background: Endocrine disrupting chemicals (EDCs) are substances that disturb the homeostasis of the endocrine system and contribute to disease pathogenesis. EDCs are extensively used as preservatives, plasticizers, and solvents in the manufacture of food, personal care products, and medical devices. Surfactants can aggregate into micelle structures and sequester poorly soluble drugs from the surrounding aqueous environment. We hypothesized that surfactants would detoxify phenolic EDCs by micellar solubilization thus acting as inhibitors.

Methods: High-exposure phenolic EDCs including triclosan (TCS), bisphenol A (BPA), and benzyl 4-hydroxybenzoate (B4HB) were examined in the model nematode *Caenorhabditis elegans*. Visual assessment of survival in presence and absence of non-ionic surfactants (NISs) was used to calculate percent mortality as a major toxic endpoint.

Results: We found that TCS, BPA, and B4HB increase mortality in a dose-dependent manner. Remarkably, co-treatment with NISs significantly rescued the survival of worms. Mechanistic analyses revealed that the neutralizing effect of NISs appears to be mediated through micellar solubilization of EDCs. Upon micelle disruption, a profound increase in mortality was observed, indicating regained activity of liberated EDCs. Once internalized, the EDC-micelle complex is inefficiently exported in worms lacking the PMP-3/ABC transporter protein, resulting in overt toxicity as compared to their wild-type counterparts.

Conclusions: At appropriate EDC-NIS ratios, the toxicity of phenolic EDCs may be significantly blunted in vivo. Since many EDCs and surfactants are extensively used in consumer products, findings from this study provide valuable insights to devise safer pharmaceutical and nutritional preparations

Notes:

PR2

TDAG8 REDUCES INTESTINAL INFLAMMATION IN A MOUSE MODEL OF CHRONIC DSS-INDUCED COLITIS.

EJ Sanderlin, SP Satturwar, H Hong, K Lertpiriyapong, and LV Yang.

Background: T cell death-associated gene 8 (TDAG8, also known as GPR65) is a proton-sensing G protein-coupled receptor (GPCR) predominantly expressed in immune cells. Genome-wide association studies identify TDAG8 as a susceptibility candidate gene linked to several human inflammatory diseases including inflammatory bowel disease (IBD), asthma, spondyloarthritis, and multiple sclerosis. Acidic microenvironments are a hallmark of the inflammatory loci owing to the increased metabolic load of infiltrated leukocytes, hypoxia, and compromised vascular function. TDAG8 emerges as an ideal mediator between extracellular pH changes and the inflammatory response in leukocytes. **Methods:** Wild-type and TDAG8 deficient mice were used for the chronic dextran sulfate sodium (DSS)-induced colitis mouse model. Tissues were collected for histological analysis. Medical pathologists performed histopathological analysis of H&E stained colon sections. Picrosirius red staining was performed for fibrosis assessment. Immunohistochemistry was utilized to assess cellular distribution of F4/80, CD3, GFP, and SMAα. Quantitative RT-PCR was used to assess TDAG8 gene expression in human intestinal diseases compared to control tissues. **Results:** Mice deficient of TDAG8 exhibited more severe inflammatory phenotypes than wild-type mice in a chronic DSS-induced colitis mouse model. Several disease parameters, such as diarrhea, colon shortening, fibrosis, histopathological score, and mesenteric lymph node enlargement were aggravated in TDAG8 deficient mice in comparison to wild-type mice treated with DSS. Increased leukocyte infiltration and myofibroblast expansion were observed in colonic tissues of DSS-treated TDAG8-null mice. Consistent with high endogenous expression of TDAG8 in infiltrated leukocytes, qRT-PCR revealed TDAG8 mRNA expression was increased in inflamed intestinal tissues of IBD patients when compared to normal intestinal tissues. **Conclusion:** our data demonstrate that TDAG8 reduces intestinal inflammation and fibrosis in the chronic DSS-induced colitis mouse model, suggesting potentiation of TDAG8 with agonists may have anti-inflammatory therapeutic effects in IBD

Notes:

PR3

DO LYMPHOCYTES FROM THE MEDIASTINAL LYMPH NODES OF CARBON NANOTUBE + ESAT-6 INSTILLED MICE PRODUCE AN ADAPTIVE IMMUNE RESPONSE?

V Sanderford, N Leffler, A Malur, BP Barna, A Mohan, MJ Thomassen

Background: Sarcoidosis is an inflammatory disease that is characterized by granuloma formation in the lungs, and exposure to environmental pollutants and mycobacterial antigens has been implicated in the etiology of the disease. We established a murine model for granuloma formation by oropharyngeal instillation of mice with multiwall carbon nanotubes (MWCNTs) with or without ESAT-6, a peptide derived from *Mycobacterium tuberculosis*. Peroxisome Proliferator Activated Receptor γ (PPARγ), a transcription factor associated with inhibition of pro-inflammatory molecules, was downregulated in the MWCNT model, and PPARγ KO mice presented with increased severity of granuloma formation compared to wild-type. We noted a marked lymphadenopathy of the mediastinal lymph nodes (MLN) in mice instilled with MWCNT+ESAT-6. Thus, we hypothesized that the MLN of MWCNT+ESAT-6 mice would yield an adaptive immune response to ESAT-6.
Methods: PPARγKO and C57Bl/6 mice were instilled with MWCNTs with or without ESAT-6, PBS, or ESAT-6 alone. After 60 days, the MLN were collected and cultured for 5 – 24 hours with 1 – 10 μg/mL ESAT-6 or only complete media. Gene expression was measured with RT-PCR.
Results: MWCNTs were observed within alveolar macrophages (AM) and the MLN of treated mice. Additionally, the MLN of MWCNT instilled mice were, on average, 2 mm^3 larger (a 40% increase) in volume compared to PBS or ESAT only mice. Moreover, only lymphocytes from the MWCNT+ESAT-6 MLNs upregulated IFNγ expression after challenge with ESAT-6. These lymphocytes displayed a dose-dependent response to ESAT-6 after 5 hours. After 24 hours, the response was even more robust (16-fold relative increase compared to unstimulated lymphocytes).
Conclusions: The increase in size of the mediastinal lymph nodes of MWCNT treated mice was characteristic of a proliferative response. However, only mice treated with a combination of MWCNT and ESAT-6 were able to produce an adaptive immune response in mediastinal lymph node lymphocytes.

Notes:

PR4

CHRONOLOGICAL EXPRESSION OF MATRIX METALLOPROTEINASE-12 IN GRANULOMATOUS DISEASE.

N Neequaye, D Vargas, A Malur, W Knudson, A Mohan, MJ Thomassen

Background: Sarcoidosis is a chronic inflammatory disease characterized by granuloma formation primarily in the lungs. Matrix Metalloproteinase-12 (MMP-12) is part of a family of enzymes involved in the inflammatory response. Little is known about the exact role of MMP-12 in granulomatous diseases, but previous studies have shown an association between MMP-12 expression and disease severity. An established murine model of multiwall carbon nanotube (MWCNT) which mimics the characteristics of sarcoidosis was used to examine a potential role of MMP-12 in disease etiology. The murine model showed that MWCNT+ mycobacterial Early Secreted Antigenic Target protein 6 (ESAT-6) elicited a prominent fibrotic response. The hypothesis is that MMP-12 is important in the initial and late inflammatory responses, and fibrosis development in sarcoidosis.
Methods: C57/Bl6 mice were instilled with PBS (control), MWCNT, and MWCNT+ESAT-6. At the 3, 10, 20, 60, and 90-day time points after instillation, the mice were sacrificed and the bronchoalveolar lavage (BAL) cells were extracted from the lungs. Immunocytochemistry (ICC) MMP-12 staining was done on BAL cytospins to investigate the expression of MMP12. Images were taken on the Axio scope for optical analysis of the MMP-12 antibody's fluorochrome signal. RT-PCR was used as a quantitative measure of MMP-12 and chemokine ligand 2 (CCl2) gene expression in BAL cells.
Results: Preliminary results shows a 31-fold increase in MMP-12 levels ($P<0.001$), and a 1024-fold increase in CCL2 ($P<0.01$) after 3 days; an 11-fold increase in MMP-12 and a 4-fold increase in CCL2 after 60 days in the MWCNT exposed mice ($n\geq3$). Alveolar macrophages from mice exposed to MWCNT+ESAT-6 ($n\geq3$) demonstrated a 104-fold increase in MMP-12 ($P<0.001$), and a 675-fold increase in CCL2 ($P<0.001$) after 3 days; a 27-fold increase in MMP-12 ($P\leq0.05$) and a 34-fold increase in CCL2 ($P\leq0.05$) after 60 days. ICC MMP-12 cytospin stains showed more positive fluorochrome signal in MWCNT+ESAT than MWCNT treated mice.
Conclusions: Our initial findings suggest that MMP-12 is involved in both the acute and chronic phase inflammatory response of granulomatous disease. Furthermore, MWCNT+ESAT-6 treated animals developed a more prominent inflammatory response, which may be associated with development of fibrosis.

Notes:

PR5

ASSESSMENT OF ANAL PAPANICOLAOU SMEAR SCREENING AND FOLLOW-UP RATES IN EASTERN NORTH CAROLINA FOR HIV-POSITIVE PATIENTS WHO ARE MEN WHO HAVE SEX WITH MEN

N Doshi, N Roebuck, C Dortche, N Fadul

Background: Squamous cell carcinoma of the anus (i.e. anal cancer), represents 0.5% of all new cancer cases in the US in 2017 according to the National Cancer Institute's Surveillance, Epidemiology, and End Results Program. Literature shows the HIV-infected MSM population is 52 times more likely to develop anal cancer compared to the non-HIV-infected population. Anal Pap screenings have potential to detect the presence of anal cancer earlier, but no national guidelines exist for performing anal Papanicolaou (Pap) screens among gay, bisexual and other men who have sex with men (MSM). The purpose of this research is to show the prevalence of anal Pap abnormalities and follow-up activities among MSM patients receiving HIV care at the ECU Infectious Diseases and International Travel Health Clinic (ECU ID). **Methods:** A retrospective chart review was performed on 505 qualifying patients. Baseline data about anal Pap screening and follow-up rates were gathered. Data were collected from January 1st, 2016 to May 31st, 2017. **Results:** Among 505 HIV-infected MSM patients, anal Pap smears were completed for 260 (51%) men.115 (43.9%) of 260 men were positive for an abnormality. 64 of the 115 patients (55.7%) were positive for atypical squamous cells of undetermined significance (ASCUS); 22 (34.4%) of them were referred to colorectal surgery, 22 (34.4%) had a repeat anal Pap, and 18 (28.1%) got no follow-up. 48 of the 115 patients (41.7%) were positive for low grade squamous intraepithelial lesion (LGSIL); 17 (35.4%) of them were referred to colorectal surgery, 21 (43.8%) had a repeat anal Pap, 2 (4.17%) received a referral to colorectal surgery and a repeat anal Pap, and 8 (16.7%) got no follow-up. 3 of the 115 patients (2.61%) were positive for high grade squamous intraepithelial lesion (HGSIL); 2 (66.7%) were referred to colorectal surgery, and 1 (33.3%) was referred to colorectal surgery and got a repeat anal Pap. **Conclusion:** Our results indicate variation in practice among providers at ECU ID Clinic regarding the screening, the need for a follow-up, and the type of follow-up provided. Therefore, a standardized clinic protocol is needed, which may help improve the screening and follow-up rates. Also, a higher percentage of patients with an ASCUS result do not receive follow-up when compared to patients with a LGSIL and HGSIL result. Future research to determine the the significance of follow-up for patients with an ASCUS result should be explored.

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PR6

"PRE-EXPOSURE PROPHYLAXIS FOR HIV PREVENTION IN A SOUTHERN RURAL CLINIC: A DESCRIPTIVE STUDY"

RL Harrison, CJM Dortche, NA Fadul

Background: Little is known about implementing pre-exposure prophylaxis (PrEP) for human immunodeficiency virus (HIV) in the rural South where most new HIV infections occur. The objectives of this study were to describe the characteristics of the high risk population treated by our clinic in rural-poor, eastern North Carolina, to find reasons for PrEP discontinuation, and to document outcomes of patients on PrEP therapy.
Methods: Patients were assessed for barriers to treatment, risk perception, and knowledge of HIV education by a dedicated case manager during their initial medical visit. Labs related to sexually transmitted infection (STI), kidney function, hepatitis B virus, diabetes, hypertension and osteoporosis, were monitored according to CDC guidelines for PrEP administration. All information was documented in and collected from patient records. Data was analyzed using the secure database REDCap.
Results: Of the thirty-five HIV-negative patients who arrived to the HIV clinic to inquire about starting PrEP, most tended to be white (23, 66%), male (24, 69%) who identified as gay, bisexual or has sex with men (19, 54%) and who had recently had sex with an HIV-positive partner (9, 25%). Majority of all patients lived in Pitt County, N.C. (21, 60%). The estimated travel time to clinic averaged approximately 34 minutes (range: 2 minutes to 123 minutes) and the average travel distance was approximately 23 miles (range: 1 mile to 93 miles). Majority of patients had some form of active medical insurance (31, 89%). The most common reasons for patients to stop PrEP were partner mistrust (2, 6%), intolerance to the medication (2, 6%), and pregnancy (2, 6%). No patient seroconverted while on PrEP, and the incidence of STIs was low in our population, with the most commonly reported STI being herpes simplex virus (3, 9%).
Conclusions: Many patients tolerated PrEP well and continued the medication. Patients who initiated PrEP in rural, eastern North Carolina were more likely to be insured, white men, a surprising result given that, in NC, young black men have the highest estimated rates of HIV per the NC Public Health Department. This highlights the need for future programs and research to make PrEP more widely known and accessible to the rural eastern NC community.

