

HEALTH SCIENCE CENTER 27TH ANNUAL RESEARCH DAY AT MARSHALL UNIVERSITY MARCH 24, 2015

Oral and Poster Presentations
Marshall University Medical Center
Huntington, West Virginia

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Posters

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This event is supported annually by educational grants from the following Endowments:

Thelma V. Owen Memorial
Richard J. Stevens Memorial

Faculty Disclosure Policy 2015

As a provider accredited by the ACCME, Marshall University Joan C. Edwards School of Medicine must insure balance, independence, objectivity, and scientific rigor in all its individually provided or jointly provided educational activities. All event faculty participating in a provided activity are expected to disclose to the activity audience any significant financial interest or other relationship with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in an educational presentation and 2) with any commercial supporter(s) of the activity. Also, all event faculty are required to disclose any planned discussion of an unlabeled use of a commercial product or an investigational use not yet approved for any purpose by the FDA.

No Faculty Disclosure or conflicts of interest are indicated for this CME activity.

Disclosure of Conflicts of Interest

Marshall University Joan C. Edwards School of Medicine (MUJCESOM) requires instructors, planners, managers and other individuals who are in a position to control the content of this activity to disclose any real or apparent conflict of interest they may have as related to the content of this activity. All identified real or apparent conflicts of interest are thoroughly reviewed and resolved by MUJCESOM's planning process for fair balance, scientific objectivity of studies mentioned in the materials or used as the basis of content, and appropriateness of patient care recommendations. Disclosure information will be presented verbally or in print to participants before presentation of the agenda lectures.

Completed faculty disclosure forms are on file in the CME Office.



Marshall University Joan C. Edwards School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The conference will consist of a series of oral and poster presentations highlighting basic and clinical research performed by School of Medicine students, residents and fellows. Please use pages 11 through 19, to locate presenters, their abstracts, presentation times and location of presentation. The complete agenda is available at <http://www.musom.marshall.edu> (research link)

INTENDED AUDIENCE

The Health Science Center 27th Annual Research Day at Marshall University is designed for physicians, residents, basic scientists, medical students, graduate students, and other interested health professionals.

GOALS

- 1) To involve faculty, medical and graduate students in the process required to formally present their research in either oral or poster presentations.
- 2) To inform and involve the community in ongoing research at Marshall University Joan C. Edwards School of Medicine.
- 3) To encourage the attitude among faculty, residents, and students for Continuing Medical Education in the area of clinical research.

GLOBAL LEARNING OBJECTIVES

By the end of these lectures the participant will be able to:

- 1) Compare different approaches to medical investigation.
- 2) Compare and contrast the importance of basic research and cellular mechanisms as it relates to human disease.
- 3) Discuss and review research related to current and future improvements in the clinical management of patients.
- 4) Interpret and analyze data for medical investigation to potentially determine the effectiveness towards improving patient care.
- 5) Stress the importance of translational research benefits to the basic scientist in support of the practicing physician.

CREDIT STATEMENT

Marshall University Joan C. Edwards School of Medicine designates this live educational activity for a maximum of 5.0 AMA PRA Category 1 Credits™. Physicians should only claim credit commensurate with the extent of their participation in the activity. (Session Registration and Evaluation are required).

EVALUATION FORM Completion

Please follow specific instructions for completing the bar coded evaluation form. Keep your "X's" in the bubbles and your written comments in the designated boxes. Your input is needed for planning future events.

ASSISTED SERVICES

If special arrangements are required for an individual with a disability to attend these events, please contact Continuing Medical Education at (304) 691-1770 no later than 1 week before the event date or See a CME Representative at the Registration Area on the day of the event.

PLANNING COMMITTEE - NO CONFLICTS INDICATED

David N. Bailey, MBA, Assistant Dean, CME

Todd Gress, MD, Co-Chair, Assistant Dean,
Clinical Research and Associate Professor of Medicine

Uma Sundaram, MD, Conference Chair, Vice-Dean for Clinical/
Translational Research

Monica Valentovic, PhD, Professor,
Department of Pharmacology, Physiology and Toxicology

Brian Patton, Director, Digital Media Services

STAFF COORDINATORS - NO CONFLICTS INDICATED

Anita MathisBMS Coordination & Registration

Patricia "Trish" MartinRegistration

Brian PattonWeb Publications, Online Abstract
Submission Form Design and Content
Retrieval, Judging tabulations summary

Laura CummingsStudent Registration

RESEARCH DAY



PAST INVITED LECTURERS

2014 - Jose S. Pulido, MD, MS, MBA, MPH

Professor of Ophthalmology and Molecular Medicine
Associate in Neuro-oncology
Mayo Clinic Cancer Center
Rochester, MN

- 1) *The Topology of Blinding Eye Disease*
- 2) *Breaking bad and Breaking good*

2013 - John J. Cannell, MD

Executive Director
Vitamin D Council
San Luis Obispo, CA

- 1) *The Use of Vitamin D in Clinical Practice*

2012 - William Thies, Ph.D.

Vice President, Medical Scientific Affairs
Alzheimer's Association
Chicago, IL

- 1) *Alzheimers Today and the Future*

2011 – Susan S. Smyth, MD, Ph.D.

Professor of Medicine
Director, MD/Ph.D. Program
University of Kentucky

- 1) *Cardiovascular Complications of Obesity*

2010 – Gregory Germino, MD

Deputy Director of the National Institute of Diabetes and Digestive & Kidney Disease (NIDDK) at the National Institutes of Health (NIH)
Bethesda, Maryland

- 1) *Dia-besity: converging problems, emerging science*

2008 – Gregory Alan Hale, MD

Associate Professor of Pediatrics
University of Tennessee

- 1) *Transplantation and Cellular Therapies: Current Research and Future Opportunities*
- 2) *An introduction to Hematopoietic Cell Transplantation*

2007 –Daniel D. Bikle, M.D., Ph.D.

Professor of Medicine and Dermatology
In residence University of California

- 1) *The skin game: Calcium and vitamin D regulated cellular differentiation*
- 2) *Vitamin D: how much do we need and why*

2006 - Mark E. Shirtliff, Ph.D.

Assistant Professor, Department of Biomedical Sciences
Dental School, University of Maryland-Baltimore
Baltimore, Maryland

- 1) *Staphylococcus aureus biofilms: in vitro and in vivo studies*

PAST INVITED LECTURERS

2006 - J. William Costerton, Ph.D.

Director & Professor, Center for Biofilms, School of Dentistry
University of Southern California
Los Angeles, California

- 1) *Biofilms in Device-related and other Chronic Bacterial Diseases*

2005 – William F. Balistreri, MD

Director, Gastroenterology
Cincinnati Children's Hospital Medical Center

- 1) *Inborn Errors of Bile Acid Biosynthesis*
- 2) *Viral Hepatitis 2005*

2004 – Joseph S. McLaughlin, MD

Professor Emeritus of Surgery
University of Maryland

- 1) *Traumatic Ruptured Aorta*
- 2) *Strange Tumor I Have Known*

2003 – W. Jackson Pledger, Ph.D.

Professor, Interdisciplinary Oncology
University of South Florida College of Medicine
Tampa, Florida

- 1) *Regulation of proliferation by cyclin dependent kinase*
- 2) *Functional genomics and cancer therapy*

2002 – Alan H. Jobe, M.D., Ph.D.

Professor of Pediatrics
Cincinnati Children's Hospital Medical Center
Cincinnati, Ohio

- 1) *Mechanisms of lung injury in the preterm*
- 2) *Translational research on lung maturation based on clinical observations*

2001 - Arnold Starr, M.D.

Director, Alzheimers' Research Center
Institute Brain Research of California, Irvine

- 1) *Hearing but not understanding: auditory nerve dysfunction in the presence of preserved cochlear receptors*
- 2) *Patients' stories and their seminal importance for research*

2000–Fredrick L. Brancati, M.D., M.H.S.

Associate Professor, Medicine and Epidemiology
John Hopkins Medical Institute

- 1) *Novel risk factors for type 2 diabetes mellitus and their implications for treatment*
- 2) *Prevention and clinical epidemiology in the new millennium*

1999 – Robert B. Belshe, MD

Director and Professor, Div. of Infectious Diseases and Immunology
St. Louis University

- 1) *Live attenuated influenza vaccine: using genetics to defeat the flu*
- 2) *Vaccines for the 21st century*

PAST INVITED LECTURERS

1998 – Jerome S. Brody, MD

Vice-Chairman of Medicine for Research, Professor of Medicine
Director, Pulmonary Center
Boston University School of Medicine

- 1) *Lung development: lesson from flies connections to cancer*
- 2) *Molecular approaches to the diagnosis of lung cancer*

1997 – Rochelle Hirschhorn, MD

Professor of Medicine, Department of Medicine
NYU School of Medicine

- 1) *Advances in defects in host defense*
- 2) *Reflection on the changing face of medicine*

1996 – Stuart F. Schlossman, MD

Baruj Benacerraf Professor of Medicine
Harvard Medical School
Chief, Division of Tumor Immunology
Dana-Barber Cancer Institute, Boston

- 1) *Human T-cell activation*
- 2) *What's in a name – cd nomenclature*

1995 – Frank M. Torti, MPH, MD, FACP

Director, Comprehensive Cancer Center
Professor Charles L. Spurr Professor of Medicine
Section Head for Hematology/Oncology, Wake Forest University
Chairman, Department of Cancer Biology
Bowman Gray School of Medicine

- 1) *New pathways for the regulation of iron*
- 2) *Popeye spinach and iron: the politics*

1994 – Abner Louis Notkins, MDB

Director, Intramural Research Program
Chief, Laboratory of Oral Medicine National Institute of Dental Research,
National Institutes of Health, Bethesda, MD

- 1) *Polyreactive antibody molecules and matter*
- 2) *The Bethesda experiment*

1993 – Erling Norrby, MD, Ph.D.

Dean of Research and Professor of Virology
Karolinska Institute, Department of Virology Sweden

- 1) *Immunization against HIV-2/SIV in monkeys*
- 2) *The selection of Nobel Prize winners*

1992 – Simon Karparkin, MD

Professor of Medicine
New York University School of Medicine

- 1) *Role of thrombin, integrins and oncogenes*
- 2) *How scientific discoveries are made*

PAST INVITED LECTURERS

1991 – Robert M. Chanock, MD

Chief, Laboratory of Infectious Diseases
National Institute of Allergy & Infectious Diseases
National Institutes of Health, Bethesda, MD

- 1) *Epidemiology, pathogenesis, therapy*
- 2) *New approaches to development of treatment plans*

1990 – Dewitt S. Goodman, MD

Director, Institute of Human Nutrition
Director, Arteriosclerosis Research Center
Tiden-Weger-Bieler Professor of Preventative Medicine
Professor of Medicine, Columbia University,
College of Physicians and Surgeons
Director, Division of Metabolism and Nutrition
Department of Medicine
Columbia-Presbyterian Medical Center, New York
Retinoid and retinoid-binding proteins

1989 – Michael A. Zasloff, MD, Ph.D.

Charles E.H. Upham, Profess of Pediatrics
University of Pennsylvania School of Medicine
Chief, Division of Human Genetics & Molecular Biology
The Children's Hospital of Philadelphia

- 1) *The flow of genetic information*
- 2) *Magainin peptides*

2014 RESEARCH DAY CONFERENCE PRESENTATION WINNERS

Basic Science Research Oral Winner – A. Allison Wolf

Department of Biochemistry and Microbiology

Benzyl Isothiocyanate Sensitizes Hnsccl Cells To Cisplatin, And Inhibits Hnsccl Cell Migration And Invasion

Clinical Science Research Oral Winner – Jodi Pitsenbarger (resident)

Department of Pediatrics

Total Postnatal Opiate Exposure Using Two Different Weaning Methods in Infants with Neonatal Abstinence Syndrome

Clinical Science Research Oral Winner – Rebecca Hayes (student)

Department of Pediatrics

Effect of Brief Physical Activity Program on Physical Fitness of Elementary School Students

Clinical Case Poster Winner – Jill Goodwin (student)

Department of Orthopaedics

Posterior Tibial Tendon Dislocation: A Case Report

Clinical Case Poster Winner – M. Adeel Mahmood (resident)

Department of Internal Medicine, Division of Endocrinology

An Atypical Presentation of Adrenal Insufficiency in Pregnancy as Recurrent Abdominal Pain

Clinical Science Research Poster Winner – Laura Wilson (student)

Department of Pediatrics

Withdrawing into Society: Characteristics of Neonatal Abstinence Syndrome on Final Day of Admission

Clinical Science Research Poster Winner – Heidi Michael (resident)

Obstetrics and Gynecology

Retrospective analysis of patients entering the Maternal Addiction and Recovery Center (Marc) Program Evaluating Pregnancy and Neonatal Outcomes

Basic Science Research Poster Winner – Caroline Hunter

Department of Biochemistry and Microbiology

Mitochondrial Elongation Factor Tu: Translational Regulation by Phosphorylation

**RICHARD J. STEVENS, MD MEMORIAL LECTURE
MARCH 24, 2015, 11:30 AM • HARLESS AUDITORIUM
INVITED LECTURER**

"The Role of Sugar (fructose) in the Great Epidemics of Diabetes and Obesity"



Richard J. Johnson, MD

Tomas Berl Professor and Chief
Division of Renal Diseases and Hypertension
12700 East 19th Ave., Room 7015
Mail Stop C821
University of Colorado Anschutz Campus
Aurora CO 80045

No Conflicts Indicated

March 24, 2015 - 11:30 a.m.