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PR7

DARUNAVIR AND DOLUTEGRAVIR COMBINATION THERAPY IN ANTIRETROVIRAL THERAPY EXPERIENCED HIV-INFECTED PATIENTS: A PRELIMINARY REPORT

A Stang, T Perry, N Fadul

Background: Patients with HIV may require change in therapy for simplification, salvage, or to avoid side effects. There is limited data on the use of dolutegravir (DTG) and ritonavir- or cobicistat-boosted darunvair (DRV) combination therapy alone or with additional active agents in patients with HIV. The objectives of this study were to describe the current use and indications of DTG/DRV combination and to evaluate its effectiveness on viral load suppression (VLS).
Methods: A retrospective chart review of HIV-infected patients, 18 years or older, seen at our clinic between August 2013 and December 2015 who were on DRV/DTG combination alone or with additional active agents was conducted. Demographic, clinical, and laboratory information was collected. Descriptive statistics were used for data analysis.
Results: Eighty-seven patients were included in the study: 64 (74%) on DRV/DTG alone and 23 (26%) on DRV/DTG plus additional agents. Mean age was 49.3 (18-79); 29 (33.3%) were female; and 77 (89%) were black. The majority 86 (99%) of patients were treatment experienced; 60 (69%) had been treated with 3 or more antiretroviral drug classes; 57 (66%) were integrase experienced, including 6 (6.9%) with baseline integrase resistance. Baseline HIV viral load was >200 copies/mL in 41 (47%); and CD4 count was <200 in 29 (33%) patients. Reason for switch was reported as salvage in 42 patients (48%) simplification in 33 patients (38%), renal impairment in 11 patients (13%), and other in 6 patients (7%). VLS was achieved or maintained in 40 of 46 patients (87%) who presented for follow up at 6-8 weeks, 25 of 28 (89%) at 3-4 months, 35 of 41 (85%) at 5-6 months, and 55 of 61 (90%) at 7-12 months after starting therapy. Six patients were later switched off of DRV/DTG to another combination, of whom only two required switch due to intolerance (rash in 1 and large pill size in 1).
Conclusion: Our preliminary results suggest that darunavir/dolutegravir combination is a viable switch option in HIV patients with the majority of patients achieving or maintaining VLS at 1 year of follow up and only 2 patients required a regimen change due to intolerance.

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PR8

IMPROVING HIGH-RISK BREAST CANCER PATIENTS' REFERRAL TO GENETIC COUNSELING WITH ELECTRONIC MEDICAL RECORD

N Lawing, J Wong, NA Vohra, D Mascarenhas, E Gottsch, B Carpenter, A Meyer, E Harris, D Liles, M Muzaffar

Background: The National Comprehensive Cancer Network (NCCN) has set forth guidelines for clinicians to follow to identify high-risk breast cancer patients who would benefit from referral to genetics. The Quality Oncology Practice Initiative cites "referral to genetic counseling for high risk breast cancer patients" as a core quality metric. The average referral rate for patients diagnosed at Leo Jenkins Cancer Center (LJCC) in 2007-2014 was 59%. Recent research has employed electronic medical records (EMR) to help identify and refer these patients, with positive result.
Methods: A retrospective chart review of patients treated for breast cancer at LJCC between January 2016 and August 2017 was undertaken. In 2017, a document flowsheet was implemented in EPIC based on NCCN criteria that automatically sends a genetic referral if criteria are met. Patients meeting NCCN criteria were identified and charts reviewed for data collection and analysis. Nurse navigator follow up to determine individual patient barriers was also initiated.
Results: From 2016 to 2017, 223 patients were diagnosed with breast cancer and 137 (61.4%) of these met criteria for high-risk breast cancer. A total of 108 genetic document flowsheets were filled by providers. The flowsheet was significantly more likely to be filled if the patient met criteria (56%) compared to those who did not meet criteria (36%, p=0.003). Referral rate showed an increasing trend with time: 2014 baseline (70.7%, n=41), 2016 (79.4%, n=54) and 2017 (85.7%, n=80). While there was no statistical difference between 2016 and 2017, referral rates were significantly greater when comparing 2014 to 2017 (p=0.038). Genetic counseling and testing rates have remained stable with time. Reasons for not undergoing counseling were better documented in 2017, with none unknown compared to 23% unknown in 2016 and the most common barriers being patient refusal (31%) and financial (11%).
Conclusions: Referral rates of high-risk breast cancer patients improved after utilizing EMR. This can help identify more patients with genetic mutations, and assist with decisions regarding risk-reductive strategies, and genetic testing for family members. We propose using this template across the Vidant Health Network oncology practices. Nurse navigator follow up of patients has helped identify barriers to genetic counseling, so these can be specifically addressed.

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PR9

CYCLOPHOSPHAMIDE BASED IMMUNOMODULATION IN LUNG CANCER PATIENTS TREATED WITH NIVOLUMAB.

A Hegde, C Cherry, CRG Stroud, R Pinnamaneni, N Sharma, S Cherukuri, M Bowling, A Ju, H Arastu, P Walker.

Background: In non small cell lung cancer (NSCLC), the absolute overall survival (OS) benefit of the anti- PD1 inhibitor, Nivolumab (nivo) over Docetaxel is modest at 2-4 months. Preclinical studies show that combined radiation and anti-PD-1 therapy causes immunogenic cell death by various mechanisms. While low dose cyclophosphamide (C) and Gemcitabine (G) inhibit T regulatory cells in vitro, Bevacizumab (B) aids CD8+ T cell trafficking in vitro. In an effort to enhance survival, we have been incorporating stereotactic ablative radiotherapy (SABR), cyclophosphamide based immunomodulation (CI) or both in the management of lung cancer patients (pts) treated with nivo. This study evaluates the impact of our immunomodulatory (IM) strategies on OS of lung cancer pts treated with nivo.

Methods: All lung cancer pts who started nivo between April 2015 and May 2017 were identified by retrospective chart review. Patients who received CI, SABR or both within 30 days before starting or during the course of nivo were identified. Pts were followed up to 31 December 2017.

Results: A total of 109 nivo treated lung cancer pts were identified of which 39 received immunomodulation (SABR: 21, CI: 15, both: 3). Out of 15 pts who got CI, 4 got C alone, 7 got CG, 2 got CB and 2 got CGB. Out of 3 pts who got both SABR and CI, 2 got CG and 1 got CB. Of the 21 pts who got SABR alone, 8 were to CNS and 13 to extra CNS sites. Among the 3 pts who got both SABR and CI, 1 got SABR to CNS and 2 to extra CNS sites.

Group	1 year OS (%)	mOS (95% CI) (months)	HR (95% CI)	P- value
Any IM	40.9	11.1 (8.8- 16.4)	0.50 (0.32- 0.80)	0.003
CI	28.6	10.6 (6.7- 17.8)	0.59 (0.32- 1.11)	0.10
SABR	51.4	15.0 (8.6- 20.1)	0.46 (0.26- 0.84)	0.01
Both	33.3	11.9 (9.5- 11.9)	0.37 (0.10- 1.51)	0.16
None	27.1	3.9 (2.6- 6.1)	-	-

Conclusion: Immunomodulation (SABR, CI or both) in combination with nivo improves mOS by 7.2 months. The optimal schedule and dose of CI and SABR need further evaluation in prospective randomized control trials.

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PR10

OUTCOMES OF IMMUNOMODULATORY RADIATION STRATEGIES IN COMBINATION WITH NIVOLUMAB COMPARED WITH SINGLE AGENT NIVOLUMAB IN LUNG CANCER PATIENTS.

A Hegde, C Cherry, CRG Stroud, R Pinnamaneni, N Sharma, S Cherukuri, M Bowling, A Ju, H Arastu, P Walker.

Background: The absolute improvement in overall survival (OS) with single agent nivolumab in non-small cell lung cancer is 2- 4 months. In animal models, combined radiation and anti-PD1 antibody has demonstrated improved response rates. Therefore, it has been our programmatic approach to combine stereotactic ablative radiotherapy (SABR) with nivo for the purpose of immunomodulation in lung cancer patients (pts). However, the optimal dose and fractionation of radiation in combination with nivo remain unclear. We evaluated OS in lung cancer pts who received nivo alone or in combination with either conventional external beam radiotherapy (EBRT) or SABR.

Methods: A retrospective chart review was performed to identify lung cancer pts who started nivo between April 2015 and May 2017. Pts who got EBRT in the 3 months preceding nivo and those who got SABR as per our programmatic approach (within 30 days preceding nivo or during nivo) were identified. Follow up cut off was 31 December 2017. K-M analysis and Cox PH model were used to estimate OS and hazard ratios.

Results: Out of 109 lung cancer pts who received nivo, 24 (22%) got nivo+ SABR and 14 (12.8%) got nivo+ EBRT. Among 24 pts who got nivo+ SABR, 9 (37.5%) were to CNS and 15 (62.5%) to extra- CNS sites. Two (14.3%) of the 14 pts who got nivo+ EBRT, got radiation to CNS sites and 12 (85.7%) to extra CNS sites. Survival estimates are as follows-

Group	1 year OS (%)	mOS (95% CI) (months)	HR (95% CI)	p-value
Nivo+ SABR	48.6	11.9 (8.8- 20.1)	0.53 (0.30- 0.92)	0.03
Nivo+ EBRT	21.4	3.9 (1.4- 11.4)	1.32 (0.72- 2.42)	0.37
Nivo	29.2	5.5 (3.1- 7.8)	-	-

Conclusion: Nivo+ SABR was associated with a statistically significant reduction in mortality when compared to nivo alone. There was no significant difference in mortality between the Nivo+ EBRT and single agent nivo. Future studies should focus on optimal fractionation, dose and timing of radiation in combination with immune checkpoint blockade.

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PR11

CONCORDANCE OF COMMERCIALLY AVAILABLE BLOOD BASED MUTATION TESTING AND TISSUE BASED NEXT GENERATION SEQUENCING IN NON SMALL CELL LUNG CANCER

A Hegde, S Jonnalagadda, N Sharma, S Cherukuri, A Oliver, J Speicher, M Iannettoni, M Bowling, P Walker.

Background: Targeted therapies are available for a number of driver mutations in Non Small Cell Lung Cancer (NSCLC). However, obtaining sufficient tissue for histologic diagnosis as well as complex mutation testing in NSCLC patients can be challenging. Circulating cell free DNA can be analyzed for driver mutations by highly sensitive molecular methods. Here, we evaluate the concordance between a blood based assay that utilizes digital droplet PCR (ddPCR) and tissue based next generation sequencing (tNGS), both of which are commercially available.
Methods: Medical records were reviewed to identify NSCLC patients (pts) who had undergone both ddPCR and tNGS between March 2016 and May 2017. Patient demographics, stage, type of mutation detected, PDL-1 level and tumor mutation burden (TMB) were obtained. Data was assessed for concordance of mutation results [concordant pairs/ (concordant pairs+ discordant pairs)].
Results: Of the 47 pts who underwent both ddPCR and tNGS, a total of 19 mutations were detected in 18 patients (38.3%) by either method. Seven (37%) of the 19 mutations were detected in tissue only, 6 (31.5%) in blood only and 6 (31.5%) in both. Six of the 18 pts (33.3%) had concordant results. Of the 12 discordant results, 1 pt had EGFR exon 21 L858R mutation on ddPCR and KRAS G12D mutation on tNGS. One out of the 6 concordant results was EGFR (16.7%) and 5 (83.3%) were KRAS mutations. The median PDL-1 level for mutations detected on tNGS and ddPCR were 0% (0-100) and 60% (0- 100) respectively. The median TMB for mutations detected by tNGS and blood ddPCR were 12 (6- 19) and 9 (4- 19) respectively. Of the 12 mutations detected by ddPCR, 1 (8.3%) was in stage I, 0 in stage II, 4 (33.3%) in stage III and 7 (58.3%) in stage IV disease. Median turn around time for tNGS and ddPCR was 12 days (9- 24) and 5.5 days (3- 21) respectively.
Conclusion: Targeted blood based mutation testing is complementary to tNGS in NSCLC with increasing yield of positive mutations in advanced disease stages.