Learning Objectives:

1. To review energy balance and the mechanisms driving weight gain.
2. To describe how body composition and metabolism can be separated from weight gain.
3. To learn more about the mechanisms by which fructose may alter energy balance and body composition.
4. To review the relationship of uric acid with gout, hypertension and metabolic disease.

ABOUT THE RICHARD J. STEVENS, MD MEMORIAL LECTURE

The Richard J. Stevens, MD Memorial Lecture is supported annually by the family of Dr. Stevens. Dr. Stevens was an outstanding medical practitioner characterized by former Dean Charles H. McKown, Jr., of the Marshall University Joan C. Edwards School of Medicine as a pioneer “who was never in a hurry but always on the move.”

Born in Portsmouth, Ohio, Dr. Stevens received his undergraduate degree from Marshall University, attended West Virginia School of Medicine for two years, then went on to earn his medical degree from Rush Medical School in Chicago.

Dr. Stevens returned to Huntington in 1941 as one of the first board certified practitioners in internal medicine in the area. He was a member of the Alpha Omega Alpha, the medical honorary, as well as gastroenterology and research societies.

Dr. Stevens was one of three physicians who first researched prothrombin testing for guidance in administering anticoagulants to patients with coronary occlusion.

Remembered as genuinely committed to his profession, his community and those around him, he had the unique ability to bring about a meeting of the minds among colleagues, patients and families.

The memorial lecture is presented each year at the Marshall University Joan C. Edwards School of Medicine’s Research Day. It was established by Dr. Steven’s wife, Dr. Sarah Louise Cockrell Stevens, and their seven children: Chari Louise Stevens Singleton, Mary Alice Stevens, Richard J. Stevens II, Johanna Stevens Holswade, Robert C. Stevens, and Randall C. Stevens.

List of Presenters' Abstracts

No apparent Conflicts of Interest as supported by Disclosure

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RESEARCH DAY AGENDA

MARCH 24, 2015

Specific learning objectives will be presented with each oral presentation.

Questions and answers encouraged throughout all sessions.

No apparent speaker conflicts indicated as supported by disclosure.

7:00 AM	Registration	AM & PM required
8:15AM	Welcome	Joseph I. Shapiro, MD, Dean
8:20AM	Opening Remarks	Uma Sundaram, MD, Vice Dean and Chair

Oral Session I		Page 21		
Time	Format	Presentation Order	Name/Abstract Title	Department
8:30AM	Oral	1	Chad Crigger <i>Psychological Factors in Appalachian Patients Seeking Bariatric Surgery</i>	Psychiatry
8:42AM	Oral	2	Komal Sodhi <i>Na/K-ATPase Mimetic pNaKtide Peptide attenuates adiposity and metabolic imbalance in mice fed a high-fat diet by reprogramming adipocyte phenotype</i>	Surgery, Pharmacology, Medicine
8:54AM	Oral	3	Rachel Murphy <i>Establishment of HK-2 Cells as a Relevant Model for Investigating Tenofovir Renal Cytotoxicity</i>	Pharmacology Physiology & Toxicology
9:06AM	Oral	4	Yanling Yan <i>Protein Carbonylation of the Na/K-ATPase α1 subunit dictates Na/K-ATPase signaling and Sodium Transport in renal proximal tubular cells</i>	Pharmacology, MIIR
9:18AM	Oral	5	Rebecca Hayes <i>Who Are You? A W.a.y. To Help Families Recognize Medical Team Member Roles</i>	Pediatrics
9:30AM	Oral	6	James Denvir <i>Whole genome sequencing of the TALLYHO mouse and identification of obesity susceptibility genes</i>	Pharmacology, Physiology & Toxicology

9:45AM BREAK **Poster Session 1, Page 47 - Atrium**

Oral Session II		Page 29		
10:30AM	Oral	7	Kristeena Ray Wright <i>Polycomb group and associated proteins as potential therapeutic targets for endometriosis</i>	Pharmacology, Physiology, & Toxicology; Obstetrics and Gynecology
10:42AM	Oral	8	Oluwadamilare O. Ajayi <i>A Retrospective Study on the Possible Effect of Invasive Pneumococcal Disease (IPD) on Lifespan</i>	Medicine

RESEARCH DAY AGENDA

10:54AM	Oral	9	Caroline A. Hunter	Biochemistry & Microbiology; Pharmaceutical Science and Research <i>c-Src Regulates Mitochondrial Translation by Phosphorylation of Elongation Factor Tu</i>
11:06AM	Oral	10	Muhammad Chaudhry	Pharmacology, MIIR, College of Science <i>Oxidative Stress and Na/K-ATPase signaling Contribute to PNX-mediated cardiac and renal fibrosis</i>
11:18AM	Oral	11	Sarah Stevens	Pharmacology, Medicine <i>Impairment of Heme Oxygenase Expression in Immuno-suppressed Mice Exacerbates Ischemic Heart Myocyte Cell Death: Reversible by Bilirubin and Restoration of Nitric Oxide</i>
11:30AM	Keynote Speaker Richard J. Johnson, MD University of Colorado Anschutz Medical Campus, Aurora, CO <i>The Role of Sugar (fructose) in the Great Epidemics of Diabetes and Obesity</i>			

12:40PM Box Lunch

Oral Session III Page 35

1:15PM	Oral	12	Anita Rao	Internal Medicine <i>Is Subclinical Hypothyroidism associated with Decreased Mortality among Octogenarians?</i>
1:27PM	Oral	13	A. Allison Roy	Obstetrics and Gynecology <i>Evaluating Buprenorphine Metabolism in Cord Blood from Neonates Born to Opiate Addicted Mothers as a Predictor of Neonatal Abstinence Syndrome in Rural Appalachia</i>
1:39PM	Oral	14	Amos Turner	Psychiatry <i>Locus of control in Pre-Surgical Bariatric Surgery Candidates in Appalachia</i>
1:51PM	Oral	15	Shada Attraplsi	Section of Gastroenterology & Nutrition, Rush University Medical Center, Chicago, IL <i>Fecal Microbiota Composition in Women in Relation to Factors That May Impact Breast Cancer Development</i>
2:03PM	Oral	16	Deborah Preston	Pediatrics, Gastroenterology Division <i>A daily 5000IU vs. weekly 50,000IU Vitamin D supplementation to Vitamin D deficient obese children: a head to head comparison</i>

2:30PM BREAK

Poster Session 2, Page 78 - Atrium

RESEARCH DAY AGENDA

Oral Session IV

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3:15PM	Oral	17	Komal Sodhi	Surgery & Pharmacology, Medicine <i>Fructose Mediated Non-alcoholic Fatty Liver is attenuated by HO-1-SIRT1 Module in Murine Hepatocytes and Mice Fed a High Fructose Diet</i>
3:27PM	Oral	18	Brandon Smith	Div. of Infectious Diseases, UPMC Mercy <i>Impact of influenza vaccination on clinical outcomes of patients admitted in a university affiliated large medical center in Pittsburgh, Pennsylvania</i>
3:39PM	Oral	19	Rounak Nande	Biochemistry & Microbiology <i>Ultrasound mediated microbubble delivery and infectivity of adenovirus GFP and Mda-7/IL24 in mice and human prostate cancer cells</i>
3:51PM	Oral	20	Audrey J. Hicks	Obstetrics & Gynecology <i>Distance to specialist care is associated with survival in patients with gynecologic malignancies</i>

4:30PM Awards Presentation

Harless Auditorium

9:45AM - 10:30AM POSTER PRESENTATIONS SESSION 1 - ATRIUM - PAGE 47

BASIC SCIENCE

No.	Name/Abstract	Department
1	Sarah L. Miles <i>Identification of activated proliferative signaling mechanisms in Bilateral Diffuse Uveal Melanocytic Proliferation syndrome</i>	Biochemistry and Microbiology
2	Sasha N. Zill & Sumaiya Chaudhry <i>Force Sensing and Muscle Synergies: Integration of Active Substrate Adherence in Control of Posture and Walking</i>	Anatomy and Pathology
3	Inderjit Mehmi <i>Cell cycle dysregulation and autophagy with PDTC (Pyrrolidine dithiocarbamate) of MDA-MB 231 (TNBC cell line), never before described function of PDTC</i>	Toxicology and Pharmacology
4	Nickolas A. Bacon <i>Design for Increased Orthopaedic Screw Pullout Strength</i>	Orthopaedic Surgery /Biochemistry and Microbiology Surgery
5	Alexandra Nichols <i>Induction of HO-1 Increases Recruitment of Ferritin and Insulin Sensitivity in Obese mice</i>	Surgery and Pharmacology
6	Adam P. Fischer <i>Normoxic accumulation and activity of HIF-1 is associated with ascorbic acid transporter expression and localization in human melanoma</i>	Biochemistry and Microbiology
7	Deborah L. Amos <i>Body Weight Regulation in a Novel Antioxidant Mouse</i>	College of Arts and Sciences, Bluefield State College; Department of Pharmacology, Physiology and Toxicology, JCESOMMU
8	Jeremy P. McAleer <i>Pulmonary Th17 fungal immunity is regulated by Regenerating islet-derived III-gamma and the gut microbiome</i>	Richard King Mellon Foundation Institute for Pediatric Research, Children's Hospital of Pittsburgh of UPMC

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No.	Name/Abstract	Department
9	Yanling Yan <i>Mutation of Pro222 of pig Na/K-ATPase a1 subunit prevents ouabain-mediated regulation of Na/K-ATPase signaling and Sodium Transport</i>	Pharmacology, MIIR
10	Hannah Mick <i>Role of opioids in hemin-induced neurotoxicity</i>	Pharmaceutical Science and Research

CASE STUDY

11	Aviral Roy <i>Sarcomatoid Carcinoma: An Obscure Cause for an Obscure Bleed</i>	Gastroenterology, Department of Internal Medicine
12	Jacob Kilgore <i>Fatigue, bruising, and weight loss in a teenage female with previously diagnosed thrombocytopenia</i>	Pediatrics
13	Richmond Gyamfi <i>Hyperinsulinemic Hypoglycemia In A Patient With Carcinoid Tumor-Challenges In Diagnosis And Management</i>	Internal Medicine
14	Matthew Snyder <i>Product Overview and Case Review Quick Clot Hemostatic Bandage in the Trauma Setting</i>	Surgery
15	Jared Hollinger <i>Craniopharyngioma as a Cause of Limbic Encephalitis</i>	Neurology
16	Amin Elfituri <i>Saving young man's leg with chemotherapy in rare case of bone lymphoma</i>	Internal Medicine
17	Shada Attraplsi <i>Primary Gallbladder Carcinoma in a Pregnant Patient with Crohn's Disease Complicated with Gallbladder Involvement</i>	Gastroenterology & Nutrition, Rush Univ., Chicago, IL
18	Ahmed Amro <i>Pregnancy induced Microangiopathy, HELLP or TTP!</i>	Internal Medicine
19	Zain N. Qazi <i>Atypical Growth of an Osteochondroma in a 31 year old female</i>	Orthopaedic Surgery
20	W. Elaine Hardman <i>Nutrition Education at Marshall University Joan C. Edwards School of Medicine: A Resource Challenged Institution</i>	Biochemistry and Microbiology; Pediatrics, Pathology
21	Stephanie Taylor <i>Rapid Decline in PML despite favorable neuroimaging</i>	Internal Medicine
22	Ashwini V Mallad <i>LV non-compaction syndrome: A rare congenital cardiomyopathy</i>	Internal Medicine
23	J. Stuart May <i>The work-up of lytic boney lesions in endometrial carcinoma: a case report</i>	Obstetrics and Gynecology - GYN Oncology
24	Jason P. Mader <i>Esophageal Hyperkeratosis and Multiple Esophageal Rings in a Patient with Recurrent Dysphagia</i>	Internal Medicine
25	Loui Abdelghani <i>Paclitaxel-Induced Acute Interstitial Pneumonitis</i>	Medicine
26	Adam H. Schindzielorz <i>Use of memantine in Autism Spectrum Disorder: A Literature Review and Case Report</i>	Psychiatry
27	Rachel Edwards <i>Transient Horner's Syndrome Following Epidural Anesthesia Placement</i>	OBGYN
28	Dennis R. Lester <i>Neuropsychiatric Symptoms in Anti-NMDA Receptor Encephalitis: A Case Report and Review of the Literature</i>	Psychiatry
29	Carrie Casden <i>A Case of Hypoglycemia in an Adult after Nissen Fundoplication</i>	Endocrinology
30	George Clements <i>A Rare Instance of Hospital Acquired Pneumonia Caused by Co-Infection with Raoultella planticola</i>	Marshall University Joan C Edwards School of Medicine

RESEARCH DAY AGENDA

No.	Name/Abstract	Department
31	Lawrence M. Wyner	Surgery
Bladder "Geodes": A Rare Form of Cystolithiasis		
32	Jennifer Dotson	Oncology
A Rare Case of Fatal Paraneoplastic Pemphigus in a Patient with Newly Diagnosed Diffuse Large Cell Lymphoma (DLCL)		
33	Indira Bhavsar	Internal Medicine
Detection of an Extragastric Dieulafoy's Lesion		
34	Munthir Mansour	Internal Medicine
Pain after motor vehicle accident is not always due to trauma		
35	Sangeeta Chandramahanti	Endocrinology, Internal Medicine
Recurrent Parathyroid Crisis from Primary hyperparathyroidism		
36	Andrew Kinch	Internal Medicine – Endocrinology
Severe Hypomagnesemia And Breakthrough Seizure With Proton Pump Inhibitors Use		
37	Ebrahim Sabbagh	Internal Medicine
I can't walk!!: Acute Paraplegia Secondary		

2:30PM-3:15PM

Poster Presentations Session 2 – Atrium – Page 87

CASE STUDY

No.	Name/Abstract	Department
38	Ali Raufi	Medical Oncology
A Case of Bilateral Triple Negative Invasive Breast Cancer with BRCA-2 Mutation and Glioblastoma Multiforme		
39	Madhvi H. Shah	Internal Medicine
An Unusual Pulmonary Complication of Statins: A Case Report		
40	Amin Elfrituri	Internal Medicine, Oncology
Extra-Adrenal Myelolipoma		
41	Zachary Stanford	Surgery
Blunt trauma: uncommon cause of common bile duct injury		
42	Sarah Slocum	Psychiatry
Conversion Disorder in an Appalachian Community: A Prevalence and Case Control Study		
43	Dennis R. Lester	Internal Medicine
Subacute Milk Alkali Syndrome due to Consumption of Milk, Antacids, NSAIDs and Midol: A Case Report		
44	Hazem Bdair	Internal Medicine
Delayed Hemothorax After Removal Of Pleural Catheter		
45	Yusof Elgaried	Pulmonary Medicine, Internal Medicine
Adenocarcinoma of the Lung with metastasis to male breast		
46	Ibrahim Shahoub	Internal Medicine / Pulmonary Critical Care
A patient with Mixed Connective Tissue Disease (MCTD) and Interstitial Lung Disease (ILD) with Features of Both Non Specific/Lymphocytic Interstitial Pneumonia NSIP/LIP		
47	Samir Shah	Neuroscience
Idiopathic Carotidynia: An Atypical Cause of Neck Pain		
48	Thomas Emmer	Orthopaedics
Case Report: Infected Total Knee with Normal Labs at Presentation		
49	Ibrahim Shahoub	Pulmonary / Oncology
Three rare cases of pulmonary toxicity as a life threatening complication from commonly used Chemotherapy agent		
50	Jessica Layne	Psychiatry
Case Report Investigating Psychiatric and Psychologic Characteristics of Ohdo Syndrome		
51	Sangeeta Chandramahanti	Endocrinology, Internal Medicine
Graves' Ophthalmopathy in Hashimoto's Thyroiditis		
52	Muneer Al Zoby	Pulmonary
Esophageal Diagnosis of a malignant aspergilloma		

RESEARCH DAY AGENDA

No.	Name/Abstract	Department
53	Angeline Prabhu	Internal Medicine
	<i>Focal motor deficit, a rare complication of herpes zoster</i>	
54	Sarah E. Johnson	Pediatrics
	<i>Acute Acalculous Cholecystitis: A Surprise Complication during Epstein-Barr Virus Infection</i>	
55	Ashley Zawodniak	Internal Medicine, Gastroenterology, Nephrology
	<i>Black Esophagus in a 51 year old male</i>	
56	Mose July	Endocrinology
	<i>Is It Gout, Cellulitis Or Charcot Neuropathic Osteoarthropathy?</i>	
57	Ebrahim Sabbagh	Internal Medicine
	<i>Hypomagnesaemia with an iatrogenic component</i>	
58	Ali Raufi	Medical Oncology, Internal Medicine
	<i>Acute Respiratory Distress Syndrome after Treatment of Metastatic Prostate Cancer with Taxotere: A case report and literature review</i>	
60	Yousof Elgaried	Pulmonary Medicine, Internal Medicine
	<i>Ludwig's Angina Misdiagnosed as Metastatic Carcinoma</i>	
61	Ashwini Mallad	Internal Medicine
	<i>That looks "Sweet" Syndrome: A rare inflammatory skin disorder</i>	

CLINICAL SCIENCE

62	Matt Meriweather	Orthopaedics
	<i>Primary Care Fall Risk Assessment for Elderly West Virginians</i>	
63	Mostafa Shalaby	Pulmonary
	<i>Pleural Fluid Albumin, a surprisingly low sensitivity to detect Exudates</i>	
64	James Perry III	Medicine, Pulmonary Section
	<i>Smoking Cessation - a Quality Improvement Project</i>	
65	Kelly Melvin	Psychiatry, Family Medicine
	<i>Assessment of psychiatric education in primary care residency programs</i>	
66	Laura Hunt	Cardiovascular Medicine
	<i>Hyperinsulinism and Obesity in Diabetic Cardiomyopathy</i>	
67	Daniel Kahn	Orthopaedics
	<i>Athletic Performance and Fitness: the Emerging Role of Vitamin D</i>	
68	Jacob Miller	Internal Medicine
	<i>Contingency Management for Smoking Cessation in Pregnancy</i>	
69	Ebrahim Sabbagh	Internal Medicine
	<i>Incidence of hypomagnesemia on proton pump inhibitors at the Huntington Veterans Affairs Medical Center – IHOP</i>	
70	Maria Espiridion	Internal Medicine , Marshall University Charleston Area Medical Center, WVU
	<i>The Medicare Annual Wellness Visit: Barriers and Patient Perceptions</i>	
71	Elke Fährmann	Internal Medicine Marshall University, VA Medical Center
	<i>Mild Hypoglycemia (MH) and Coronary Artery Calcification (CAC) - An Analysis of Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) Data</i>	
72	Jared Brownfield	OB/GYN
	<i>Placental ADRB1 mRNA as a Potential Predictor of Outcome and Possible Therapeutic Target in High Risk Pregnancies</i>	
73	Mohamed Alsharedi	Medical Oncology, Internal Medicine
	<i>Standard of Care Four Doses of Dose Dense Paclitaxel in The Adjuvant Treatment of Breast Cancer Has Equal Toxicity Profile Compared to Weekly Paclitaxel</i>	
74	Nitisha Mulpuri	OB/GYN
	<i>Outcomes of a novel treatment protocol for hyperglycemia in pregnancy</i>	





ORAL SESSION I • 8:30 AM – 9:45 AM

27TH ANNUAL RESEARCH DAY ORAL SESSION

Psychological Factors in Appalachian Patients Seeking Bariatric Surgery

C Crigger, A Turner, M Veitia, S Holroyd
Dept. of Psychiatry, MUJCESOM

Background

WV, with an obesity prevalence of 33.8%, ranks third among states in which obesity is most common. Bariatric surgery, cited as the most effective and durable treatment for obesity, has increased dramatically in recent years. As obesity and its co-morbid conditions is a leading cause of death, a rigorous understanding of the obese patient seeking bariatric surgery is essential.

Hypothesis

The purpose of the present study is to describe pre-morbid psychiatric and medical conditions in a population of pre-surgical candidates for bariatric surgery in an Appalachian community.

Methods

Medical records of 101 patients psychologically evaluated for bariatric surgery, at an academic psychiatry clinic from 02/16/14 to 09/22/14, were examined. In addition to a clinical interview, all participants completed self-reported, psychological instruments including the Millon Behavioral Medicine Diagnostic (MBMD), the Multidimensional Locus of Control (MHLOC), the Questionnaire on Eating and Weight Patterns (QWEP) and the Moorehead-Ardelt Quality of Life II. Statistical analysis was conducted using the SPSS Version 22.0 software.

Results

The final sample of 100 patients consisted of 21 men and 79 women with a mean age of 43.5 years (SD=11.4). The mean BMI was 47.6kg/m² (SD=6.5, R=1.7-67.1kg/m²). Using the NIH Obesity Classification, 7 participants were classified as Class II (BMI:35-39kg/m²) and 93 were classified as Class III (BMI:40kg/m² or greater). When utilizing the WHO's classification for BMI of 50 kg/m² or greater, 34 individuals were classified as "Super Obese." The chronic medical conditions most impacting our sample were: cardiac hypertension, chronic pain, and arthritis. The most often reported psychiatric diagnoses were mood disorder, anxiety disorder, and panic disorder.

Conclusion

63% of patients having premorbid psychiatric disorders stresses the importance of increased clinical suspicion of underlying and undiagnosed psychiatric conditions in morbidly obese patients and the need of more robust community resources that could serve to intervene earlier in a patients' progression through obesity.

Na/K-ATPase Mimetic pNaKtide Peptide attenuates adiposity and metabolic imbalance in mice fed a high-fat diet by reprogramming adipocyte phenotype

Komal Sodhi, Kyle Maxwell, Sarah Stevens, Alexandra Nichols, Morgan Getty, Jian Liu and Joseph I. Shapiro
Department of Surgery, Pharmacology and Medicine

Background

Obesity has become a major and ever increasing epidemic worldwide and is a main risk factor for metabolic syndrome. Oxidative stress underlies the etiopathogenesis of diseases including obesity. Na/K-ATPase mediated activation of Src tyrosine kinase leads to the generation of ROS. We have recently shown that pNaKtide, a peptide derived from a1 Na/K-ATPase, reduces the activities of Src and Src effectors.

Hypothesis

We aim to explore whether pNaKtide administration attenuates lipid accumulation and reprograms adipocyte phenotype in murine preadipocytes and mice fed a high fat diet.

Methods

We examined the effect of pNaKtide, on adipocyte lipid accumulation and oxidative stress in murine preadipocytes and in C57Bl6 mice fed a high fat diet. For the invitro study, 3T3L3 cells were treated with varying concentrations of pNaKtide (0.1uM, 0.3uM, 0.5uM, 0.7uM, 1uM, 2uM and 4uM) for 7 days. For invivo study, mice fed a high fat diet were administered pNaKtide at concentrations of 25 mg/kg every 2 days and every 8 days respectively for 8 weeks.

Results

Our invitro results showed that 0.7uM conc. of pNaKtide significantly decreased adipogenesis (oil red O staining), oxidative stress and increased the number of small, healthy adipocytes along with increase in adiponectin levels, which is derived solely from adipocytes ($p < 0.05$). In mice fed a high fat diet, administration of pNaKtide significantly attenuated the increases in body weight, visceral and subcutaneous fat content, inflammatory cytokines and increased adiponectin and bilirubin levels ($p < 0.05$).

Conclusion

Taken together, our study demonstrates for the first time that Na/K-ATPase Mimetic pNaKtide Peptide attenuates high fat diet mediated adiposity, oxidative stress and inflammation, and improves adipocyte function by increasing adiponectin levels. These findings highlight the pivotal role of pNaKtide in re-programming of adipocytes to a new phenotype and in the regulation of metabolic homeostasis in adipose tissues.