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PR12

CONCOMITANT USE OF AGENTS TARGETING THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM PREVENT TRASTUZUMAB-INDUCED CARDIOTOXICITY

M Moey, D Liles and B Carabello

Background: Trastuzumab (TRA) is a monoclonal antibody used as adjuvant therapy for human epidermal receptor positive (HER2+) breast cancer. Cardiotoxicity manifested as an asymptomatic decrease in ejection fraction (EF) or symptomatic heart failure however is a common adverse effect. We hypothesized that concurrent use of cardiac agents targeting the renin-angiotensin-aldosterone system (RAAS) would prevent development of cardiotoxicity in patients exposed to TRA.
Methods: Surveillance EF at 3-month intervals obtained from echocardiogram or MUGA were retrospectively compared to baseline EF in patients with TRA-treated HER2+ breast cancer between May 2011 to May 2016 at Vidant Medical Center. Cardiotoxicity was defined as a decrease of EF by more than 15 points from baseline. Medications and comorbidities were compared between patients with preserved and reduced. A published clinical risk score (CRS) was applied to the patient population with calculated sensitivity analyses to determine if the CRS could predict cardiotoxicity.
Results: Of 128 patients with HER2+ breast cancer that were treated with TRA, 11% developed cardiotoxicity resulting in discontinuation of TRA. Patients who were symptomatic was 43%. Cardiotoxicity was seen as early as 3 months and EF remained depressed at 15-month follow-up in comparison to patients with preserved EF ($p < 0.05$). Co-existing arrhythmia, CAD, CKD, HLD, HTN, obesity and obstructive sleep apnea (OSA) tended to infer an increased risk for development of cardiotoxicity. Patients with preserved EF were found to be concurrently on an anti-RAAS agent (OR of 0.24, 95% CI 0.05 – 1.11, p 0.06). The high-risk cut-off of the CRS had a specificity of 0.89 (95% CI 0.82 – 0.94) and negative predictive value of 0.91 (95% CI 0.84 – 0.95)
Conclusion: Our data suggest that the concurrent use of an anti-RAAS agent during TRA-treatment of HER2 positive patients may provide a protective effect against the development of cardiotoxicity and warrants further investigation. The high sensitivity and negative predictive value of the CRS suggest that patients identified as high risk would benefit from intensive monitoring and management.

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PV1

LARGE LEFT VENTRICULAR THROMBUS AS A CAUSE OF RECURRENT CARDIOEMBOLIC STROKE WHILE ON DABIGATRAN

M Moey, A Tomdio, O Achike, D Kabirdas

Learning Objectives: Our report of a patient with large left ventricular (LV) thrombus and recurrent stroke while on dabigatran highlights the important question of utility of direct oral anticoagulation (DOAC) in patients with large LV thrombus and the need for further studies.

Case Information: A 39 year-old African American male presented myoclonic activity concerning for seizure. A head CT scan demonstrated an acute right parietal infarct with progressive cerebral edema. His medical history was significant for type II diabetes mellitus, hypertension, anterior myocardial infarction with stent placement to the left anterior descending artery in 2006. He also had a previous left middle cerebral artery ischemic stroke in 2011 with residual moderate-severe expressive aphasia and right sided weakness for which he was on anticoagulation with dabigatran. The etiology of his first stroke was considered to be cardioembolic for which coumadin was initiated, however, due to non-compliance, the patient was switched to dabigatran. As part of his stroke work up, an echocardiogram was performed which showed an LV ejection fraction of 25% and a large pedunculated mobile elongated hyperechoic mass measuring 5.6 cm in length and 3.4 cm in width attached to the apex with a narrow stalk concerning for high risk for entire thrombus dislodgement. The patient underwent excision of the LV mass. Intraoperative findings included heavy calcification of LV apex, distal septum and distal anterior wall. Pathology report confirmed a non-malignant mass and findings consistent with a thrombus. Due to non-compliance and social issues, patient was considered not an ideal candidate for coumadin and hence discharged home on DOAC. Follow up echocardiograms one month and 2 years after thrombectomy showed no evidence of LV thrombus on DOAC therapy

Summary: LV mural thrombi have significant morbidity and potential mortality due to risk for systemic embolization and ischemic stroke. Anticoagulation with oral vitamin K antagonists (VKA) therapy for 3 months is the recommended treatment in patients with LV mural thrombus. DOAC therapy is considered second line and is reserved for patients who are intolerant to VKA therapy as there are no randomized studies to date demonstrating long-term outcomes. Surgical thrombectomy should be considered in patients with large sized, mobile LV mural thrombi with high risk for embolization.

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PV2

WHEN A RASH ISN'T JUST A RASH – MULTICENTRIC CASTLEMAN DISEASE

M Chai, T Blair, S Pancholi

Learning Objectives: Multicentric Castleman Disease (MCD) is a rare, life-threatening lymphoproliferative disorder. Often seen with HIV infected individuals, it has been connected with the human herpesvirus-8 (HHV-8), also known as Kaposi sarcoma herpesvirus. Surprisingly, the incidence of MCD has increased with more effective antiretroviral therapy for the management of HIV infection, suggesting that the disease requires a more robust immune system prior to manifestation.

Case Summary: A 48-year-old African American male with history of AIDS on antiretroviral therapy and Pneumocystis jirovecii pneumonia (PJP) was admitted for a two-week history of shortness of breath and 20 pound unintentional weight loss. He also noted a three-month history of worsening left leg rash, despite using topical steroids prescribed by a dermatologist for presumed nummular eczema. Admission vitals were significant for a low-grade fever and hypoxia. CD4 count was 73. Chest CT imaging showed bilateral axillary lymph node enlargement, mediastinal lymph node enlargement, right subpectoral lymphadenopathy, and splenomegaly. He was started on treatment for PJP with rapid improvement, but ongoing leg rash, so punch biopsy was performed, which showed Kaposi sarcoma. Lymph node excisional biopsy also showed involvement by Kaposi sarcoma with coexistent plasma cell variant of Castleman disease and positive HHV-8. The patient was started on treatment with Rituximab and has tolerated this well.

Summary: Due to its often vague presentation and ability to mimic other diseases, delayed accurate diagnosis of MCD is a major concern. This patient was incorrectly assumed to have nummular eczema, with a delayed diagnosis after tissue biopsy. Although usually associated with a poor prognosis, including overwhelming infections, progressive disease, and hematologic malignancies, timely histopathological diagnosis and treatment with the anti-CD20 monoclonal antibody Rituximab has led to a high percentage of complete and sustained remission. As the incidence of MCD increases annually with improving HIV patient immunity, physicians must include the disease as a differential diagnosis in a HIV patient with generalized lymphadenopathy and dermatologic complaints suggestive of Kaposi sarcoma.

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PV3

FROM BONE TO BONE – A CASE OF BILATERAL CLAVICULAR OSTEOMTYELITIS

P Chandrika, MC Chai, S Pancholi

Learning Objectives: Clavicular osteomyelitis is a rare, but potentially life-threatening condition. To date, there have been 13 reported cases secondary to subclavian catheterization in the literature.

Case Information: A 52-year-old male with significant vascular disease, left below-knee amputation complicated by Methicillin-resistant Staphylococcus aureus (MRSA) osteomyelitis, diabetes, and diastolic heart failure, was admitted for heart failure exacerbation. He had an asymptomatic 2-3 inch fluctuant sternal mass, growing over three months. MRI imaging was consistent with osteomyelitis of the manubrium, septic arthritis versus osteomyelitis of the bilateral sternoclavicular joints, and likely abscess of the right sternoclavicular joint. Needle aspiration of the abscess was positive for MRSA. He was deemed a poor surgical candidate due to his poor functional status, and was treated conservatively with a prolonged regimen of Daptomycin via a peripherally inserted central line.

Summary: Clavicular osteomyelitis is a rare complication of subclavian catheterization, with bilateral involvement representing an even smaller percentage. Due to concerns for pleural space trauma and resulting pneumothorax during subclavian catheter placement, insertion close to the posterior aspect of the clavicle can result in direct trauma to the periosteum. This patient had multiple risk factors for recurrent MRSA osteomyelitis, including two prior hospitalizations for the same and prior history of MRSA bacteremia; however, the direct inoculation and probable subperiosteal seeding from subclavian catheterization confer the highest risk. Prior reports that have documented bilateral clavicular involvement are usually in the setting of direct trauma to the affected areas. This patient had no known history of trauma. Staphylococcus aureus can live intracellularly within osteoclasts, which may account for the spread of infection. Timely initiation of prolonged intravenous antibiotic therapy with wide local debridement are paramount to potentially prevent life-threatening complications. Catheter-related infections account for a large percentage of nosocomial infections, and this case highlights the importance of maintaining a high index of suspicion for diagnosis and treatment of clavicular osteomyelitis in a patient with a history of subclavian catheterization.

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PV4

CALCIPHYLAXIS IN THE UNEXPECTED

S Thomas-Nadler, J Powell

Learning Objectives: Calciphylaxis is a rare and serious medical condition that calcifies arterioles leading to subcutaneous ischemic necrosis. It is mostly seen in patients who are ESRD on dialysis (uremic calciphylaxis), but it is sometimes can be seen in other conditions (nonuremic calciphylaxis). Non-uremic calciphylaxis can be caused by several conditions, including malignancy, obesity, hyperparathyroidism, protein C and S deficiencies, alcoholic liver disease, connective tissue disease, autoimmune disorders and iatrogenic. Medication causes include glucocorticoids, warfarin, and vitamin D supplements. Uremic and non-uremic calciphylaxis have high morbidity and mortality secondary to severe pain, non-healing wounds, recurrent hospitalizations, and adverse effects to treatments.

Case Information: A 70 year-old obese female with a past medical history of HTN, DM2 (on Glipizide), and Sjogren disease (on hydroxychloroquine) presented with a worsening right lower extremity wound. She initially burned her leg about 4 months prior and was treated with outpatient antibiotics. The wounds persisted, and she was readmitted to the hospital and treated for diabetic ulcers with a superimposed infection. She was treated with piperacillin-tazobactam and responded well. She again was readmitted with a superimposed infection, and a biopsy of the wound was taken—the results showed calciphylaxis. Patient was then started on sodium thiosulfate and Cefepime for treatment of the superficial Pseudomonas wound. Further evaluation revealed that the patient's risk factors included obesity, Sjogren disease, and supplementation with vitamin D and ferrous sulfate.

Summary: Calciphylaxis occurs less often in patients with kidney disease not on dialysis and in patients without kidney disease, although the incidence and prevalence in these populations is not known. The one-year mortality rate ranges from 45-80%, and patients on hemodialysis who develop calciphylaxis are almost 3 times as likely to die as those who do not have calciphylaxis. The clinical presentation usually involves painful skin lesions that start as purpuric-like lesions or hard indurations in the dermis. They can affect any area but often occur on the lower extremities or trunk. The lesions will often progress to form a necrotic eschar, and superimposed infection often ensues. Sepsis secondary to wound infection is the leading cause of death in these patients, accounting for 41% of the deaths in one retrospective study. This case study examines a patient with nonuremic calciphylaxis.

Notes:

PV5

LATENT AUTOIMMUNE DIABETES WITH HIGH TITER GAD ANTIBODIES MASQUERADING AS INSULIN RESISTANCE

K Sheth, C Houston, F Cook

Learning Objectives:
- Differentiate clinical signs of autoimmune Type 1 diabetes and insulin resistant Type 2 diabetes.
- Discuss difficulties in differentiating between Type 1 and Type 2 diabetes using phenotype alone.
- Recognize autoimmune polyglandular syndromes (APS).
- Recognize GAD65 Ab neurologic syndromes

Case Information:.64 yr AA female with morbid obesity, hirsutism and acanthosis nigricans was diagnosed with type 2 diabetes at age 58 and started on basal insulin. At 59yo, she was diagnosed with severe macrocytic anemia due to vitamin B12 deficiency. At 61yo, she was diagnosed with hypothyroidism. Due to poor glycemic control she was started on basal-bolus insulin. Due to suspected nonadherence given limited cognitive function, she was switched to lispro 70/30 premixed, which was discontinued after admission for severe hypoglycemia. Given hypoglycemia risk and clinical features of insulin resistance, she was placed on exenatide and metformin. Within 1 week, she developed severe DKA. GAD65 Ab resulted at >25000 U/mL (normal 0.0-5.0 U/mL) confirmed on repeat by another lab at >250 IU/mL (normal <5 IU/mL). Thyroid peroxidase Ab level was 559 IU/mL (normal 0-34 IU/mL) and intrinsic factor Ab was positive, indicative of autoimmune hypothyroidism and pernicious anemia. TSH and B12 levels were normal on replacement. Due to her history of limited functionality, evaluation for GAD65 Ab neurologic syndrome was conducted. CSF had normal cell count, glucose, and protein but elevated GAD65 Ab of 3.65nmol/L (normal <0.02). MRI and EEG studies were normal. She was discharged to a nursing facility with good glycemic control on a very low dose of basal bolus insulin 0.2 units/kg.

Summary: Autoimmune diabetes should be considered in a patient with other autoimmune conditions, even when phenotype suggests type 2 diabetes. GAD65 neurologic autoimmunity should be considered in patients with very high Ab titers with neurologic and/or psychiatric symptoms. More research is needed to obtain a deeper understanding of this disease and its treatment, especially for cognitive and psychiatric manifestations.

Notes:

PV6

"METFORMIN AND ALCOHOL, A DANGEROUS COCKTAIL"

J Denis, B Hoffman, M Shayna, S Sundaram, B Patel, S Nandimandalam

Although the incidence of metformin associated lactic acidosis is low, it is associated with high mortality. Known risk factors include chronic kidney disease, hepatic insufficiency, alcohol abuse, and hypovolemia. Its occurrence is usually complicated by concomitant starvation or alcoholic ketoacidosis. When treating metabolic acidosis in an alcoholic patient with active Metformin use, the blood gas derangements are likely a combination of alcoholic and Metformin- associated ketoacidosis.