Establishment of HK-2 Cells as a Relevant Model for Investigating Tenofovir Renal Cytotoxicity

Rachel Murphy, John Ball, Brooke Petrasovits and Monica Valentovic

Department of Pharmacology Physiology and Toxicology, Joan C. Edwards School of Medicine

Background

Tenofovir disoproxil fumarate is a newer anti-retroviral agents approved for use in treating Immunodeficiency Virus (HIV) and Hepatitis B. Tenofovir provides once a day dosing and lower adverse effects compared to other anti-retrovirals currently available. A major adverse effect associated with tenofovir is renal impairment. The exact mechanism of renal toxicity remains unknown but is hampered by the limited experimental models. Current published studies have used primary cells exposed for 17 days or in vivo rodent treatment for several weeks.

Hypothesis

The purpose of this study was to investigate tenofovir renal cytotoxicity in a human renal epithelial cell line (HK-2) using clinically relevant concentrations.

Methods

Tenofovir (TFV) is the active form in vivo and was used for all studies. HK-2 cells were exposed to 0-300 uM tenofovir for 0, 1, 2, 3 and 7 days. Vehicle was phosphate buffered saline. Viability was assessed using the MTT assay.

Results

No cytotoxicity was observed following 1 or 2 day exposure when compared to vehicle. TFV (1-300 uM) was toxic beginning at 72 h compared to vehicle using the MTT assay. TFV did not directly interfere with the MTT assay.

Conclusion

This is the first study to show TFV cytotoxicity within 3 days at clinically relevant concentrations. Additional studies have investigated mitochondrial changes in ATP and ADP levels following TFV exposure at 72h. Our study characterizes for the first time that HK-2 cells can be used to mechanistically investigate TFV cytotoxicity.

Protein Carbonylation of the Na/K-ATPase α 1 subunit dictates Na/K-ATPase signaling and Sodium Transport in renal proximal tubular cells

Yanling Yan, Muhammad Chaudhry, Kyle Maxwell, Zi-jian Xie, Joseph I. Shapiro,
and Jiang Liu
Pharmacology, MIIR

Background

We have shown that cardiotonic steroids signaling through the Na/K-ATPase regulate sodium reabsorption in renal proximal tubule (RPT). Here we report that oxidative modification of the α 1 subunit is critical in modulation of Na/K-ATPase signaling and RPT ion transport.

Hypothesis

Oxidative modification of the α 1 subunit is critical in modulation of Na/K-ATPase signaling and RPT ion transport

Methods

Mutation, western blot etc.

Results

In pig RPT LLC-PK1 cells, ouabain (100nM) and glucose oxidase (GO, 1 and 3 mU/ml) induced ROS production, stimulated activation of c-Src and accumulation of Na/K-ATPase α 1 and NHE3 in early endosome (EE) fractions, and inhibited active transepithelial 22Na^+ flux. Pretreatment with the antioxidant, N-Acetyl-L-Cysteine (NAC) can either partially or completely prevent these effects in a dose-dependent manner. Induction of heme oxygenase-1, an enzyme with potent antioxidant capacity, by CoPP attenuates ouabain-induced signaling and protein carbonylation. Furthermore, disruption of the Na/K-ATPase signaling (α 1 subunit knock-down, caveolin-1 knock-out, or Src knock-out) abolished ouabain-induced protein carbonylation. LC-MS/MS analyses identified that ouabain/GO stimulated direct carbonylation of Pro222 and Thr224 in pig α 1. These two amino acid residues are located in the α 1 actuator (A) domain, highly conserved and exposed, facing the nucleotide binding (N) domain. To test the role of Pro222 carbonylation, two stable α 1 mutant cell lines were generated. Mutation of Pro222 appears to abolish ouabain-induced protein carbonylation and activation of c-Src and ERK1/2. However, a "scramble" control mutation of Ala414 appears to have no effect on ouabain-induced protein carbonylation and activation of c-Src and ERK1/2.

Conclusion

Protein carbonylation of the Na/K-ATPase α 1 subunit regulates Na/K-ATPase signaling and related sodium handling in RPTs. The data indicate that direct carbonylation of Pro224 might dictate the Na/K-ATPase signaling.

WHO ARE YOU? A W.A.Y. TO HELP FAMILIES RECOGNIZE MEDICAL TEAM MEMBER ROLES

Rebecca Hayes, Afton Wickline, Christina Hensley, Kelsey Cowen, Ashley Jessie, Melanie Akers, Jenna Dolan, Audra Pritt, Kelly O'Neill, Susan Flesher
Department of Pediatrics, Joan C Edwards School of Medicine

Background

Family Centered Rounds are an increasingly popular manner of conducting pediatric hospital rounds. Hoops Family Children's Hospital is a teaching hospital in Huntington, WV that conducts FCR daily with multiple physicians participating in a patient's care. However, not uncommonly parents will mention that they never saw a physician during the day. A pilot survey revealed that although 81% of families recognized a picture of the attending physician, only 44% of families identified the attending physician's role correctly.

Hypothesis

An aim statement was created that 80% of the families would understand the roles of the attending physician, resident physicians and medical students after implementation of one or more quality improvement interventions.

Methods

We established a multidisciplinary leadership team, measured family recognition of medical team members and their roles, applied a Plan-Do-Study-Act intervention to improve our introductions and evaluated the recognition after the QI implementation. The intervention consisted of having the attending physician lead introductions, explaining the level of education of each team member and focusing on engaging the family. The prospective study included 105 families in the pre-intervention phase and 103 post-intervention.

Results

The recognition of the attending role was 49% in the pre-intervention phase and 68% after the QI implementation ($p < 0.005$). Recognition of the resident role increased from 39% to 69% ($p < 0.001$). The medical student role recognition was relatively high initially at 75% and remained steady at 76% ($p = 0.94$).

Conclusion

The multidisciplinary QI model was effective in improving family recognition of the roles of attending physicians, resident physicians and medical students. Consistent attention to engaging the families and explaining our roles are effective interventions to facilitate this process. We have identified future interventions for additional PDSA cycles to reach our aim of 80% recognition.

Whole genome sequencing of the TALLYHO mouse and identification of obesity susceptibility genes

James Denvir (1), Goran Boskovic (1), Jun Fan (1), Donald A. Primerano (1),
Jacaline K. Parkman (2), Jung Han Kim (2)
Department of Biochemistry and Microbiology (1) and Department of Pharmacology,
Physiology and Toxicology (2), Joan C. Edwards School of Medicine

Background

The TALLYHO/Jng (TH) mouse strain is a polygenic model for obesity and type 2 diabetes, manifesting many of the obesity-related syndromes observed in humans. Genetic dissection of the TH mouse strain could lead to the discovery of susceptibility genes and pathogenic mechanisms of obesity and type 2 diabetes. A major quantitative trait locus (QTL) linked to obesity, *tabw2*, was identified on chromosome 6 in TH mice.

Hypothesis

Given interval mapping of the *tabw2* QTL, we hypothesized that one or more susceptibility genes are located in the *tabw2* region and that variants within these genes would determine all or part of the obese phenotype mediated by *tabw2*.

Methods

In order to identify causal variants in candidate QTL regions and elsewhere in the genome, we sequenced the whole TH genome of TALLYHO to a depth of ~64.8X coverage. Variants were called by aligning reads to the GRCh38 reference genome and filtering with SAMtools and VCFTools.

Results

We identified 4,370,213 SNPs and 1,213,617 indels across the entire TH genome. By comparison to genomic variants of 28 mouse strains, we determined that 288,638 were private mutations. We fine mapped the *tabw2* locus and discovered that the effect of *tabw2* on obesity could be attributed to two adjacent loci, *tabw2a* and *tabw2b*. We selected coding SNPs that map to the *tabw2a* and *tabw2b* intervals and prioritized them by evaluating amino acid changes. 14 SNPs (in 12 genes) in the *tabw2a* and 8 SNPs (in 7 genes) in the *tabw2b* intervals were predicted to affect protein function by SIFT software. A missense variant in Cell death-inducing DFFA-like effector c (*Cidec*) is among the 12 candidate genes within *tabw2a*.

Conclusion

Given its putative role in lipid metabolism, the *Cidec* gene is a noteworthy candidate gene whose functional role in lipid metabolism should be determined.





ORAL SESSION II • 10:30 AM – 11:30 AM

27TH ANNUAL RESEARCH DAY ORAL SESSION

Polycomb group and associated proteins as potential therapeutic targets for endometriosis

Kristeena Ray Wright (1), Brenda Mitchell, MD (2), Nalini Santanam, PhD, MPH (1)

(1)Department of Pharmacology, Physiology, and Toxicology; (2)Department of Obstetrics and Gynecology, Joan C. Edwards School of Medicine, Marshall University

Background

Endometriosis is an enigmatic disease that is associated with chronic pelvic pain and infertility and progression is now linked to the development of ovarian cancer. It is believed that polycomb group (PcG) proteins and its target genes serve in a similar epigenetic role in endometriosis and various cancers. Enhancer of Zeste Homolog 2 (EZH2) is a catalytic subunit of polycomb repressor complex 2 (PRC2) and a histone methyltransferase.

Hypothesis

These PcG and associated proteins may be the epigenetic key to endometriosis progression.

Methods

Real-time PCR was used to analyze PRC2 subunit gene expression from control (non-endometriosis subjects), as well as eutopic (non-lesion) and endometriotic (ectopic) tissues from patients with endometriosis, obtained from IRB-approved and consented subjects (n=3). Western blot was used to determine the relative protein levels of these key components. Expression of tumor suppressor forkhead proteins as a potential target for EZH2 complex was also measured.

Results

Expression of EZH2 was elevated in ectopic tissues compared to controls, while lowered in eutopic tissue in endometriosis patients (fold change = 3.54, 0.11, respectively). Western blots also revealed increased levels of the tri-methylation of lysine 27 on histone 3 (H3K27me3). The forkhead gene expression was much lower in both ectopic and eutopic tissues compared to controls. Our results thus far suggest that the upregulation of polycomb proteins in endometriotic tissues modulates DNA methylation of the forkhead protein (increased methylation of this gene is seen in endometriosis patients) resulting in its decreased expression. This leads to increased growth of the endometriotic tissue in the peritoneal environment.

Conclusion

Our results have uncovered a network of proteins that may aid in the progression of endometriotic lesions. This underlying mechanism has yet to be exploited for therapeutic value in endometriosis, which is the basis of our ongoing cell and animal studies.

A Retrospective Study on the Possible Effect of Invasive Pneumococcal Disease (IPD) on Lifespan.

Oluwadamilare O. Ajayi, Nancy B. Norton, Ronald J. Stanek and Maurice A. Mufson.

Department of Medicine, Joan C. Edwards School of Medicine, Huntington, WV.

Background

Streptococcus pneumoniae (the pneumococcus) disease represents the most common cause of community-acquired pneumonia. High case fatality rates accompany invasive pneumococcal disease (IPD).

Hypothesis

The aim of this research was to investigate the hypothesis that patients who survived an episode of IPD suffered a shortened lifespan.

Methods

We identified 68 adult patients of MU Health admitted to Cabell Huntington and St. Mary's Hospitals and 124 military veterans admitted to the VA Medical Center (VAMC) for IPD (pneumonia, meningitis and septicemia) between 1983 and 2003. *S. pneumoniae* was recovered from the blood and otherwise sterile sites and the hospital laboratories provided such isolates for our serotyping. Patients were tracked from their IPD episode until June 2014 and lifespans were compared to the WV general population for the year 2000 by Kaplan-Meier survival curves.

Results

Fifty-eight (85.3%) of MU Health and 95 (76.6%) of VAMC patients survived IPD. Forty-four (75.8%) of MU Health and 85 (89.5%) of VAMC patients died before June 2014. They lived an average of 6.1 and 4.6 years (p, ns), respectively, following their IPD. Fourteen (24.1%) MU Health and 10 (10.5%) VAMC patients who survived to June 2014 lived an average of 15.7 and 23.5 year (p=0.0005, 2-tail, t-Test), respectively, following their IPD. The mean age at discharge of patients who survived their IPD to June 2014 was substantially younger than those who died before June 2014. Kaplan-Meier survival curves of MU Health and VAMC patients were similar to that of WV general population for the year 2000.