A 72-year-old male with a history of alcohol abuse and diabetes mellitus presented to the ED with complaints of generalized weakness and a FSBS of 27. Home medications include glipizide, insulin, and metformin. He reported a recent alcohol and cocaine binge. Physical exam and vital signs were unremarkable. Lab work showed elevated lactic acid of 7.7, beta-hydroxybutyrate of 5.21 with anion gap metabolic acidosis. Patient was treated with aggressive IV hydration and lactic acid gradually trended down. Ultimately, the patient was discharged after intravenous hydration lead to near complete resolution of his presenting weakness.

This case illustrates how lactic acidosis can be worsened in the setting of concurrent alcoholic ketoacidosis and Metformin use. Metformin works to lower blood sugar in a number of ways. One mechanism of action which postulates the etiology of metformin associated lactic acidosis is that it produces and also decreases excretion of lactate. However, in a healthy individual, the body can compensate for these changes. In the event of acute alcohol intake leading to decreased nutritional intake, patient's metabolic response produces metabolic acidosis by favoring ethanol's metabolic byproduct acetoacetate conversion to beta-hydroxybutyrate and pyruvate conversion to lactate. Metformin use, then, is causal and a contributor to the patient's metabolic acidosis. Treatment of metabolic acidosis in patients with significant history of alcohol abuse and diabetes mellitus on Metformin therapy should be targeting both contributing factors. Treatment is with aggressive fluid rehydration, nutritional supplementation, and removal of offending agents including Metformin. Additionally, patient should be counseled on the dangerous side effects of alcohol abuse especially in combination with Metformin use. Despite low incidence rates, maintaining a high index of suspicion for Metformin associated lactic acidosis particularly in patients with alcoholic ketoacidosis will improve quality of care administered.

Notes:

PV7

DISSEMINATED INTRAVASCULAR COAGULATION DEMONSTRATING RECURRENCE OF METASTATIC PROSTATE CANCER

T Vasamsetty, T Blair, S Macherla, M Navaid

Learning objectives: Disseminated intravascular coagulation (DIC) is a rare occurrence in metastatic prostate cancer (MPC), but is still the most common coagulopathy associated with MPC. However, it is often subclinical with only 0.4–1.65% of cases that have clinical expression. This case illustrates a relapse of prostate cancer (PC) with clinically evident DIC.
Case report: An 84 year old Caucasian male with a past medical history of PC with metastasis to bone and coronary artery disease s/p bypass grafts presented to our institution with new onset thrombocytopenia. His original diagnosis of PC was made in 2014 with a high Prostate specific antigen (PSA) level and confirmed with a transrectal ultrasound-guided needle biopsy that showed extensive adenocarcinoma. He was treated surgically followed by Luprolide injections every 3-6 months. PSA had remained low (at 0.16 ng/mL in Jun 2017) with above interventions but quickly rose to 258.3 ng/mL in Oct 2017. He then developed extensive bruising which led to the initial admission. Labs revealed severe thrombocytopenia, elevated d-dimer, LDH, PT, and PTT with low fibrinogen level and schistocytes were noted on peripheral smear. CT chest/abdomen/pelvis and repeat bone scan were indicative of recurrent metastatic disease and patient was started on Abiraterone with Prednisone. Bone marrow biopsy revealed metastatic invasion. Over the next 3 admissions, patient received multiple transfusions of cryoprecipitate while he was started on Degarelix. However, during his last admission patient developed acute respiratory distress, bleeding complications and soon passed away.
Summary: DIC is regarded as a poor prognostic factor in patients with PC. Median survival is commonly reported as only 4 weeks when presenting with advanced disease. It is likely that increased fibrinolysis promotes metastasis and hence relates with poor prognosis. It has been postulated that hormone resistant prostatic tumors secrete high levels of mucin that acts as a tissue factor for DIC. In this case, rapid elevation in PSA and declining platelets heralded the recurrence of PC. This suggests the importance of recognizing declining platelet counts and evaluating for recurrence of PC since prognosis in patients with DIC in metastatic disease is very poor.

Notes:

PV8

PRIMARY SMALL CELL CARCINOMA OF THE GALLBLADDER

EM Gochanour, A Hamed, M Muzaffar

Learning Objectives: Primary small cell carcinoma of the gallbladder is an extremely rare and aggressive malignancy. First described in 1981 by Albores-Saavedra et al, fewer than 100 cases have since been described in the literature (1). Presenting symptoms are often vague (3). This malignancy is observed most commonly in elderly patients and women (3). There have been only three previously reported cases of patients less than 40 years old (3). We present the fourth such case here.
Case Information: A 38-year-old female with history of morbid obesity and hypertension who initially presented with intermittent, right upper quadrant abdominal pain which radiated to her flank and was associated with nausea and anorexia. Murphy's sign was positive. Labs were significant for elevated LFTs in a cholestatic pattern. Right upper quadrant US was performed which showed dilated CBD (15 mm) concerning for choledocholithiasis. Follow up MRCP showed a 0.8 cm gallstone in distal CBD but was also concerning for a 3.8 cm gallbladder mass extending into the adjacent hepatic parenchyma with associated portal lymphadenopathy. Biopsy via EUS was deemed too difficult given patient's body habitus. ERCP was performed with sphincterotomy and removal of stones and purulent drainage. Patient was treated with antibiotics and subsequently underwent robotic-assisted diagnostic laparoscopy. Operative findings included a large gallbladder mass with multiple lesions within the liver concerning for metastatic disease. Part of the mass was excised and hepatic artery lymph node excision was performed. Immunohistochemistry findings of both specimens were consistent with metastatic small cell carcinoma of gallbladder.
Summary: Primary small cell carcinoma of the gallbladder is a rare malignancy usually seen in elderly patients, however it can also affect younger individuals as seen in our case. Metastatic disease is common on diagnosis likely due to non specific symptoms at presentation (3) Median survival is 9-13 months (2)(3). Local disease is often treated with surgical resection. No benefit has been shown with adjuvant therapy, however, there is a significant survival benefit with chemotherapy in patients with metastatic disease compared to no chemotherapy (3). Therefore, timely identification of these tumors is critical for earlier initiation of treatment which can lead to better outcomes. Our patient is still alive at 14 months.

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PV9

CLASSICAL HODGKIN'S LYMPHOMA PRESENTING WITH IDIOPATHIC THROMBOCYTOPENIC PURPURA AND INTRA-RETINAL HEMORHAGES

T Blair, E Gochanour, S Baig, A Weil MD

Learning Objectives: It is extremely rare for idiopathic thrombocytopenic purpura, or ITP, to be associated with classical Hodgkin's lymphoma and even more so for this to cause intra-retinal hemorrhages. There have been no reported cases with the combined association. We report the first case of the combined presentation.

Case Information: A 27-year old African American male with no medical history presented with 3 months of bilateral inguinal lymph node enlargement, fevers, night sweats, fatigue, and weight loss. Patient presented to the ED with severe thrombocytopenia with platelets less than 10,000 and gum bleeding and petechiae of 3 days. Initial workup was negative for TTP, HUS, or DIC and he was diagnosed with ITP. Work-up included core needle biopsy of right lymph node and bone marrow aspirate; he was then started on IVIG and high dose steroids without improvement. He subsequently developed blurry vision with floaters. Ophthalmology was consulted and he was diagnosed with intra-retinal hemorrhages attributed to severe anemia and thrombocytopenia. Anemia was attributed to extensive mucosal bleeding. Initial core-needle biopsies were concerning for Hodgkin's but were non-diagnostic; steroids were held and excisional biopsy of left inguinal lymph node was obtained and diagnosed with classical Hodgkin's Lymphoma and started on ABVD chemotherapy with good response. Patient remained thrombocytopenic with refractory ITP; it finally resolved after splenectomy after steroids, IVIG, Romiplastim, and Rituximab had no effect.

Summary: ITP is a rare complication for Hodgkin's, but intra-retinal hemorrhages occurring as a subsequent complication has never before been reported together. Treatment for ITP in Hodgkin's is often unsuccessful even with first line and second line therapies and in many reported cases required splenectomy to fully resolve. There are no prescribed treatments or interventions for retinal hemorrhage. This case illustrates the difficulty with any delay to diagnosis and highlights the importance of timely diagnosis. It supports approaching suspected lymphoma with excisional biopsy first to avoid rare but devastating consequences. Further this case highlights the possibility of advancing to splenectomy for ITP sooner in patients who have evidence of bleeding or severe anemia.

Notes:

PV10

INITIAL PRESENTATION OF PRIMARY INTRAVASCULAR SYNOVIAL SARCOMAS AS PULMONARY TUMOR EMBOLUS

E Appah, S Jonnalagadda, M Mahvish, P Walker.

LEARNING OBJECTIVES: Primary intravascular synovial sarcomas are exceedingly rare accounting for less than 1% of all malignant soft-tissue tumors. Of the 10 reported cases of primary intravascular sarcomas, only two patients presented with a histologically proven pulmonary tumor embolus.

CASE INFORMATION:

A 60 year old female with past medical history of COPD presented to an outside emergency room with a new syncopal episode and three month history of worsening shortness of breath and fatigue. A computed tomography angiography (CTA) of the chest demonstrated extensive embolic filling defects within the main branches of the pulmonary arteries with ECHO findings of right heart strain consistent with sub-massive pulmonary embolus. Duplex ultrasonography demonstrated extensive occlusive and non-occlusive thrombus extending through the entire left lower extremity. CT scan of the lower extremity identified a 6x5 cm soft tissue mass in the left groin. However shortly after arrival at our hospital, she developed worsening respiratory failure and pulseless cardiac arrest. She underwent an emergent embolectomy and veno-arterial extracorporeal membrane oxygenation due to persistent cardiogenic shock. She subsequently deteriorated with worsening neurological status with inability to be weaned from the ventilator. On Day 10 due to lack of improvement, family withdrew care given lack of meaningful recovery. Family requested autopsy at the time of death. Pathological examination from the emboli at autopsy revealed a malignant neoplasm consisting of small round blue cells with no obvious pattern of differentiation. Immunohistochemistry of the specimen was positive for vimentin, CD56, and CD99 and negative for CK7, CK 20, CK 8/18, desmin, S100, synaptophysin, WT-1, chromogranin, and TTF-1. IHC studies and genomic testing identified the malignant neoplasm as probable synovial sarcoma. The primary site was felt to be likely intravascular within the left femoral and internal iliac veins given the soft tissue mass noted in the left iliac region.

SUMMARY: Synovial Sarcoma is an aggressive neoplasm commonly affecting deep soft tissues of the extremities and trunks. Intravascular involvement such as in this patient exhibits high metastatic potential and often poor prognosis.

Notes:

PV11

A CASE OF INTERMITTENT UPPER AIRWAY OBSTRUCTION: SUDDEN RECURRENT CHOKING SENSATION

S Awadallah, H Sarwar, Z Rehman

LEARNING OBJECTIVES: Vocal fold polyps are benign non-neoplastic lesions thought to occur as a result of vocal abuse, misuse, or overuse. Current treatments include conservative (non-surgical) and surgical approaches.

This case demonstrates a rare presentation of pre-existing polyp which became enlarged due to allergic reaction to new inhaler therapy, leading to intermittent upper airway obstruction and stridor.

CASE INFORMATION: A 54-year-old Caucasian female with past medical history of diabetes mellitus and chronic obstructive lung disease presented to emergency department with dyspnea and facial swelling of three days duration. She has been started on new-metered dose inhaler (MDI) Vilanterol/Fluticasone Furoate inhaled, five days prior to presentation. Two days after she started MDI she noticed facial swelling, worsening dyspnea, and sudden chocking sensation when lying flat. She was admitted to the hospital under medicine team and treated with bronchodilators and steroids but symptoms did not resolve and thus pulmonary team was consulted. On exam, she was noted to have intermittent stridor, which worsened when lying flat and randomly resolve when coughing and sitting up. Chest x-ray showed no acute cardiopulmonary disease and blood work was only notable for mild leukocytosis. Computed tomography (CT) of the neck and soft tissues showed completely patent airway with no acute pathology. A laryngologist was consulted and direct laryngoscopy was performed. She was found to have edematous vocal cords with large polyp on the anterior portion of the arytenoid cartilage flopping in and out of the airway leading to intermittent obstruction. The polyp was surgically removed and her symptoms resolved. Pathology examination of polyp showed ulceration, associated inflammation, and reactive atypia with no evidence of dysplasia or malignancy.

SUMMARY: Our case highlights how a benign vocal fold lesion can present with an alarming finding with stridor and dyspnea that may lead to aggressive therapies such as endotracheal intubation. Direct laryngoscopy examination, if available, can be a great tool in diagnosing these pathologies and prevent unnecessary medical interventions.

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PV12

MALIGNANT PLEURAL EFFUSION WITH UNKNOWN PRIMARY CANCER: A SINGLE CENTER EXPERIENCE OF THREE CASES WITH NON-REVEALING RADIOGRAPHIC STUDIES

S Awadallah, A Mohan

Learning objectives: Malignant pleural effusion (MPE) is a very common complication of advance malignancies. In undiagnosed unilateral pleural effusion, the most important diagnosis to exclude is malignancy.

Cases Information: ***Case1:*** A 61-year-old Caucasian female with history of Non-Hodgkin's Lymphoma treated twenty years ago presented with dyspnea. Chest x-ray showed a large right pleural effusion. Thoracentesis was performed but with rapid re-accumulation. Analysis of pleural fluid (PF) showed a lymphocytic exudative effusion. Cytology was negative. Computed tomography (CT) of chest, abdomen, and pelvis did not show any masses or lymphadenopathy. Pleural biopsy was done via thoracoscopic surgery and revealed adenocarcinoma. Positron-emission tomography scan (PET) could not be performed as the patient expired. ***Case 2****:* A 66-year-old Caucasian male presented with dyspnea for one week. Chest x-ray showed a large right pleural effusion. Thoracentesis was performed with rapid accumulation of fluid noted. Analysis of the PF showed a lymphocytic exudative effusion. Cytology showed adenocarcinoma. CT of chest, abdomen, and pelvis showed moderately enlarged mediastinal and right hilar lymph nodes but no masses. PET scan showed low-grade hypermetabolic activity in mediastinal and right hilar lymph nodes with no other active site. He was treated with chemotherapy and continues to be alive a year after his diagnosis.

Case 3: A 64-year-old Caucasian female with history of pneumonia three months prior presented with dyspnea and cough for three days. Chest x-ray showed a moderate size right pleural effusion. Thoracentesis was performed and analysis of the PF showed a lymphocytic exudative effusion. Cytology showed adenocarcinoma. CT of chest, abdomen, and pelvis showed right upper lobe scarring but no masses or lymphadenopathy. PET scan showed low-grade hypermetabolic activity in left upper and right upper lobe lesion with some activity in mediastinal lymph node. She was treated with chemotherapy but expired three months later.

Summary: Our case series highlights the need for doggedness while investigating pleural effusions of unclear etiology. Our cases were strikingly similar and reflect the diagnostic dilemma we face with no clear guidelines of management.

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PV13

UNUSUAL RIGHT-SIDED HEMOTHORAX AFTER DEVELOPMENT OF TYPE-B AORTIC DISSECTION WITHOUT RUPTION: A CASE REPORT AND REVIEW OF LITERATURE

F Houshmand, SA Marco, V Maddipati

Development of hemothorax in type-B aortic dissection in absence of aortic rupture is less common than that of type-A, however, it can be initial presenting clue or develop within first few days. Majority of cases present with bilateral pleural effusions and some with right-sided pleural effusion. A right-sided pleural effusion is extremely rare in these cases and there are only a few cases reported in over a century thusfar. Here we report the tenth case published in english language.

55 year-old male presented with severe tearing chest pain that spread down his torso. Pain started in the morning, and he became pale and diaphoretic. The tearing back pain has been occurring intermittently over the last week. However, his chest pain was new on the day of presentation. He is a former smoker and has a history of uncontrolled hypertension. At the time of presentation SBP was over 300. He was started on cardene drip for better blood pressure control and was transferred to our center,w here he underwent TEVAR (Thoracic Endovascular Aortic Repair). On POD 2, he was noted to be in respiratory distress and was transferred to critical care unit where he was diagnosed with new right-sided pleural effusion which was deemed to be hemothorax after undergoing diagnostic and therapeutic

Initially described in 1908 on autopsy, right-sided hemothorax is a rare occurrence without ruptured aorta in type-B aortic dissection; our review of literature reveals only ten prior reported cases published in English. Most described cases developed from medial tear at level of mid thoracic spine bleeding into posterior mediastinum and crossing to midline to rupture into right pleural space. Unusual presence of right-sided hemothorax, in absence of classic tearing pain, can be the initial presentation of type-B aortic dissection without rupture. Given the high mortality when left unrepaired, it is essential for clinicians to be mindful of atypical presentation of type-B aortic dissection, which is referred to as silent thoracic aortic dissection. Such diagnosis in a timely manner is needed to not only repair AAD, but also to appropriately drain the hemothorax and avoid chronic complications due to presence of blood in thoracic cavity for prolonged period.

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PV14

AIRWAY MUCOSAL INJURY DUE TO TRAUMA FROM CLOSED SUCTION CATHETER SYSTEM IN MECHANICALLY VENTILATED PATIENTS: FINDINGS ON AUTOPSY

S Durrett, K Kelly, V Maddipati

Rationale: Endotracheal suctioning is a necessary task in the ICU, performed by nurses and respiratory therapists. Little has been done to look into severity and clinical implication of airway mucosal injury due to closed-suction catheters in mechanically ventilated patients. Existing literature regarding suction catheter injury was done decades ago, with small sample sizes, often on animals, or focused on patient discomfort or dysoxia. If mucosal injury was mentioned, the severity was not quantified or graded.
Methods: Tracheal specimens were collected from 15 recently-intubated, deceased patients whose families requested an autopsy. Authorization was provided by the legal next-of-kin with unrestricted permission for a complete autopsy. Tracheas were removed and grossly examined at autopsy. They were then fixed in formalin for approximately 2 weeks and finally sectioned. Sections were obtained from the proximal trachea (in the area of intubation), the trachea distal to the endotracheal tube, the trachea above the carina and both bronchial branches. Sections were also obtained from areas with gross abnormalities. Tissues were processed and stained routinely. The mucosa was examined to determine the extent of any injury sustained from inline suctioning and scored from 0 to 4. Chart review was performed to collect data to determine their duration of intubation, the amount and nature of secretions, and the frequency of suctioning. This damage was compared to the frequency of their suctioning and duration of their intubation.
Results: All cases examined showed loss of the respiratory epithelium with variable amounts of inflammation, edema, and involvement of submucosal glands. One patient showed diffuse tracheal necrosis with bacterial collections. Risk factors for increased injury included duration of intubation, cause of hospitalization and sex.
Conclusions: Mucosal injury is prevalent in the airways of individuals who undergo suction during mechanical ventilation. The relative ease of suctioning, lack of standardization in frequency and intensity could worsen injury. The present study, first of its kind in the field in humans in recent decades, demonstrates the findings on autopsy and intends to develop a scoring or staging system. Whether these findings correlate with fevers or other ventilator associated events needs to be further studied.

Notes:

PV15

CLINICAL GESTALT IN IDENTIFYING LOCKED IN SYNDROME QUICKLY

K Parikh, H Kim

LEARNING OBJECTIVE: quickly identify the signs of locked in syndrome and proceed with appropriate imaging.

CASE INFORMATION: A 63 year old African American Male with history of hypertension was found unresponsive on his stomach fourteen hours after he was last seen at his fully functional baseline. The emergency response team who arrived at his house administered an opioid reversal agent with no response. He then had a vomiting episode and was intubated for unresponsiveness and concern for aspiration. Computed tomography of the head without contrast showed no evidence of acute intracranial process. Upon initial examination, he was only able to blink his eyes on command and move them both horizontally and vertically. He was unable to follow any other commands. In discussion with his family, he was noticeably crying, which appeared as though he understood the conversation. These findings prompted the medical team to expedite further neurological imaging, and a magnetic resonance imaging of his head showed acute infarctions in the central pons and left cerebellum, along with an absence of flow in the mid basilar artery, suggesting stenosis versus thrombosis. Given his symptoms of only being able to move his eyes and the coinciding imaging findings, we inferred that this patient has an unfortunate case of locked in syndrome.

SUMMARY: In most cases, locked in syndrome is caused by stenosis, hemorrhage, or thrombosis of basilar artery, which supplies the ventral pons. The clinical presentation is quadriplegia with perseveration of consciousness. Some patients are able to communicate through eye movements. Survival is as high as 80% at ten years when this condition is identified correctly. In our patient, the clinical scenario was unclear and further neuroimaging may not have been expedited had it not been for astute clinical gestalt.

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PV16

A CASE OF REFRACTORY SALICYLATE TOXICITY

M Dauterive, SA Marco

Learning Objectives: To be able to recognize the clinical presentation of severe salicylate toxicity, identify whom is at risk, and to be cognizant of alternative therapy when toxicity is refractory to standard management.

Case Information: 64 F with a past medical history of anxiety, depression, and a prior DVT in 2003. She presents with acute encephalopathy 1-2 hours after an ingestion of an unknown amount of Aspirin. Patient on presentation is awake and answering questions appropriately, however, on initial evaluation patient noted to have slowed cognition/encephalopathy. Patient is mildly tachycardic with heart rate 110(sinus rhythm), otherwise stable. Lab work on admission performed with a Salicylate level 1143 and respiratory alkalosis with anion gap acidosis noted on ABG. While in ED progressive encephalopathy and agitation noted. Worsening tachycardia, tachypnea witnessed. Patient intubated in ED due to respiratory distress. An emergent Nephrology consult was made in anticipation of hemodialysis and Bicarbonate administration was begun. On arrival to ICU patient developed a shock like state requiring fluid administration and multiple vasopressors. Dialysis in the form of CRRT was initiated. Despite aggressive management of the patients Salicylate overdose, including urine Alkalinization, charcoal administration, dialysis, and IV fluids she remained in a shock like state and her Salicylate levels remained toxic. Over 5 days, maximal effort including but not limited to initial CRRT and eventual intermittent hemodialysis were performed, yet only a modest clinical improvement in patient clinical status and shock was observed. Due to refractory salicylate toxicity, a concern for a continual gastric source was considered, and an EGD was performed showing a foreign substance within the gastric cavity concerning for a Bezoar. An EGD with large bore gastric lavage was performed. Subsequently patient's clinical status/shock improved.

Summary: This case represents an unusual case of Salicylate toxicity in an ICU setting. This highlights the need for practitioners to consider continual GI absorption as the etiology of shock in the setting of salicylate and medication overdosing. Similar cases can be found in medical literature however many providers may not be exposed to similar cases and therefore may not consider this in their initial differential diagnoses.

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PV17

INCOMPLETE HEERFORDT'S SYNDROME AS AN INTIAL PRESENTATION OF SARCOIDOSIS

M Hafiz, AS El-bakush, ON Obi

Learning objectives: 1) Although sarcoidosis has a predilection for the lung, unusual extrapulmonary manifestations do occur. 2) Heerfordt's syndrome is a rare presentation of sarcoidosis characterized by parotitis, uveitis, facial palsy and fever. In the absence of any one of these components, the condition has been termed as "incomplete Heerfordt's syndrome" in literature.
Case information: 30-year-old African American female sought medical evaluation for dry eyes and a painless lacrimal mass without associated symptoms. A biopsy was not done due to financial constraints. She developed progressive generalized weakness, low-grade fevers, night sweats and unintentional 30-pound weight loss. 3 months later, she presented with chest pain, shortness of breath and painless bilateral parotid gland swellings. Exam revealed a left palpebral mass, bilateral parotid swellings, and wheezing. Erythrocyte sedimentation rate, C-reactive protein, and angiotensin-converting enzyme levels were elevated. CT of the orbits showed a left lacrimal gland mass extending to optic nerve sheath and extraocular muscles. CT chest showed mediastinal and hilar lymphadenopathy, and a mass-like consolidation within the right middle lobe, and CT abdomen showed hepatic hilar and portacaval lymphadenopathy, both concerning for sarcoidosis, lymphoma or metastasis. Bronchoscopy revealed a cobblestoned bronchial mucosa. Endobronchial ultrasound guided mediastinal node biopsy showed noncaseating granulomatous inflammation consistent with sarcoidosis. Infectious workup was negative. Flow cytometry revealed a CD4:CD 8 ratio of 7:1. Inhaled and oral steroids were started with subsequent addition of methotrexate. 5 months later, most symptoms had improved and the lacrimal mass and parotid swelling resolved.
Summary: Heerfordt's syndrome, a rare manifestation of sarcoidosis, is characterized by the presence of facial palsy, parotid gland enlargement, anterior uveitis, and fever. We diagnosed this case as incomplete Heerfordt's syndrome based on the absence of uveitis. While Heerfordt syndrome does not warrant biopsy confirmation, the latter seems necessary to diagnose the incomplete forms. Like other manifestations of sarcoidosis, corticosteroids are the mainstay of treatment. For refractory symptoms, immunosuppressants like methotrexate, mycophenolate, cyclosporine, and infliximab can be used.