Conclusion

IPD is a serious disease and about 75-85% of patients survive and usually recover fully without sequelae. Lifespan of patients who survived IPD mirrored the lifespan of the general population, confirming that IPD is an acute illness without long-term sequelae.

c-Src Regulates Mitochondrial Translation by Phosphorylation of Elongation Factor Tu

Caroline A. Hunter, Hasan Koc, Emine C. Koc

Department of Biochemistry and Microbiology, Joan C. Edwards School of medicine,
Department of Pharmaceutical Science and Research, Marshall University School of
Pharmacy

Background

Mitochondrial dysfunction is involved in the development and progression of diseases including diabetes, Alzheimer's, cardiovascular disease, Parkinson's, and cancer. Therefore, regulation of mitochondrial biogenesis and energy production is important for a properly functioning cell and organism. Phosphorylation is a reversible post-translational modification that is involved in the regulation of many cellular processes, including cell survival and proliferation. Over the last decade, our laboratory has shown the phosphorylation of mitochondrial translation components extensively. Mitochondrial translation plays a fundamental role in energy production due to its role in the synthesis of 13 subunits of the oxidative phosphorylation complexes.

Hypothesis

In the pursuit of kinases responsible for the Tyr phosphorylation of mitochondrial translation components, c-Src, which is known to be translocated into the mitochondria, was evaluated as a possible Tyr kinase.

Methods

In this study, we demonstrated that c-Src phosphorylated mitochondrial translation elongation factor Tu (mtEF-Tu) at a specific Tyr residue and inhibited protein synthesis *in vitro*.

Results

Over-expression of c-Src in mouse embryonic fibroblast cells resulted in impaired mitochondrial function and reduced synthesis of mitochondrial oxidative phosphorylation complexes while supporting higher cell proliferation rates.

Conclusion

Our findings also suggest that c-Src regulates metabolic reprogramming of cells by stimulating glycolytic energy metabolism similar to the Warburg effect observed in tumor cells.

Oxidative Stress and Na/K-ATPase signaling Contribute to PNx-mediated cardiac and renal fibrosis

Muhammad Chaudhry, Kyle Maxwell, Xiaoliang Wang, Tylor J. Robinette, Yanling Yan, Zi-jian Xie, Joseph I. Shapiro, and Jiang Liu
Pharmacology, MIIR, College of Science

Background

We have shown that the Na/K-ATPase signaling regulates cardiac and renal fibrosis in 5/6 renal partial nephrectomy (PNx) animal model. Here we report that CoPP (an inducer of heme oxygenase-1, HO-1) and pNaKtide (a Na/K-ATPase signaling blocker) attenuate PNx-mediated fibrosis in heart and kidney in C57BL/6 mice.

Hypothesis

Oxidative Stress and Na/K-ATPase signaling are involved in PNx-mediated cardiac and renal fibrosis

Methods

Animal study

Results

The C57BL mice were randomly divided into six experimental groups (10 mice per sham group and 13 mice per PNx group). (1) Sham surgery (Sham) alone, (2) PNx surgery (PNx) alone, (3) Sham+CoPP, (4) PNx+CoPP, (5) Sham+pNaKtide, and (6) PNx+pNaKtide. CoPP (5mg/KG BW) was given 5 day and one day before surgery as well as every 5 days after surgery. pNaKtide (25mg/KG BW) was given weekly 7 days after surgery. All experimental mice were sacrificed 4 weeks after surgery. Comparing with sham, PNx significantly stimulates type 1 collagen and HO-1 expressions both in heart and kidney assayed by western blot. Induction of HO-1 by CoPP and blockage of Na/K-ATPase signaling by pNaKtide significantly attenuate PNx-mediated collagen production. Histology analyses, including collagen trichrome staining and Sirius Red/Fast Green staining, further confirm the results of collagen expression. Transthoracic Echocardiography analysis demonstrates that treatment with pNaKtide restores PNx-induced increases in relatively wall thickness (RWT) and myocardial performance index (MPI) in heart.

Conclusion

Oxidative stress and Na/K-ATPase signaling contribute to PNx-mediated cardiac and renal fibrosis, which could be restored by attenuation of oxidative stress and blockage of Na/K-ATPase signaling.

Impairment of Heme Oxygenase Expression in Immuno-suppressed Mice Exacerbates Ischemic Heart Myocyte Cell Death: Reversible by Bilirubin and Restoration of Nitric Oxide

Sarah Stevens, Joseph I. Shapiro, and Komal Sodhi

Department of Pharmacology, Medicine, Joan C. Edwards School of Medicine, Huntington, WV.

Background

Cardiovascular risk and therapy in immuno-deficient patients is a challenge for cardiologists. Nitric oxide (NO) plays a central role in vascular response to ischemic damage by decreasing microvascular resistance and is an important regulator of the immune system.

Hypothesis

The aim of this study was to assess the efficacy of restoration of HO-1 and whether the increase in bilirubin levels attenuates cardiac remodeling in immuno-suppressed mice.

Methods

Myocardial infarction was induced by LAD ligation in immunosuppressive (BALB SCID) mice. Mice comprised 4 groups: sham, MI, MI treated with the HO-1 inducer CoPP with and without HO activity inhibitor, SnMP.

Results

Mice with MI had increased levels of inflammatory cytokines, myocardial fibrosis and myocyte death ($p < 0.05$) as compared to control animals. Left ventricle end diastolic area (EDA) was reduced and fractional area change (FAC) and angiogenesis was increased ($p < 0.01$) in CoPP-treated mice compared to the MI group. Inflammation, cardiac iNOS expression, myocardial cell death and fibrosis were reduced in CoPP treated animals as a result of increased bilirubin levels ($p < 0.05$) serum nitrite levels were increased. Foxp3 (marker of T regulatory cells), pAMPK, pAKT expression in cardiac tissues was increased in CoPP-treated animals. SnMP reversed these positive cardiac effects.

Conclusion

This novel study demonstrates the pivotal role of pharmacological induction of HO-1, 5 days after onset of cardiac remodeling to benefit infarcted and remote territories, leading to better cardiac function in a 4-week MI outcome in immunosuppressed mice via increase in bilirubin levels and NO bioavailability. The ability to up-regulate HO-1 and improve post infarction cardiac function via its effect on nitrite synthesis offers a new clinical approach in the treatment of immunosuppressed patients with MI. This is an area of potential therapeutic targeting that needs to be further explored in immunosuppressed populations of Diabetes, organ transplantation, auto inflammatory diseases as well as autoimmune diseases.



ORAL SESSION III • 1:15 PM – 2:30 PM

**27TH ANNUAL
RESEARCH DAY
ORAL SESSION**

Is Subclinical Hypothyroidism associated with Decreased Mortality among Octogenarians?

Anita Rao MS-IV, Lynne Goebel MD FACP

Department of Internal Medicine, Joan C. Edwards School of Medicine

Background

Previous studies suggested that subclinical hypothyroidism may be associated with decreased mortality among the elderly, but this is a controversial subject.

Hypothesis

We seek to determine if subclinical hypothyroidism in our elderly population is associated with decreased mortality.

Methods

The study group comprised patients aged 80-89 years old on August 1, 2007 seen in the outpatient General Internal Medicine department that had the diagnosis of hypothyroidism and 50 age-matched controls. We defined subclinical hypothyroidism as a TSH level above 4.5, but less than 10 with a normal T4 and a levothyroxine dose of 0-50mcg/day. There were 21 subclinical hypothyroid patients and 76 overt hypothyroid patients. We further stratified all hypothyroid patients into three groups: TSH less than 2 indicating good control, between 2 and 4.5 indicating moderate control, and above 4.5 indicating poor control. Age and gender-adjusted mortality from 8/2007-8/2014 was calculated and compared.

Results

Mortality rate for the subclinical hypothyroid group (33%) was lower compared to the overt hypothyroid group (43%) and similar to the control group (32%) but it did not reach statistical significance ($p=0.45$). Also, there was no difference in mortality among the three levels of control of TSH ($p=0.488$). The subclinical group had a higher mean age than the control and overt hypothyroid groups ($p=0.02$). Interestingly, our subclinical hypothyroid group also had lower rates of diabetes ($p=0.03$) and COPD ($p=0.047$) compared to the other two groups.

Conclusion

Subclinical hypothyroidism may have a survival benefit compared to overt hypothyroidism. The subclinical group had a higher mean age and yet they did not have increased mortality. Interestingly, we found that the level of control of hypothyroidism did not impact mortality in our patient population. Additionally, the subclinical hypothyroid group had lower incidences of Diabetes and COPD, although a future study using a larger sample size would be needed to confirm these findings.

Evaluating Buprenorphine Metabolism in Cord Blood from Neonates Born to Opiate Addicted Mothers as a Predictor of Neonatal Abstinence Syndrome in Rural Appalachia

A. Allison Roy, MD, Allison Hamilton, MD, Ryan Stone, MD, FACOG, Anne Silvis, PhD, and Lauren Richards-Waugh, PhD

Obstetrics and Gynecology, Marshall University Joan C. Edwards School of Medicine

Background

Opioid abuse is epidemic in WV. The Marshall Addiction and Recovery Center (MARC) uses buprenorphine for the treatment of opioid-dependent mothers. Neonatal abstinence syndrome (NAS) is characterized by withdrawal symptoms neonates who were exposed to drugs in utero. Buprenorphine dose not correlate with NAS severity.

Hypothesis

Metabolic differences play a role in NAS following buprenorphine treatment during pregnancy.

Methods

Cord blood from patients in the MARC program was collected at delivery. Buprenorphine and norbuprenorphine levels were quantified using gas chromatography-mass spectrometry. Cord blood DNA was extracted and quantified. SNP analysis was performed using PCR. Allelic discrimination was performed to determine the genotype of the SNPs rs28451617 and rs2740574. These were analyzed for Hardy-Weinberg equilibrium using Chi-squared. Expected genotypic frequencies were compared with those observed using Chi-squared and a desired p-value of 0.05. NAS was evaluated using the Finnegan scoring system.

Results

SNP genotype rs28451716 (CYP3A7*1E) were all homozygous for the major allele. Six samples were heterozygous for the minor allele CYP3A4*1B (6.8%). This SNP was in HWE with the study population with Chi-squared value of 0.23 and p-value of 0.888. There was a significant difference between the observed and expected genotypic frequencies with a p-value of 0.03. ANOVA showed no correlation between NAS score or length of NICU stay.

Conclusion

The CYP3A4 SNP had an increased allele frequency in the study population (6.8% versus 2.5%) with a significant difference between the observed and expected genotypic frequencies, indicating a possible enrichment. This population may have increased levels of buprenorphine compared to the general population due to decreased metabolism of buprenorphine to norbuprenorphine. Increased buprenorphine levels may predispose those with the CYP3A4 SNP to drug abuse or even addiction due to increased nociceptive binding compared to those with normal buprenorphine metabolism. There was no observed correlation between NAS score or length of NICU stay.

Locus of control in Pre-Surgical Bariatric Surgery Candidates in Appalachia

Turner, A, Crigger, C, Veitia, M, & Holroyd, S
Psychiatry, Marshall

Background

Locus of control (LOC), the extent to which individuals believe they have control over events, has been extended to health behavior. Individuals with an internal LOC may take more responsibility for their actions and may have more positive attitudes toward wellness behaviors. Limited data suggest that “internalizers” make better dietary choices and may exercise more regularly. Despite limited data regarding its predictive validity, health insurers often require assessment of this concept prior to approving bariatric surgery. This study examines health LOC in a population of pre-surgical candidates for bariatric surgery over a 3-month period in an Appalachian community.

Hypothesis

This patient population was expected to have an external locus of control.

Methods

Medical records of 101 patients psychologically evaluated for bariatric surgery, at an academic psychiatry clinic from 02/16/14 - 09/22/14, were examined. All participants completed self-report, psychological assessment instruments including the Multidimensional Locus of Control (MHLOC), the Millon Behavioral Medicine Diagnostic, the Questionnaire on Eating and Weight Patterns and the Moorehead-Ardelt Quality of Life II. The pre-surgical interview was reconciled with a retrospective chart review. The present study focused on the MHLOC in which scores were obtained for Internal LOC, External LOC, and LOC Powerful Others. Statistical analysis was conducted using the SPSS Version 22.0 software suite.

Results

101 patients participated in the study. Of the 100 patients available for analysis, the respective means (standard deviations) for Internal LOC, External LOC and Powerful Others LOC were 26.3(4.6), 14.4(4.5), and 18.8(5.3). LOC scores were compared with BMI as well as with history of psychiatric diagnosis and other research variables.