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PV18

ATYPICAL PRESENTATION OF SARCOIDOSIS RESULTING IN DELAYED DIAGNOSIS

D Thomson, R Obi, H Lai

CASE INFORMATION:
RP is a 60 year-old male smoker of African American descent with history of anemia and H. pylori who presented to Nephrology for evaluation of elevated creatinine 3.5 mg/dL (previously 1.1 mg/dL 3 years prior) with findings of microscopic hematuria and pyuria. His issues started 9 months prior when he developed migrating polyarthritis involving multiple joints in both upper and lower extremities, erythematous base skin rash involving face, trunk and shins bilaterally which progressed into blisters and then ulceration and lastly visual blurring and eye redness. The patient was evaluated by multiple subspecialists including dermatology, ophthalmology and rheumatology prior to nephrology referral. Dermatology initially diagnosed him with pyoderma gangrenosum and secondary pseudomonal infection. Tissue biopsy later demonstrated "stasis dermatitis and microthrombi" and he was referred to wound clinic for management of venous stasis ulcers. Ophthalmology diagnosed him with bilateral iritis and instituted treatment for this. He was also sent to rheumatology for possible autoimmune or connective tissue disease. Extensive rheumatologic work-up was negative for rheumatoid factor, complements, HLA-B27, ANCAs, HIV, hepatitis B and C, and protein electrophoresis. He *was* found to have renal insufficiency and sent for nephrology assessment where elevated serum calcium of 12.3 mg/dL was noted. That combined with findings of iritis, migrating polyarthritis, history of skin lesions and renal insufficiency, prompted consideration of sarcoidosis with initial Lofgren's syndrome presentation. Detailed review of prior work-up revealed an extremely high angiotensin -1- converting enzyme level of 212 U/L (range 9-67) and elevated 1,25 Vitamin D level of 116 pg/mL (range 19.9- 79.3) supportive of this diagnosis. The patient was treated with a course of oral steroids with improvement in residual skin findings, renal function and normalization of serum calcium.
LEARNING OBJECTIVES:
1. Recognize unusual extrapulmonary presentations of sarcoidosis including acute systemic and renal presentations.
2. Describe presentation of Lofgren's syndrome in men

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PV19

NOT GUILTY BY ASSOCIATION: A CASE OF PERSISTENT ENCEPHALOPATHY AND BILATERAL CAROTID DISSECTION LEADING TO DIAGNOSIS OF FIBROMUSCULAR DYSPLASIA

D Thomson, R Obi, H Lai

CASE INFORMATION: 38-year-old Caucasian male with history of panic attacks on benzodiazepines presented to the ED after suffering a motor vehicle collision (MCV)with an 18-wheeler. He was extracted from the vehicle and could not recall details of the accident. Several loose meds were found in his car consistent with Caffeine, Paxil, and Xanax. His initial evaluation was negative for any significant physical injury. Non-contrast head and cervical spine CT showed only small right scalp hematoma and no cervical spine fracture. The patient remained confused and disoriented, stating random words that were nonsensical. Urine drug screen was negative. Psychiatric consultant requested repeat urine and serum drug screens due to persistent concern for substance intoxication. Both were negative. The patient remained in ED for 36 hours prior to request for trauma re-evaluation. Trauma protocol CT demonstrated bilateral internal carotid artery (ICA) dissection with a small pseudo aneurysm involving the right ICA. MRI showed small scattered infarcts suggestive of thromboembolic disease. The patient was started on systemic anticoagulation. The trauma team felt that bilateral ICA limited dissections were unlikely a result of his MVC as there was no significant trauma-related external injury to warrant dissection in such a focused distribution. It was felt instead to have preceded his accident. On further interrogation of the family, they noted that he had some brief spells of erratic behavior a few days prior to presentation. An intrinsic vessel wall disorder was entertained and he was referred to Nephrology to rule out possible fibromuscular dysplasia (FMD). Five weeks later at outpatient Nephrology follow-up he was doing much better with near resolution of encephalopathy, normal blood pressure and renal function. CT angiogram demonstrated beaded appearance of his right mid renal artery consistent with diagnosis of fibromuscular dysplasia.

SUMMARY:

1. History of high-risk drug use does not eliminate need for adequate evaluation for other causes of persistent encephalopathy.
2. Be familiar with FMD a rare cause of carotid dissection and stroke in young persons.

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PV20

A NORMAL CHEST X-RAY DISGUISING MULTI DRUG RESISTANT (MDR) PULMONARY/DISSEMINATED TUBERCULOSIS

J Hussain; A Stang; R Ghimire; P Cook.

This case illustrates the importance of thorough system review, sputum examination and additional imaging in high risk patients with a normal chest x-ray to diagnose pulmonary tuberculosis. Clinicians in the United States must remain vigilant to the risk factors associated with this disease.

A 26 year old female refugee from Myanmar (Burma) was admitted to the hospital with tachycardia, intermittent lower abdominal pain and weight loss of 40 pounds over the past 4 years. She also reported nausea, occasional vomiting and night sweats. She denied any fevers, chills, cough, and hemoptysis. She had received treatment for latent tuberculosis through the county health department with a 4 month course of rifampin after arriving in the United States. At the time of presentation, she was afebrile, had tachycardia but no peripheral lymphadenopathy. Chest and heart exam were unremarkable. The abdomen was mildly tender in right lower quadrant with no organomegaly. A chest x-ray was reported as normal. A computed tomography (CT) scan of the abdomen and pelvis revealed confluent lymphadenopathy within the small bowel mesentery and wall thickening of multiple loops of mid to distal ileum as well as the right colon. A CT angiogram of the chest due to persistent tachycardia which revealed mass-like branching hypoattenuation extending from the left hilum superiorly into the left upper lobe. Imaging findings prompted collection of induced sputum samples for acid-fast bacilli (AFB) smear and culture. One smear was positive for AFB, which was culture confirmed to be *Mycobacterium tuberculosis*. Disseminated multidrug-resistant tuberculosis (MDR-TB) was suspected based on the patient's country of origin, history and imaging findings. DNA sequencing performed at the Centers for Disease Control (CDC) detected *rpoB* and *katG* mutations, confirming the MDR-TB. The patient's empiric regimen was changed to moxifloxacin, amikacin, ethionamide, linezolid and cycloserine. On treatment prior to hospital discharge, the patient had improvement in her abdominal pain.

In the United States, MDR-TB is rare, with only 97 cases reported in 2016, most of which occurred in patients who were foreign-born. In 2016, North Carolina reported only 10 cases of INH resistant tuberculosis but no rifampin resistance. Chest x-rays have been reported to be normal in up to 9% of patient with pulmonary tuberculosis and most of these had HIV. CT of the chest is more sensitive than radiography in the detection of parenchymal disease and mediastinal lymphadenopathy, but its routine use is not recommended.

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PV21

CYTOMEGALOVIRUS GASTRITIS IN A RENAL TRANSPLANT PATIENT.

J Hussain; R Ghimire.

CMV (Cytomegalovirus) is the major cause of morbidity and mortality in organ transplant patients. Gastrointestinal CMV disease occurs in about 10 % of all transplant patients, of which gastritis is the least common.

We are presenting a 74-year-old Afro American male who had renal transplant three years back, was on immunosuppression with tacrolimus 1 mg, mycophenolate 1gm and prednisone 5 mg daily, presented with epigastric pain of 2 weeks, worse after eating and early satiety. A four-week course of PPIs (Proton Pump Inhibitors) for possible gastric reflux disease did not relieve the symptoms. Patient was referred to gastroenterologist who performed an EGD (esophagogastroduodenoscopy) which showed Schatzki' ring (which was dilated successfully), severe gastritis and duodenal polyps. Biopsies obtained from schatzki's ring, gastric mucosa and duodenum were negative for *Helicobacter pylori* and malignancy. Another 6-week course of PPIs did not improve the symptoms. A second opinion from gastroenterology was requested. EGD repeated was consistent with severe gastritis and a new set of gastric biopsies were obtained. Immunohistochemistry for CMV was positive which was not performed on the previous biopsy. Patient was started on Valganciclovir for 3 weeks. Patient reported improvement in symptoms, on follow up and a repeat EDG after 3 months showed normal gastric mucosa.

CMV is one of the most common infection in immunocompromised state. CMV can affect the gastrointestinal tract from the mouth to the anus. Most common presentation is colitis. Gastritis is less common and most of the times mistreated as peptic ulcer disease and gastric reflux like in this case. Postural epigastric pain has been described with CMV gastritis, but presentation can be non-specific. Endoscopic features vary from normal mucosa to diffuse erythema, ulcers and pseudotumor. The gold standard for diagnosis is visualization of large cells containing intra-nuclear and intracytoplasmic inclusions surrounded by a clear halo ("Cowdry owl eye") on histopathology. Immunohistochemistry enhances sensitivity. Intravenous Ganciclovir is recommended for severe disease and oral valganciclovir for mild to moderate disease.

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PV22

AN IMMIGRANT WITH A CHRONIC BACK PAIN

J Hussain; D Markham

This Case illustrates the importance of history taking, and help of imaging in diagnosis of Pott's disease/ Tubercular spondylitis.

We are presenting a case of 54 year old female who immigrated to United States from Myanmar 3 year back, who was admitted with gradually worsening back pain of 4 months. According to County health department, she was treated for Latent Tuberculosis Infection (LTBI) with 4 months of Rifampin when she first arrived in United States. 4 months back she was involved in a motor vehicle accident with no gross injuries. The radiographs of spine obtained at that time were normal. No history of fever, cough, night sweats and weigh loss. CT spine showed compression fracture of T9 vertebrae with epidural phlegmon causing cord compression at T8 and T9. There was contagious involvement of right pleural space. MRI spine was consistent with CT findings. To take off the airborne isolation, sputum samples were induced for Acid Fast Bacilli (AFB) smear and cultures. To our surprise the first sputum sample was positive with 1 + AFB, which was identified as *Mycobacterium tuberculosis* on PCR and later grew in culture too. Patient had normal radiograph of chest. Paraspinous fluid collection sample obtained by interventional radiology grew *Mycobacterium tuberculosis* on AFB cultures. Neurosurgery did vertebral fixation surgery. The tissue samples obtained during surgery revealed necrotizing granulomatous inflammation on histopathology. Patient was initially started on 6 drugs, Isoniazid, Rifampin, Ethambutol, Pyrazinamide, Moxifloxacin and Amikacin for possible Multi Drug Resistant (MDR) TB. After DNA sequencing at Centers for Disease Control (CDC) confirmed no resistant to Isoniazid, Rifampin and Ethambutol, Moxifloxacin and Amikacin were discontinued and patient was continued on standard 4 drugs regimen.

In United States Potts is a rare cause of chronic back pain with incidence as low as 1 case per 2 million persons. Medical management remains similar to pulmonary tuberculosis. Surgery is needed in cases of cord compression. A high level of suspicion with thorough history of risk factors including immigration, prior history of TB, is required for timely diagnosis to prevent neurological complications.

Notes:

PV23

BARTONELLA HENSELAE OPTIC NEUROPATHY

J Hussain; D Lebron

This case illustrates that thorough history, clinical exam, adequate clinical suspicion is necessary for diagnosis of *Bartonella henselae* optic neuropathy. Under right clinical setting, when a patient presents with vision disturbance, it should be kept under the differential diagnosis.

We present a case of 59 year old male, originally from New York currently residing in NC, who presented with sudden onset vision loss in his left eye. 4 months back he had low grade fever, malaise, generalized weakness and left ankle pain and swelling. The symptoms were self-limited resolved on their own, but he never felt the same level of energy. He was evaluated by ophthalmologist. Humphrey visual eye field showed left superior, inferior and temporal eye field defects. Funduscopic exam of left eye showed disc edema and hemorrhage consistent with ischemic retinopathy. Retinal Nerve Fiber Layer (RNFL) thickness was abnormal in the left eye. On further evaluation on history, it was found that patient had recently adopted 3 stray cats who had fleas. History prompted *Bartonella henselae* serology and titers were found greater than 1:1280. Quantiferon TB gold, RPR and toxoplasma serology, were negative. Patient was started on combination therapy with rifampin and doxycycline. After completing 6 weeks of antibiotic therapy, no significant improvement in the vision was noted.

The Classical Cat Scratch Disease is a febrile illness with history of cat exposure, skin lesions and lymphadenopathy. After lymphatic system, the eye is the most commonly affected organ accounting about 1 to 2% cases of Cat Scratch Disease cases. Transmission usually occurs through direct inoculation of contaminated flea feces from the hands to the eyes. Ocular involvement can vary from subclinical to optic neuritis. Diagnosis usually relies on clinical suspicion and positive serology. Pharmacological treatment of optic neuritis is of uncertain value, the symptoms can be self- limited. Retrospective studies have shown that use of antibiotics may hasten the visual recovery.

Notes:

PV24

INFLAMMATORY PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY AS AN INITIAL PRESENTATION OF ACQUIRED IMMUNODEFICIENCY SYNDROME.

J Hussain; N Fadul

Progressive Multifocal Leukoencephalopathy (PML) is characterized by severe demyelination caused by reactivation of JC virus (human polyomavirus) in patients with profound immunosuppression. Once recognized as a major AIDS associated opportunistic infection, with the use of highly active antiretroviral therapy (HAART), the incidence has decreased significantly.

We present a 33 year old female who was admitted with history of headache for a couple of months, left side weakness and slurring speech for a week. Non contrast CT head did not reveal any abnormality. MRI brain showed ill-defined area of increased T2 signal intensity throughout the right cerebral hemisphere with minimal right-to-left midline shift. Neurosurgery obtained a brain biopsy and pathology showed extensive active demyelination, with extensive infiltration of inflammatory cells, consistent with inflammatory Progressive Multifocal Leukoencephalopathy. Immunohistochemistry for JC virus was positive. A Screening Human Immunodeficiency Virus (HIV) test obtained was found positive with subsequent confirmation with HIV 1 Antibody. Cerebrospinal fluid (CSF) analysis showed 4 white cells with 87% lymphocytes and positive for JC virus PCR. CD4 T lymphocyte count was 50/cubic mm. Patient was started on HAART therapy and seizure prophylaxis.