Conclusion

The results of the present study suggest that pre-surgical bariatric patients are most likely to report having an internal LOC. This is surprising, considering that these patients are seeking bariatric surgery, in part due to poor health habits, arguing against previous research.

Fecal Microbiota Composition in Women in Relation to Factors That May Impact Breast Cancer Development

Shada Attraplsi, MD, MS, Rawan Abbasi, BS, Mubeen Khan Mohammed Abdul, MD, Mohsin Salih, MD,MS, Ece Mutlu, MD, MBA, MSCR

Section of Gastroenterology & Nutrition, Rush University Medical Center, Chicago, IL

Background

One of the strongest risk factors for breast cancer (BC) is a family history of BC in a first degree relative. Colonic bacteria are involved in immune regulation, xenobiotic metabolism, and obesity, all of which have the potential to affect BC development. Therefore, a dysbiotic microbiome could be a familial transmittable risk factor for BC that interplays with many of the recognized risk factors like age, alcohol, diet, obesity, and physical activity.

Hypothesis

We hypothesized that the GI luminal microbiome is altered in BC patients and their first-degree relatives (FDRs). To test this hypothesis, we looked at the variability in fecal bacterial composition. We also aimed to determine clinical factors that may have the most impact on bacterial composition in order to design future experiments.

Methods

Thirty women in Illinois and California from the following groups provided samples: BC patients (BC), healthy controls with normal mammograms (HC), healthy controls with abnormal mammograms (ABN), healthy controls with first degree family members diagnosed with BC (FHX), and first degree relatives of women in our BC group (FDR). In 57 stool samples, 16S rDNA pyrosequencing was performed on a 454 instrument using titanium kits.

Results

The mean age of the subjects was 58.7 years and the mean BMI 28.6. In principal coordinates analyses using the Unifrac metric, there was overlap between groups. The BC group appeared to be closest in composition to the FHX group and farthest from the ABN group, which also appeared to partly differ from HC, FDR groups. Clinical factors that were identified to have a possible impact on fecal microbiome composition appeared to be current exercise, alcohol intake, chest width, most recent mammogram code, and duration of female hormone exposure.

Conclusion

Factors that may impact fecal bacterial composition in women are similar to those identified in epidemiological studies as risk factors for BC.

A daily 5000IU vs. weekly 50,000IU Vitamin D supplementation to Vitamin D deficient obese children: a head to head comparison

Deborah Preston, Yoram Elitsur MD

Department of Pediatrics, Gastroenterology Division, Marshall University Joan C Edwards School of Medicine

Background

Vitamin D deficiency is a common finding among American children. It has been associated with obesity related complications including NAFLD and metabolic syndrome. The dose of Vitamin D supplementation recommended for normal healthy children has been reported but there are no guidelines aimed towards obese children.

Hypothesis

To compare between 2 doses of Vitamin D supplementation in a cohort of obese WV children.

Methods

Obese children who attended the pediatric clinic were prospectively recruited. Exclusion criteria included children who have malabsorption conditions for any medical reason or endocrine pathology involving the parathyroid system. Serum Vitamin D levels were measured in obese children and those with Vitamin D deficiency (defined as level <20ng/ml) were randomly assigned to one of two supplementation groups: 5000 IU/day (Group A) and 50,000 IU/wk (Group B). Supplementation was provided to all participants for the duration of the study. Compliance was assessed by weekly telephone calls and pill counts at 1 month and the completion of the study. Repeat Vitamin D levels were checked upon completion of the treatment at 2 months.

Results

Vitamin D levels were measured in 47 obese children; 4 (9%) had normal levels (>30ng/ml), 12 (26%) were insufficient (20-30ng/ml), and 31 (65%) were deficient (<20ng/ml). A total of 22 children composed our study (13 - Group A; 9 - Group B). Nine children declined participation or were non-compliant with protocol and were not included. All children except 2 (group A) achieved adequate serum levels (>30ng/ml). None had Vitamin D toxicity or abnormal serum calcium levels. There was a significant difference in Vitamin D levels noted between the groups.

Conclusion

Vitamin D supplementation at a dose of 5000IU/d is not as effective as 50000IU/wk. Both doses are safe and should be recommended to obese children but the higher dose is less likely to result in insufficient levels after treatment.



ORAL SESSION IV • 3:15 PM - 4:30 PM

27TH ANNUAL RESEARCH DAY ORAL SESSION

Fructose Mediated Non-alcoholic Fatty Liver is attenuated by HO-1-SIRT1 Module in Murine Hepatocytes and Mice Fed a High Fructose Diet

Komal Sodhi, Charles Meadows, Sarah Stevens and Joseph I. Shapiro
Department of Surgery and pharmacology, Department of Medicine, Joan C. Edwards School of Medicine, Huntington, WV.

Background

Background: Oxidative stress underlies the etiopathogenesis of nonalcoholic fatty liver disease (NAFLD), obesity and cardiovascular disease (CVD). Heme Oxygenase-1 (HO-1) is a potent endogenous antioxidant gene that plays a key role in decreasing oxidative stress. Sirtuin1 (SIRT1) belongs to the family of NAD-dependent de-acetylases and is modulated by cellular redox.

Hypothesis

Hypothesis: We hypothesize that fructose-induced obesity creates an inflammatory and oxidative environment conducive to the development of NAFLD and metabolic syndrome. The aim of this study is to determine whether HO-1 acts through SIRT1 to form a functional module within hepatocytes to attenuate steatohepatitis, hepatic fibrosis and cardiovascular dysfunction.

Methods

Material and method: We examined the effect of fructose, on hepatocyte lipid accumulation and fibrosis in murine hepatocytes and in mice fed a high fructose diet in the presence and absence of CoPP, an inducer of HO-1, and SnMP, an inhibitor of HO activity.

Results

Results: Fructose increased heme and isoprostane levels and decreased HO-1, SIRT1, PPAR α and pAMPK levels in hepatocytes ($p < 0.05$). Further fructose supplementation increased the expression of FAS and isoprostane levels; this increase was negated by CoPP. Concurrent treatment with CoPP and SIRT1 siRNA increased FAS expression and isoprostane levels suggesting that HO-1 is upstream of SIRT1 and suppression of SIRT1 attenuates the beneficial effects of HO-1. A high fructose diet increased insulin resistance, blood pressure, markers of oxidative stress and lipogenesis along with fibrotic markers in mice ($p < 0.05$). Increased levels of HO-1 increased SIRT1 levels and ameliorated fructose-mediated lipid accumulation and fibrosis in liver along with decreasing vascular dysfunction ($p < 0.05$ vs. fructose). These beneficial effects of CoPP were reversed by SnMP.

Conclusion

Conclusion: Taken together, our study demonstrates, for the first time, that HO-1 induction attenuates fructose-induced fatty liver, prevents the development of hepatic fibrosis and abates NAFLD-associated vascular dysfunction; effects that are mediated by activation of SIRT1 gene expression.

Impact of influenza vaccination on clinical outcomes of patients admitted in a university affiliated large medical center in Pittsburgh, Pennsylvania.

Brandon Smith, Todd Gress, Mohamed Yassin, Rahman Hariri, Juliet Ferrelli, Hector Bonilla

School of Medicine, Marshall University. Division of Infectious Diseases, UPMC Mercy

Background

Influenza infections are a major cause of morbidity & mortality each year in the U.S. Significant research has demonstrated the benefits of the influenza vaccine to prevent infection. Influenza vaccination decreases 6.6 million illnesses, 3.2 million medically consulted illnesses & hospitalizations by 17%. The effectiveness of the vaccine is approximately 61%. We designed a quality improvement study that aimed at measuring the effect of vaccination & utilization on patients admitted at a University affiliated medical center in Pittsburgh, PA

Hypothesis

Our hypothesis stated that prior influenza vaccination would reduce complications in patient who contracted influenza as compared to those patients who did not receive the vaccine.

Methods

A retrospective, IRB approved, study was performed from November 1st 2013 to March 1st 2014 on all inpatients & patients age greater than 18 years old seen in the emergency department that tested positive for influenza by viral PCR (Remel® Microtest). Patient demographics, clinical data, prior influenza vaccination and clinical outcomes were collected by reviewing the hospital database.

Results

Prior influenza vaccination was associated with statistically significant reductions in ICU admission, odds ratio [OR]: 0.23 (p= 0.032, CI: 0.06 -0.88). After adjustment for age, race, & sex this finding remains statistical significant, OR: 0.15 (p= 0.042, CI: 0.024 – 0.93). Multivariate analysis revealed decreased ICU admissions were lower for both female & black race OR: 0.17 (p= 0.009, CI: 0.045 – 0.64) and 0.046 (p= 0.009, CI: 0.0046 – 0.46) respectively.

Conclusion

Our analysis demonstrates influenza vaccination was an effective intervention, decreasing the likelihood of ICU admission in patients hospitalized for influenza. We found that females and black patients, regardless of vaccination status, had decreased odds of ICU admission. Although not statistically significant, a trend was observed that mechanical ventilation and ECMO therapy were higher for non-vaccinated patients.

Ultrasound mediated microbubble delivery and infectivity of adenovirus GFP and Mda-7/IL24 in mice and human prostate cancer cells.

Rounak Nande and Pier Paolo Claudio
Department of Biochemistry and Microbiology

Background

The use of human adenoviruses (hu-Ads) in gene transfer studies is limited because of their immunogenic nature. To circumvent this limitation we have developed a novel approach constituted of hu-Ads encapsulated inside microbubbles (MBs). The melanoma-differentiation-associated-gene-7 or interleukin-24 (mda-7/IL24) is a tumor suppressor with pro-apoptotic activity against several cancers. We have previously shown the site-specific gene transfer of Ad.mda7 complexes by ultrasound-targeted microbubble destruction (UTMD) in immune-deficient animal models. However, to translate this gene delivery system from the bench to the bedside, a study involving the use of immune-competent mice models is required.

Hypothesis

It has been shown that transfer of genes to mouse cells using hu-Ads is dependent on the expression of Coxsackie and Adenovirus Receptor (CAR) and certain integrins, which mediate hu-Ad attachment and internalization. Our hypothesis is that the murine derived prostate cancer Tramp-C2 cells will express CAR and/or α , β integrins and will be transduced by hu-Ads.

Methods

We investigated the expression of CAR and α , β integrins in murine Tramp-C2 and control human DU145 cells by flow cytometry analysis. We tested the infectivity of Ad.GFP (green fluorescent protein) and Ad.mda-7/IL24 on both Tramp-C2 and DU145 prostate cancer cells. We also incubated the cells with different viral multiplicities of infection (MOI) to test the infectivity and transduction of control Ad.GFP. Western blot analysis confirmed mda-7 protein expression following Ad-transduction. Annexin-V studies assessed the pro-apoptotic effect of the Ad.mda-7/IL24.

Results

Our studies showed that Tramp-C2 cells express α , β integrins and that Ad.GFP and Ad.mda-7/IL24 transferred their transgene in the murine Tramp-C2 and human DU145 prostate carcinoma cells. Additionally, mda-7/IL24 significantly increased the apoptotic rate of the Tramp-C2 and DU145 transduced cells.

Conclusion

Our study demonstrated the feasibility of using Tramp-C2 cells derived from a murine model of prostate cancer to translate the ultrasound-mediated microbubble Adenovirus delivery system that we have developed.

Distance to specialist care is associated with survival in patients with gynecologic malignancies

Audrey J. Hicks, Nadim Bou Zgheib

Obstetrics and Gynecology, Joan C. Edwards School of Medicine

Background

Women with gynecologic malignancies in rural regions may have limited access to the highly specialized care they need, and often travel long distances for cancer care. Prior reports have suggested that distance from residence to treatment facility is a barrier to care and because of this some go without treatment.

Hypothesis

We sought to investigate the effect of the distance traveled by patients with gynecologic malignancies to a university hospital on the disease presentation as well as short and long term outcomes.

Methods

After IRB approval, patients with gynecological malignancies treated at the Edwards Comprehensive Cancer Center, Cabell Huntington Hospital and Marshall University between 2006 and 2014 were identified using the cancer registry database. Clinical and demographic data is collected utilizing American College of Surgeons/Commission on Cancer data elements and met National and State quality edits. Distance to care (DTC) traveled by each patient was calculated using a computer software in miles and minutes. Finally the DTC data was analyzed with the clinical data.

Results

810 patients with gynecologic malignancies, ovarian (n=127), uterine (n=489), cervical (n=88), vulvar (n=52), peritoneal (n=22) other (n=32) cancers were identified and the clinical data was subject to a multivariate analysis. Caucasian patients were found to live significantly farther away from the care center than African-American patients. Caucasian patients who lived shorter distances survived significantly longer than those who lived longer distance to the source. White patients were shown to survive significantly longer than African-American patients, and for these patients, distance was not found to be associated with survival.

Conclusion

Geographic proximity to a University Hospital appears to influence survival in Caucasian patients with gynecologic malignancies. These findings shed the light at the problem of access to care and may help us identify areas of geographic disparity and potential outreach programs needed to address these areas in our communities.





POSTER PRESENTATIONS • SESSION I • 9:45 AM – 10:30 AM

27TH ANNUAL RESEARCH DAY POSTER SESSION

Identification of activated proliferative signaling mechanisms in Bilateral Diffuse Uveal Melanocytic Proliferation syndrome

Sarah L. Miles

Biochemistry and Microbiology, Joan C. Edwards School of Medicine, Marshall University

Background

Bilateral diffuse uveal melanocytic proliferation (BDUMP) is a rare paraneoplastic syndrome causing bilateral vision loss. BDUMP is commonly associated with gynecological cancers in women, and lung or pancreatic cancer in men. It may also be associated with melanocytic proliferation in non-ocular tissues.

Hypothesis

Identity of the serum borne factor and the mechanism by which melanocyte proliferation is stimulated is unknown, limiting means for definitive diagnosis and treatment of this disorder.

Methods

We developed a human cutaneous melanocyte bioassay that demonstrates the presence of a melanocyte selective stimulating factor within the IgG fraction of BDUMP patient serum.

Results

Using the CyQuant Direct proliferation assay, we demonstrate that treatment of cultured normal melanocytes with serum from BDUMP patients results in marked melanocyte proliferation. Additionally, antibody arrays performed on cell lysates from BDUMP treated cells indicate increased activated AKT signaling compared to cells treated with either control or serum from other non-BDUMP cancer patients. Along with cellular signaling activation, the activity of the serum factor will be evaluated for heat, pH, and protease sensitivity, to allow us to more closely identify the physiochemical properties and molecular identity of the factor.

Conclusion

This information will advance our investigation to identify the serum factor and learn how/why it appears to selectively targets melanocytes. Knowledge of activated signaling pathways will help determine much-needed clinical diagnostic markers and potential treatment targets for BDUMP syndrome. Further, determining how this factor interacts with normal melanocytes will provide new knowledge of melanocyte behavior, which can be applied not only to understanding the etiology of BDUMP syndrome, but also understanding causes and progression of other melanocytic disorders.

Force Sensing and Muscle Synergies: Integration of Active Substrate Adherence in Control of Posture and Walking.

Sasha N. Zill and Sumaiya Chaudhry

Department of Anatomy and Pathology, Joan C. Edwards School of Medicine,
Huntington, WV.

Background

In posture and locomotion, groups of muscles in humans and other animals are activated as synergists. This organization implies that feedback mechanisms that monitor substrate adhesion must be integrated with processes that generate forces for support and propulsion, but the mechanisms underlying this integration have not been determined. Campaniform sensilla are mechanoreceptors of insects that encode forces as cuticular strains. To evaluate their contribution to muscle synergies, we characterized the motor effects of campaniform sensilla of the feet (tarsi) and proximal segments (trochanter and femur) in the legs of stick insects and cockroaches.

Hypothesis

We hypothesize that the effects of force detecting sense organs of the feet are integrated with force generation for support of body load through activation of the same muscle synergies.

Methods

Tarsal campaniform sensilla were mechanically stimulated while recording activities of pairs of leg muscles. To study force feedback in the proximal leg, we mimicked depressor muscle contractions by applying forces with a computer-controlled motor. Feedback from the distal segments was eliminated by cutting peripheral nerves ('pegleg' preparation).

Results

Stimulation of tarsal campaniform sensilla activated the leg muscle that generates substrate grip (retractor unguis). Proximal leg muscles that generate inward pull (tibial flexor) and support/propulsion (trochanteral depressor) were also excited. Stimulation of campaniform sensilla on the trochanter and femur activated the same muscle synergies (retractor, flexor, depressor).

Conclusion

These patterns of motor activation can ensure that substrate adhesion is rapidly established after leg contact to provide a stable point for force generation by leg muscles. These experiments also demonstrate that sense organs that detect forces in insects are similar to vertebrate Golgi tendon organs in having widespread effects on muscle synergies. We are currently extending these experiments to study campaniform sensilla in wild type and transgenic lines of fruit flies (*Drosophila*).

Cell cycle dysregulation and autophagy with PDTC (Pyrrolidine dithiocarbamate) of MDA-MB 231 (TNBC cell line), never before described function of PDTC

Indejit Mehmi*, Justin Tomblin**, Travis Salisbury**

*ECCC/JCESOM, Marshall University, Huntington, WV, **Dept of Toxicology and Pharmacology, JCESOM, Marshall University

Background

Triple negative breast cancer (TNBC), a heterogeneous group (ER, PR, or HER-2/neu receptor negative) represents 20% of all breast cancer that usually occur in younger females, has higher local recurrence, and shorter disease free survival. New targets for treatment are needed for better outcomes.

Hypothesis

PDTC, an NFkappa b inhibitor, causes MDA-MB 231 cell death via cell cycle dysregulation and autophagy; PDTC function never described before.

Methods

Cytotoxicity assay: 50,000 MDA-MB231 cells/well in 6-well plates using FBS/DMEM media, treated with DMSO (control), PDTC (100, 10, 1, 0.1 uM). 24 hrs later, cells were counted.

Western blot analysis: 150,000 MDA-MB231 cells/well in 6-well plate, treated with PDTC 100 uM for 24 hrs. Cell lysate was used to analyze using western blotting for cyclin D1(CCND1), pRB, and autophagy/apoptosis markers. Cell lysate fractionated into whole cell, cytosolic, nuclear fraction and analyzed for CCND1.

Results

Cytotoxicity: PDTC 0.1, 1, 10, 100 uM lead to cytotoxicity with ~0, 25, 50, 70% cell death compared to control.

Western blot:

Cyclin D1: PDTC treatment increased CCND1 compared to control. Whole cell, cytosolic, and nuclear fraction showed CCND1 was localized to the nucleus.

Rb: A target of CCND1, allows cell cycle to proceed after phosphorylation, was less phosphorylated with PDTC treatment.

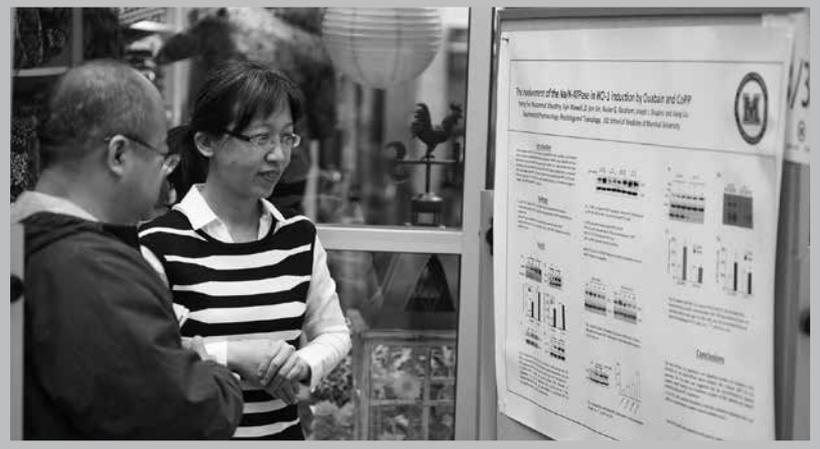
Apoptosis: markers unchanged.

Autophagy/Beclin: Increased with PDTC treatment.

Conclusion

PDTC leads to cells death in a dose response manner, treated cells had increased beclin, CCND1 that localized to nucleus, and decreased pRb. Decreased Rb phosphorylation indicates, that CCND1 is unable to perform its natural function, showing cell cycle dysregulation. Elevated beclin indicates that PDTC causes cells death via autophagy. We obtained identical cytotoxicity, CCND1, and autophagy data on MDA-MB436, (another TNBC cell line), demonstrating PDTC sensitivity a common denominator among TNBC.

PDTC's mechanism and cytotoxicity demand further evaluation as a therapeutic option for TNBC.



Design for Increased Orthopaedic Screw Pullout Strength

Nickolas A. Bacon¹, Alexander H. Slocum, Jr., PhD¹, Pier-Paolo Claudio, MD, PhD²,
3, James B. Day, MD, PhD¹

¹Department of Orthopaedic Surgery, Marshall University School of Medicine, Huntington, WV 25701, ²Department of Biochemistry and Microbiology, McKown Translational Genomics Research Institute, Marshall University, Huntington, WV 25701, ³Department of Surgery, Marshall University School of Medicine, Huntington, WV 25701

Background

Orthopedic surgeons often use plates and screws to repair fractured bones. Screws that allow rigid fixation and resist normal cyclic loading are preferred; an important factor related to the ability of the screw to meet these characteristics is its axial pullout strength. Intrinsic properties of cancellous and cortical bone such as porosity and strength, along with the screw geometry such as pitch diameter, thread size, and purchase length all affect the pullout strength of the anchor.

Hypothesis

Typically, screws are designed with a single thread. We have recently designed a screw with a secondary thread with the hypothesis that introducing a second, larger root diameter into the screw profile would improve pullout strength. The results of tests comparing this “double-threaded” screw with conventional single-threaded screws are presented.

Methods

An Admet eXpert 2610 material testing machine (Admet, Inc., Norwood, MA) was used to test the pullout strength of the modified screw when placed in synthetic cancellous bone. To compare the pullout strength of two types of screws, multiple tests were performed with each screw anchored in three different types of synthetic cancellous bone: 5, 8, and 10 pounds per cubic foot (pcf).

Results

We found that the double-threaded screw had average pullout strengths of 600, 840, and 1330 newtons (N) in the 5#, 8# and 10# pcf foams, respectively. The single-threaded screw had average pullout strengths of 480, 790, and 1040N in the 5#, 8#, and 10# pcf foams, respectively.

Conclusion

These results represent an average increase in pullout strength of 20% over conventional single-threaded screws. Additional tests are ongoing to study the pullout strength of the double-threaded screw under fatigue-type loading conditions.

Induction of HO-1 Increases Recruitment of Ferritin and Insulin Sensitivity in Obese mice

Alexandra nichols, Sarah Stevens, Morgan Getty and Komal Sodhi
Department of Surgery and Pharmacology

Background

In the United States, obesity is a large health problem that reduced life quality and expectancy. In obesity there are increased levels of reactive oxygen species, including increase in inflammatory cytokines, and altered iron homeostasis. Actually, little is known about these mechanisms. Heme oxygenase (HO-1) confers cytoprotection against oxidative stress and, through its activity of liberate iron from heme, upregulates ferritin, important protein for sequestering free iron.

Hypothesis

We examined the effect of the potent HO-1 inducer, cobalt protoporphyrin (CoPP), on the regulation of ferritin homeostasis and metabolic balance in the liver of obese mice.

Methods

8 weeks old male obese (ob) mice and their age- and sex-matched lean mice were used as controls. CoPP was administered intraperitoneally once a week (3 mg/kg) for 6 weeks to obese mice. CoPP plus stannous mesoporphyrin (SnMP), to inhibit HO activity, was administered intraperitoneally three times a week (20 mg/kg) for 6 weeks to ascertain that any effects of CoPP treatment were related to increased HO activity.

Results

HO-1 induction led to lowered body weight, blood glucose, liver function tests, serum levels of TNF- α and IL-6 ($p < 0.05$) and cellular iron overload. In particular, HO-1, via CoPP administration, increased ferritin that was accompanied by an increase of ferroportin, exporter of iron out of the cells, and decreased IREB1 and hepcidin ($p < 0.05$). Conversely, inhibitor of HO-1 activity reversed all these beneficial effects.

Conclusion

The decrease in oxidative stress, via HO-1 induction (CoPP), was associated with the decreased of cellular iron overload; so these findings may prove an effective strategy in treating the metabolic consequences of obesity including alteration of liver iron homeostasis.

Normoxic accumulation and activity of HIF-1 is associated with ascorbic acid transporter expression and localization in human melanoma

Adam P. Fischer and Sarah L. Miles

Department of Biochemistry and Microbiology, Joan C. Edwards School of Medicine, Huntington WV.