Inflammatory PML is usually seen in AIDS patients who are started on antiretroviral therapy as a part of immune reconstitution inflammatory syndrome (IRIS) and in some patients of multiple sclerosis who are on Natalizumab. In AIDS inflammatory PML usually has favorable outcome except few cases who have paradoxical deterioration. This was the first presentation of our patient and she was not on any antiretroviral therapy. This kind of presentation of PML in AIDS is very unusual and rare. The Gold standard for diagnosis is brain biopsy, but neuroimaging with CSF positive for JC virus PCR is highly suggestive. There is no specific treatment for PML. The main approach involves starting with antiretroviral therapy which reverses the immunosuppression that interferes with the normal host response to the virus.

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PV25

PARVIMONAS MICRA NATIVE JOINT SEPTIC ARHTRITIS.

J Hussain; N Ahmad; A Stang; A Abubaker; N Fadul

Native joint septic arthritis with *Parvimonas micra* is rare. Only three cases of native joint septic arthritis with *Parvimonas micra* have been described before (Riesbeck and Sanzén 1999; Baghban and Gupta 2016; Dietvorst et al. 2016). We are reporting 2 cases of native joint septic arthritis due to *Parvimonas micra*.

Case 1 is a 64-year-old male admitted with gradually worsening knee pain and swelling of 6 weeks. Physical exam was notable for swelling, limitation of right knee joint movements and poor dentition. Diagnostic arthrocentesis revealed frank pus and analysis showed white cell count of greater than 47K cells/microliter with 98% neutrophils. On day 4, growth of an anaerobic gram-positive cocci was noted in cultures, subsequently identified with MALDI-TOF (matrix-assisted laser desorption ionization–time of flight mass spectrometry) as *Parvimonas micra*. Patient underwent incision and debridement of his right knee, and was treated with four weeks of intravenous Ceftriaxone.

Case 2 is a 53-year-old female with history of left knee osteoarthritis presented with gradually worsening left knee pain and swelling of 3 weeks. She had dental cleaning 1 week before the pain started. Synovial fluid analysis on arthrocentesis showed white cell count of greater than 47K cells/microliter with 99% neutrophils. Anaerobic culture grew gram positive cocci which were identified as *Parvimonas micra* on MALDI-TOF. Patient underwent incision and debridement and was treated with intravenous Ertapenem for three weeks with improvement on follow up.

Parvimonas micra are small, non-spore-forming anaerobic gram-positive cocci. Originally known as *Peptostreptococcus micros*. In 1999, the organism was reassigned to the Micromonas genus *(Micromonas micros*), and then reclassified to the Parvimonas genus in 2006 (Gomez et al. 2015). *P.micra* are a part of normal oral flora and frequent cause of dental infections. *P. micra* are one of the most frequently identified periodontopathogens in blood stream even 30 minutes after dental procedures (Lafaurie et al. 2007). Our first patient had bad dental hygiene and our second patient had a dental procedure 1 week before the onset of knee pain*. P.micra* is a rare but possible cause of native joint arthritis, hematogenously acquired from transient bacteremia that accompanies routine dental procedures.

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PV26

ISOLATED HYPERBILIRUBINEMIA: A RARE ADVERSE EFFECT OF COMBINATION CHEMOTHERAPY OF CYTARABINE AND IDARUBICIN

N Gollol-Raju, A Taiwo, S Jayananda, H Khalid

Learning objectives: To be aware of a rare adverse effect of combination chemotherapy of cytarabine and idarubicin in the treatment of acute myeloid leukemia. **Case information:** A 65 year-old Caucasian female had presented to a local hospital with worsening fatigue. Laboratory profile was significant for WBC of 190 k/uL (neutrophils 5%, lymphocytes 24%, monocytes 1%, and 70% blasts), total bilirubin 0.9 mg/dL, AST 86 U/L, ALT 30 U/L and ALP 188 U/L. Previous laboratory profile from 5/2017, including LFTs, was unremarkable. At Vidant hospital, morphologic studies and flow cytometry immunophenotyping was consistent with acute myeloid leukemia (AML). Patient was started on induction chemotherapy with Cytarabine and Idarubicin. At the conclusion of induction chemotherapy, on day 8, total bilirubin was 1.7 mg/, AST 13 U/L, ALT 34 U/L, and ALP 64 U/L. Subsequently, total bilirubin continued to rise with ALP and transaminases being in the normal range. Bilirubin peaked at 21.3 mg/dL (direct bilirubin 14 mg/dL) on day 15. Viral hepatitis panel, hemolysis panel and imaging studies of liver were negative. Patient's isolated hyperbilirubinemia was considered likely from Cytarabine and Idarubicin. Patient's bilirubin values gradually started improving reaching a value of 1.6mg/dL by the end of 4 weeks. Patient was re-challenged with cytarabine with close monitoring of LFTs. Bilirubin values remained stable between 1.2–1.8 mg/dL.**Summary:** Standard induction chemotherapy in the treatment of AML usually involves cytarabine-based antineoplastic agent in combination with an anthracyclin agent, such as idarubicin(1). Hepatic dysfunction, both cholestatic and hepatocellular, related to this combination therapy has been reported (3). Isolated hyperbilirubinemia, attributed to cytarabine, is rarely reported (1). The exact etiology of this is unclear. Isolated hyperbilirubinemia is usually reversible and resolves over a long period of time after cytarabine therapy is stopped (1,2). Patients may have had prior cytarabine exposure without development of this adverse event (3), and in some cases, resolution of liver test abnormalities has been reported on continued usage of cytarabine(3). Baseline dosage of cytarabine does not appear to be relevant as this adverse event has been reported with both low as well as high dosage therapies (1,2). During subsequent re-challenge, close monitoring of liver function tests is advised. In conclusion, isolated hyperbilirubinemia is a rare hepatic adverse effect of cytarabine therapy that providers need to be aware of. This adverse effect appears to be asymptomatic that resolves slowly. and patients can be re-challenged with cytarabine with close monitoring of LFTs.

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PV27

ORIENTAL CHOLANGIOHEPATITIS: HONG KONG DISEASE IN THE UNITED STATES

A Hamed, A Hamed, N Talaat

Introduction: Oriental cholangiohepatitis, also known as Hong Kong disease, is a chronic disease initially triggered by a parasitic infection that results in biliary tree strictures and multiple stones formation in the intrahepatic and extrahepatic ducts. This leads to biliary stasis which ultimately causes recurrent pyogenic cholangitis (RPC). Although the disease is exclusively endemic in Asian countries, several cases has been identified in the United States. **Case Presentation:** A 25 year old Burmese male who immigrated to the USA 3 years ago presented with a sudden onset of severe sharp right upper quadrant abdominal pain, fever and jaundice. His only medical history was *Opisthorchis viverrini* liver fluke infection that was previously treated with praziquantel. On physical exam, he was febrile, tachycardic and hypotensive. He also had altered mental status, scleral icterus and right quadrant abdominal tenderness. Laboratory data showed WBCs 16.1 k/ul, Alk. phos.152 IU/l, AST 58 IU/dl, ALT 71 IU/l, and TB 1.6 mg/dl (DB 1 mg/dl). Abdominal CT showed dilated intrahepatic bile ducts. MRCP showed numerous intrahepatic filling defects. The patient met all criteria for Reynolds pentad and was diagnosed with septic shock secondary to cholangitis. Intravenous fluids and empiric broad spectrum antibiotics were started. An ERCP was performed which illustrated filling defects in the proximal common bile duct. Pus was drained from the biliary ducts. Blood cultures grew *Escherichia coli*. Stool for ova and parasite was negative. The patient's symptoms resolved and was discharged in good condition. Over the following two years, the patient was admitted 4 times with recurrent cholangitis that was treated with intravenous antibiotics and biliary drainage with ERCP. He underwent a common bile duct resection with hepaticojejunostomy. Pathology report showed chronically fibrosed bile duct with no evidence of malignancy. The patient did not have any recurrence within 2 years after surgery. **Discussion:** Oriental cholangiohepatitis can present with RPC which could be life threatening. The disease occurs due to parasitic infections with *Clonorchis species*, *Opisthorchis* species, and *Fasciola hepatica.* While treatment with praziquantel is successful in eradicating the offending organism in 90% of the cases, this does not result in resolution of biliary fibrosis. Biliary drainage with ERCP is not effective in preventing subsequent cholangitis attacks in 30% of the cases. Eventually, patients might require surgical resection of the affected bile duct. Due to the influx of immigrants, oriental cholangiohepatitis should be suspected in patients from endemic areas. Patients with RPC should be referred for early surgical evaluation to prevent associated morbidity and mortality.

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PV28

A CURIOUS CASE OF MASSIVE SPLENOMEGALY: OVERLAP OF AUTOIMMUNE HEPATITIS AND PRIMARY BILIARY CHOLANGITIS

A Hamed, MYY Moey, E Ali

Introduction: Autoimmune hepatitis (AIH), primary biliary cholangitis (PBC) and primary sclerosing cholangitis (PSC) are the three main immune-mediated liver diseases. In most cases, they are generally easily differentiated on the basis of clinical, biochemical, serological, and histological findings. There is however a small subgroup of patients that may have Overlap Syndrome in which there are simultaneous features of AIH-PBC or AIH-PSC making the diagnosis even more challenging. Overlap syndromes are rare and occur in 3-7% of patients with autoimmune liver disease. We are reporting a rare case of AIH-PBC overlap syndrome with an initial presentation of massive splenomegaly.
Case Information : A 51-year-old African American male presented with complaints of fatigue and 20-lb weight loss over the last few months. On physical examination, he had scleral icterus, jaundice and abdominal distension with significant splenomegaly that was palpated up to the pubic rim. His labs were notable for pancytopenia and a cholestatic pattern of liver injury. A peripheral blood smear was unrevealing. A CT of his abdomen and pelvis showed massive splenomegaly, normal liver and pancreas and no abdominal lymphadenopathy. Given his massive splenomegaly, there was concern for potential hematologic malignancy for which the patient underwent a bone marrow biopsy which was negative. Viral serologies including HIV and hepatitis panel were normal except for an elevated EBV IgG level with an undetectable viral load. JAK2 was also negative. A serum electrophoresis demonstrated a large polyclonal gammaglobulin elevation consistent with liver disease. MRCP showed non-dilated biliary ducts, irregular contour of the extrahepatic biliary ducts and discontinuous segments of intrahepatic biliary ducts. Autoimmune workup was positive for anti-smooth muscle antibody (Ab) and anti-mitochondrial Ab. Given the inconclusive findings, the patient ultimately underwent a liver biopsy which showed portal expansion with lymphoplasmacytic infiltrate and ductular reaction, interface hepatitis and bridging fibrosis. According to the Paris Criteria, the patient was diagnosed with Overlap syndrome of AIH-PBC. The patient was subsequently started on ursodeoxycholic acid and prednisone while followed closely as an outpatient. At his 5 month follow up however, he did not respond as anticipated and thus had a repeat liver biopsy which showed evidence of liver cirrhosis. The patient is currently being evaluated for a liver transplant. **Discussion:** Massive splenomegaly as an initial presentation of AIH-PBC overlap syndrome is rare. This case highlights the workup of splenomegaly and importance of early diagnosis of AIH-PBC overlap syndrome to initiate appropriate treatment since mortality is high in this unique subset of patients.

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PV29

OLMESARTAN INDUCED ENTEROPATHY

A Hamed, A Hamed, N Talaat

Learning Objective: Sprue like enteropathy often presents with villous atrophy in the absence of typical celiac sprue serology. This has been described in conditions such pancreatic exocrine insufficiency, small bowel bacterial overgrowth, infections, Crohn's disease, and rarely drugs such as angiotensin receptor blockers. We here describe a case of severe enteropathy due to Olmesartan that resolved completely with drug discontinuation.

Case Information: An 83 year old female with past medical history of Hypertension controlled with Olmesartan presented to the hospital with a 2-month history of diarrhea and weakness. Her diarrhea is described as watery and occurs more than 10 times daily. It persists even if she does not eat or drink. No blood or mucus noted. She also reports 35-lbs weight loss. Otherwise, she denied any abdominal pain, nausea, vomiting or changes in her diet. She denied any recent sick contacts, international travel, artificial sweeteners or antibiotics use. On physical exam, her blood pressure was 151/73 with an irregular pulse of 169. She appeared malnourished with a BMI of 18. Her abdominal exam was normal. An EKG revealed atrial fibrillation with rapid ventricular response. Labs were normal except for sodium 150 mg/dL, potassium 2.1 mg/dL and phosphorus 1.1 mg/dL. CBC, TSH, urinary 5-HIAA and celiac panel including tissue transglutaminase, anti-gliadin, and anti-endomysial antibodies were all normal. Stool sodium & potassium were 18 mmol/L and 36 mmol/L, respectively and calculated stool osmotic gap was 182 consistent with osmotic diarrhea. Fecal leukocytes, clostridium difficile toxin PCR, rotavirus ELISA, bacterial cultures, giardia, and cryptosporidium antigen were all negative. The patient received intravenous fluids and her electrolytes were corrected. An abdominal CT scan and colonoscopy with biopsies were normal. A Capsule endoscopy was performed which showed multiple small ulcerations and loss of villi in the duodenum and the proximal jejunum. Upper endoscopy showed severe duodenal mucosal atrophy and villous flattening. Biopsies confirmed severe villous atrophy with chronic active inflammatory infiltrates. At this point, Olmesartan was suspected to be the cause of her symptoms and was discontinued. Over the next few days, the patient's diarrhea improved and she was discharged home in a good condition. **Summary:** Although drug induced enteropathy due to Olmesaratan is rare and may be difficult to recognize, its clinical presentation can be serious and debilitating. Since Olmesaratan is a widely used antihypertensives, clinicians should have a low threshold to suspect this drug as a culprit to enteropathy and avoid extensive and unnecessary workup.

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PV30

RECURRENT ANAPHYLAXIS CAUSED BY ALPHA GAL ALLERGY

A Hamed, O Taha, A Hamed, MD

Introduction: Anaphylaxis can be rapidly progressing and fatal, and therefore establishing its cause is important. Alpha-gal allergy represents a unique form of allergy to carbohydrate galactose-alpha-1,3-galactose found in mammalian meat (e.g beef, pork, lamb). The sensitization to the carbohydrate occurs through the saliva of the lone star tick bite, which is prevalent in the southeastern united states and causes delayed allergic reactions.

Case Information: A 46 year old female healthcare worker was referred to an allergist for evaluation of recurrent episodes of anaphylaxis since 2007. Her symptoms occur 3- 6 hours after meals including: diaphoresis, skin flushing, generalized pruritus, urticarial rash, chest tightness, abdominal cramping, Nausea, diarrhea, and lightheadedness. There were no known triggers for her symptoms. She has no known food or medication allergies. She is an outdoor person and had reported tick bites in the past. All her labs were normal including CBC with differential, basic metabolic panel, thyroid function test, serum tryptase, serum IgE, C-reactive protein (CRP), 24 hour urine 5-Hydroxyindoleacetic acid (5-HIAA), and latex enhanced IgE test. Skin prick test and Radioallergosorbent test (RAST) to both environmental and food allergens (including beef and pork) were negative. The patient had a tentative diagnosis of unexplained anaphylaxis (possibly idiopathic) and was prescribed an epipen. From 2007- 2012, the patient continued to have several episodes of unexplained nocturnal anaphylaxis that required the use of epipen. In 2012, she suspected that eating beef or pork at dinner triggered her anaphylaxis. At that time, the diagnosis of Alpha-gal allergy was entertained, and was then confirmed by an Alpha gal IgE showing significant elevation at 4.13 KU/L (normal level < 0.35). After being advised to avoid mammalian meat, the patient did not experience any anaphylaxis. On her most recent yearly checkup in June of 2017, her alpha-gal IgE level normalized to 0.23 KU/L.

Summary: Alpha-gal allergy syndrome has unique features that include the non-protein epitope causing the anaphylaxis, the delayed nature of the reaction, and the sensitization by an agent seemingly unrelated to the ultimate trigger (lone star tick). Although the initial description of Alpha-gal allergy in 2009 was limited to red meat, this epitope is now identified in an expanded number of mammalian meat products including gelatin, heparin, and artificial heart valves

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PV31

SIGNET RING CELL CARCINOMA OF THE COLON PRESENTING AS LARGE BOWEL OBSTRUCTION IN A PATIENT WITH 4 DIFFERENT PRIMARY CANCERS

A Hamed, A Hamed, N Talaat

Introduction: Large bowel obstruction can be the initial presentation for colorectal cancer (CRC). More than 90 % of CRC are due to adenocarcinomas. Signet-ring cell carcinoma (SRCC) of the colon is a rare form of highly malignant adenocarcinoma that accounts for less than 1 % of CRC. We are reporting a case of colonic obstruction due to SRCC of the colon.

Case presentation: A 74 year old white female with past medical history of multiple primary malignancies including 2 synchronous pulmonary adenocarcinomas and a mediastinal small cell cancer previously treated with lobectomy and chemo-radiation. She presented with 1 week of diffuse progressive cramping abdominal pain and constipation. This was associated with multiple episodes of bilious emesis that started on the day of presentation. The patient never underwent screening colonoscopy in the past. On physical examination, she was in distress and tachycardic with normal blood pressure. Her abdomen was grossly distended, diffusely tender to palpation and hyperresonant on percussion with normal bowel sounds. Her labs were only notable for leukocytosis and mild anemia. Abdominal CT scan showed a high-grade closed loop obstruction affecting the cecum and right colon. The proximal ascending colon and the distal small bowel was distended. Intestinal pneumatosis of the obstructed colonic segment was noted without evidence of perforation. The patient underwent an exploratory laparotomy that showed a right hepatic flexure mass. An extended right hemicolectomy was performed. Pathology showed a 2 cm poorly differentiated signet ring cell carcinoma invading through the muscularis propria and into the subserosal adipose tissue. Omental involvement with positive lymph nodes was found. Her cancer was staged as pT4a, pN1a, pM1. Given her multiple primary malignancies, genetic workup was performed and was negative. She elected to be treated conservatively due to her medical comorbidities.

Discussion: Primary SRCC is a rare subtype of adenocarcinoma that primarily affects the stomach. Histologically, signet ring cells has a displaced nuclei due to intracellular mucin that is present in more than 50% of the tumor cells. Our patient met all the diagnostic criteria required for primary SRCC. SRCC often carries an aggressive clinical course with poor prognosis. Our patient had 4 different primary cancers including a rare primary SRCC of the colon. This case highlights the importance of timely appropriate colorectal cancer screening to early diagnose and treat this aggressive subtype of adenocarcinoma.

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PV32

GRANULOMATOUS HEPATITIS: A RARE CASE OF EXTRA PULMONARY TUBERCULOSIS

A Hamed, A Hamed, D Lebron

Introduction: Granulomatous hepatitis (GH) is a syndrome that is characterized by fever of unknown origin, hepatosplenomegaly, and right upper quadrant abdominal pain, with or without an elevation in liver enzymes. Although the causes of GH are numerous, the most common causes are sarcoidosis, primary biliary cirrhosis, and tuberculosis. We are reporting a rare case of a 55 year old male with primary tuberculosis hepatitis. **Case Information:** A 55 year old Hispanic presented to the hospital with an 8-week history fatigue, abdominal pain and unintentional 30-lb weight loss. He denied any fever, night sweats, or cough. He had a significant history of alcohol abuse in the past. However, he quit 10 years ago. Patient had no known liver disease. Physical exam was remarkable for jaundice. Laboratory data was pertinent for a platelets count 66 000 k/ul, abnormal liver function tests with an alkaline phosphatase of 408 IU/l, AST 135 IU/dl, ALT 89 IU/dl, total bilirubin of 4.4 mg/dl, direct bilirubin of 3.1 mg/dl and INR 1.3. Abdominal CT scan was suggestive of liver cirrhosis with no evidence of biliary duct dilation. Initially, It was thought that his cirrhosis could have been triggered by his previous alcohol abuse. A liver biopsy was ultimately performed which surprisingly showed granulomatous inflammation with evidence of liver cirrhosis. Acid fast bacilli (AFB) suggestive of mycobacterium species were identified on histopath ological examination. Patient had a positive Quantiferon Gold test. AFB smear was negative. Blood cultures for bacteria, fungi and AFB were negative. Autoimmune work up was unremarkable. Chest imaging was unremarkable. Further work up, including testing for HIV, CMV, EBV, brucella, syphilis and coxiella was unremarkable. Our patient was diagnosed with primary tuberculous hepatitis. Unfortunately, our patient did not follow up promptly and did not receive any treatment. He presented 2 years later with decompensated liver cirrhosis with an esophageal variceal bleeding. At that time, the patient was started on anti-tuberculous therapy and was referred for a liver transplant evaluation. After 6 months of therapy, patient developed hepatotoxicity from anti-tuberculous medications with worsening of his total bilirubin that reached 40 mg/dl. Patient's condition deteriorated rapidly into hepatic failure and passed away.**Summary:** Tuberculous hepatitis is a serious disease that can lead to serious morbidity and mortality if not treated promptly. Our case highlights the workup of granulomatous liver disease, the cryptic presentation of extrapulmonary tuberculosis that can be easily confused with other liver diseases, the importance of early diagnosis and the dilemma in starting anti-tuberculous drugs as they are hepatotoxic. Clinicians should be aware that tuberculosis can present with liver disease particularly in immigrant populations.

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PV33

A RARE CASE OF PASTEURELLA MULTOCIDA CAUSING SPONTANEOUS BACTERIAL PERITONITIS

A Hamed, N Jampala , K Kuo , G Harvin

Learning Objective : Spontaneous bacterial peritonitis (SBP) is a serious life threatening complication of liver cirrhosis. Therefore early identification of the microorganism is very important in preventing serious complications. Pasteurella multocida is a zoonotic pathogen found in the oral cavities of both wild and domestic animals with cats and dogs having the highest carriage rates. Serious invasive infections have been reported after exposure to animals even in the absence of a scratch or a bite. We are reporting a rare case of a 72 year old male with decompensated cirrhosis who was found to have SBP caused by Pasteurella multocida.

Case Information: A 72 year old male with a past medical history of chronic lower extremity lymphedema and decompensated alcoholic cirrhosis with ascites status post transjugular intrahepatic portosystemic shunt (TIPS) procedure presented to the hospital with complaints of fever, generalized weakness, and abdominal discomfort for the last 2 days. On physical exam, the patient was found to have fever and altered mental status. His abdominal exam was notable for tense ascites with diffuse abdominal tenderness and anasarca with edema up to the abdomen. He had small wounds in his lower extremities. His laboratory data was significant for leukocytosis and lactic acidosis. His Liver enzymes were normal. He had a normal ammonia level. His MELD score was 22. Paracentesis was performed and ascitic fluid analysis was consistent with spontaneous bacterial peritonitis. Patient was started on intravenous fluids, vancomycin and zosyn along with lactulose and rifaximin. Blood cultures were positive for Pasteurella multocida. Upon further questioning, patient's family mentioned that he has 2 dogs that often lick his lower extremity wounds. Despite treatment, the patient continued to deteriorate with worsening of his encephalopathy and his overall condition. Patient passed away 10 days after his admission.

Summary: Peritonitis with pasteurella multocida is a rare phenomenon which has been reported in patients on peritoneal dialysis. It is a very uncommon organism to cause SBP in cirrhotic patients. Clinicians should be aware that pasteurella multocida can cause serious morbidity and mortality as in our patients who passed away despite antibiotics treatment. Cirrhotic patients should be counseled about having pets at home and their risks of acquiring life threatening infections.

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PV34

A RARE CASE OF ATYPICAL HUS

A Hamed, E Taylor

Introduction: Atypical hemolytic uremic syndrome (aHUS) is an extremely rare, life-threatening disease with an incidence of 1 in every 500,000 in the US. It is characterized by non-immune microangiopathic hemolytic anemia, thrombocytopenia, acute renal failure and demonstration of complement system dysregulation, either due to gene mutations of complement proteins or antibodies to complement factors. We are reporting a 41 year old female who was found to have atypical HUS due to complement factor H (*CFH*) mutation that was triggered by hydroxychloroquine administration. **Case Presentation:** 41 year old caucasian female presented to the hospital with fever, generalized weakness, nausea, vomiting and puffiness of her hands and feet. Patient also endorsed a 16-lb weight loss in the past 2 months. Two month ago, Patient was seen by a rheumatologist for generalized joint pain and who misdiagnosed her with mixed connective tissue disease and started her on methotrexate and hydroxychloroquine. Physical exam was notable for generalized weakness, pallor and mild edema of her lower extremities. Laboratory data was significant for hemoglobin 6.3 g/L, platelets 63,000 with schistocytes apparent on the blood film, LDH 1194 U/L, haptoglobin 8 mg/dl, Bun 86 mg/dl and creatinine 6.37 mg/dl. Serological testing to screen for vasculitis and rheumatologic diseases were normal. Other testing including HIV, Vitamin B12 and folate were normal. Given her microangiopathic hemolytic anemia, thrombocytopenia and acute kidney injury, Von Willebrand factor cleaving protease and coagulation studies were done and results were normal. Stool cultures were negative for Shigella. The total hemolytic complement (CH50), the complement alternate pathway (AH50) and Factor H Complement antigen level were low. Her C3 and C4 were normal. At this point, aHUS due to a *CFH* mutation was suspected. Methotrexate and hydroxychloroquine were discontinued. Patient was started on supportive care including red blood cell and platelets transfusions and hemodialysis was initiated. Patient was also started on prednisone and plasma exchange. aHUS genetic panel was ordered. Eculizumab was started after the patient received the appropriate prophylactic vaccinations. Over the course of her hospitalization, the patient was improving. Plasma exchange and prednisone was stopped. Her aHUS genetic panel results came back and showed mutations in CFH gene. At her 3 month follow up, patient is still on Eculizumab and her kidney function is slowly improving. However, she is still requiring hemodialysis support. **Discussion:**Atypical HUS (aHUS) is a rare disease that has a very poor prognosis progressing to end-stage renal disease or death within the first year of presentation. Therefore, it is critical to start early plasma exchange and Eculizumab. Multiple triggers have been reported to cause aHUS including infection, autoimmune disorders, pregnancy, malignancy and drugs. Clinicians should be aware that Hydroxychloroquine can trigger aHUS.

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