Background

One of the driving forces behind the progression of melanoma, and several other cancers including breast, lung, and brain, is the expression and stabilization of the hypoxia-inducible factor-1 (HIF-1) transcription factor. HIF-1 up-regulates genes involved in vascularization, glycolytic metabolism, invasion, proliferation, and resistance to apoptosis, which allow malignant cells to adapt to metabolic changes and hypoxic environments. HIF-1 is an alpha/beta heterodimer in which the alpha subunit is postrationally regulated by the oxygen dependent hydroxylase enzymes Prolyl-hydroxylase (PHD 1-3) and Factor Inhibiting HIF (FIH). PHD hydroxylation targets the alpha subunit for proteasomal degradation while FIH hydroxylation prevents transcriptional activity. In several cancer types, including melanoma, HIF-1alpha is aberrantly stabilized and active under normoxic conditions. PHD and FIH both require ascorbic acid (AA) as a cofactor for optimal function.

Hypothesis

It has been shown that tumor tissues are frequently AA deficient when compared to non-tumor tissue from the same patient, but the cause of this depletion is still uncertain. This may be due, in part, to impaired PHD and FIH function caused by intracellular AA deficiency. Our hypothesis is that the expression and subcellular localization of distinct membrane-bound AA transporters correlates with increased stabilization and accumulation of HIF-1 seen in human melanoma progression.

Methods

In these studies, we aim to demonstrate that lack of PHD and/or FIH function as a result of intracellular AA deficiency caused by either lack of cellular uptake or intracellular sequestration from the cytoplasm contributes to HIF-1 stability and the malignant potential of melanoma cells.

Results

Our current data demonstrates supplementing WM9 metastatic melanoma cells with ascorbic acid and derivatives restores PHD and FIH function resulting in decreased HIF-1 expression and activity.

Conclusion

This evidence suggests changes in PHD and FIH function, resulting from alterations in AA uptake and accumulation, may be contributing factors in normoxic HIF-1 expression and melanoma development.

Body Weight Regulation in a Novel Antioxidant Mouse

Deborah L. Amos¹, Laura Kutz¹, Noah S. Mitchell², Akhil M. Gudivada¹, Melissa B. Massie¹, Carla Cook¹, Dr. Nalini Santanam¹

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Background

Oxidative stress plays a key role in obesity and cardiometabolic diseases. It is implicated that oxygen-derived free radicals generated during mitochondrial electron transport chain alter the function of specific biological components, thus activating obesogenic pathways such as glucose and lipid signaling. Catalase is an antioxidant enzyme that helps to catabolize hydrogen peroxide generated by superoxide dismutation.

Hypothesis

We hypothesized that excess catalase expression will deter oxidative stress mediated obesogenic pathways.

Methods

We tested our hypothesis in studying obesogenic changes in Catalase transgenic (Cat tg) mice (n=4) that expressed 3-4 fold excess catalase as well as the Bob-Cat mice (n=4) which is a genetically engineered hybrid of Cat tg and the leptin resistant obese Ob-Ob mice. Body fat composition was measured using ECHO-MRI and metabolic changes were measured using CLAMS. Ob-Ob mice and C57Bl6 mice were used as controls for lean and obese phenotype.

Results

There was an increased leptin expression in the adipose tissue of Bob-Cat compared to Cat tg (>100 fold) mice, however there was a lowering of fat to lean ratio in both these mice phenotypes compared to the obese Ob-Ob mice. Since leptin regulates appetite genes, brain tissue from the hypothalamic region was subsequently analyzed for appetite regulating genes (POMC and Npy). Where Cat tg mice showed an induction in POMC (>2.5 fold) and lower NPY (<0.5 fold), the Bob-Cat mice showed a reduction in both these appetite genes.

Conclusion

It is evident through real-time PCR and ECHO-MRI data that the over expression of the catalase gene in the Bob-Cat mice has modulated the fat to lean mass ratio by decreasing the obesogenic fat mass. This suggests that excess antioxidant (Catalase) phenotype through regulating metabolic pathways might lower obesity. The effect of dietary manipulation (high fat and omega-3 fat) and exercise on these novel mice is currently being investigated.

Pulmonary Th17 fungal immunity is regulated by Regenerating islet-derived III-gamma and the gut microbiome

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1 Richard King Mellon Foundation Institute for Pediatric Research, Children's Hospital of Pittsburgh of UPMC, 2 Department of Genetics, Louisiana State University Health Sciences Center, 3 University of Toronto, Ontario, Canada, 4 Department of Civil and Environmental Engineering, University of Pittsburgh, 5 University of Pittsburgh Department of Computational and Systems Biology, 6 Yakult Central Institute for Microbiological Research, Tokyo, Japan, 7 Department of Pediatrics, Center for Immunity and Inflammation, New Jersey Medical School, 8 Lung Biology Center, University of California, San Francisco, 9 Department of Immunology, Genentech, 10 Department of Immunology, Howard Hughes Medical Institute, The University of Texas Southwestern Medical Center

Background

The regulation of CD4⁺ helper T cell subsets in lung tissue during infection is not completely defined. IL-17 producing Th17 cells are critical for vaccine-induced anti-fungal immunity, and recent studies demonstrated that commensal bacteria in the gut influence local T cell differentiation. For instance, segmented filamentous bacteria (SFB) is a pro-inflammatory commensal that induces the development of intestinal Th17 cells. Antimicrobial proteins secreted by intestinal Paneth cells shape the composition of intestinal microbiota. RegIII-gamma is induced by IL-22 in the gut and has bactericidal activity against Gram-positive bacteria.

Hypothesis

Interleukin-22 and RegIII-gamma regulate pulmonary anti-fungal T cell immunity by modulating intestinal Gram-positive bacteria species.

Methods

Mice were placed on vancomycin drinking water to deplete intestinal Gram-positive bacteria, then given a pulmonary infection with *Aspergillus fumigatus*. T cell responses were analyzed by flow cytometry and ELISA two days following infection. Microbiota were analyzed by PCR.

Results

Vancomycin drinking water decreased the number of Th17 cells in lung tissue following pulmonary infection. This was associated with decreased SFB colonization. Conversely, mice deficient in IL-22 or RegIII-gamma had increased levels of lung Th17 cells and SFB colonization. The phenotype of expanded Th17 cells in IL22^{-/-} mice was transferrable either by intestinal microbiota or serum. Pre-incubation of serum with an IL-1 receptor antagonist blunted the IL-17 response. Reconstituting IL22^{-/-} mice with RegIII-gamma protected them from weight-loss during *A. fumigatus* infection and reduced inflammatory cytokines in lung tissue.

Conclusion

Intestinal antimicrobial proteins influence the development of adaptive immunity by altering the composition of intestinal commensal species. Thus, by shaping the balance of commensal species in the gut, RegIII-gamma and IL-22 regulate lung inflammatory responses including Th17 cell priming.

Mutation of Pro222 of pig Na/K-ATPase α 1 subunit prevents ouabain-mediated regulation of Na/K-ATPase signaling and Sodium Transport

Yanling Yan, Zi-Jian Xie, Joseph I. Shapiro, and Jiang Liu
Pharmacology, MIIR

Background

We have shown that direct protein carbonylation of Pro222 in pig Na/K-ATPase α 1 subunit, stimulated by ouabain or glucose oxidase, regulates Na/K-ATPase signaling and $^{22}\text{Na}^+$ flux.

Hypothesis

Direct protein carbonylation of Pro222 might dictate the Na/K-ATPase signaling and sodium transport.

Methods

Mutation, western blot, etc.

Results

To test the role of Pro222 carbonylation, two stable α 1 mutant cell lines (Pro222Ala and Ala414Pro) were generated. Comparing to wild-type cells, mutation of Pro222 to Ala (Pro222Ala) prevents ouabain-induced protein carbonylation, activation of c-Src and ERK1/2, endocytosis of Na/K-ATPase α 1/ β 1 and NHE3, inhibition of Na/K-ATPase ion pumping activity and NHE3 activity, as well as inhibition of transcellular $^{22}\text{Na}^+$ flux. However, mutation of Ala414 to Pro (Ala414Pro, a “scramble” control mutation of Pro222Ala) shows similar ouabain effects as seen in wild-type cells, but has no effect on ouabain-induced Na/K-ATPase signaling and sodium transport as seen in Pro222Ala cells.

Conclusion

Direct carbonylation of Pro224 dictates the Na/K-ATPase signaling and ion transport.

Role of opioids in hemin-induced neurotoxicity

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Background

Intracerebral hemorrhagic (ICH) stroke is defined by the rupture of intracranial artery that leads to the formation of a hematoma. Neuronal damage is associated with the lysis of red blood cells, which releases hemoglobin. Hemoglobin and its breakdown product heme are neurotoxic. Increasing evidence suggests that drug abuse in the form of opioids can precede and contribute to the pathology of ICH brain injury. The role of opioids and their cognate receptors in hemin-induced neurotoxicity remains unclear.

Hypothesis

We hypothesize that morphine may exacerbate and naltrexone may protect against hemin-induced toxicity.

Methods

Using neuronal and glial cultures, we investigated hemin-induced toxicity and the role of mu-opioid receptors. SK-N-SH and A172 cells were used to model neurons and astrocytes respectively. Cell viability following hemin (10.0 – 100 μ M) treatment for 18h was measured using LDH, Calcein AM and MitoTracker Red assays. To measure the role of the mu-opioid receptor in these cell types against hemin toxicity, receptor selective agonist, morphine (1 – 100 μ M) and antagonist, naltrexone (1 – 100 μ M) were used.

Results

Currently, preliminary experiments are being performed with hemin alone (vs. vehicle control), pre- and co-treatment of neurons with morphine and naltrexone with hemin.

Conclusion

Opioid abuse has reached epidemic levels across the USA, however it is not clear how opioid abuse affects the cell types including the neurovascular of the brain. Opioid abuse may damage neurons and glial cells that may contribute to reduced neuroplasticity therefore later in life precede stroke. Understanding how exposure to neurotoxic substances during development leads to permanent plasticity problems is not only scientifically interesting but also of clinical relevance when prevention fails.

Sarcomatoid Carcinoma: An Obscure Cause for an Obscure Bleed

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Schools of Medicine

Background

Sarcomatoid carcinoma can occur at almost any anatomical location, but they usually have a predilection for the head, neck and chest. It is a biphasic tumor with both mesenchymal and epithelial origins. They are exceedingly rare in the GI tract and are known to be extremely aggressive, carrying a 5 year mortality rate of about 70%. We discuss a case about a patient who presented with an obscure gastrointestinal bleed that originated from a primary small bowel tumor.

Case Presentation

A 56 year old male with increasing fatigue, weakness, and dark tarry stools was found to newly diagnosed iron deficiency anemia. In the preceding 3 months, the patient had required more than 30 units of blood transfusions and repeat EGD and colonoscopies were unable to locate the source of the bleeding. A small intestinal source was suspected, but capsule endoscopy failed to substantiate the location of the bleeding. The patient was referred to our hospital where on initial presentation his h/h was 8.8/27, he then underwent a single balloon enteroscopy that revealed a large fungating, polypoid mass distal to the Ligament of Trietz with stigmata of bleeding. CT abdomen revealed a large 14 cm mass in the jejunum. The patient subsequently underwent surgery and the mass was excised. Pathological examination determined it to be sarcomatoid carcinoma. Staging CT scan revealed a small nodule in the right lobe of the lung and biopsy confirmed the diagnosis of sarcomatoid carcinoma originating most likely from the primary gastrointestinal tumor. The patients symptoms resolved once the mass was excised and he is now undergoing chemotherapy.

Discussion

Small bowel source of GI bleeds account for about 5%. These are usually due to AVM, ulcers, Crohn's disease and neoplasms. Our case describes an exceedingly rare and a fascinating cause of an obscure GI bleed from an aggressive tumor.

Fatigue, bruising, and weight loss in a teenage female with previously diagnosed thrombocytopenia.

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Background

The following case presentation represents the importance of considering potential underlying medical disorders in cases that appear to be a result of abuse or neglect.

Case Presentation

Patient is a 16 year old female who presented to the ED upon recommendation of her PCP for ten months of worsening fatigue and “abnormal laboratory values.” Historically, the patient described a previous diagnosis of “low blood numbers” first observed by laboratory evaluation nearly eight months prior. She visited a Hematologist, but she and her parents were displeased with inquiries about potential abuse rather than the patient’s health. Thus, she was lost to follow up with Hematology. Consequently, she began to have worsening fatigue, weight loss, gingival bleeding, and bruising with minimal physical contact. The patient had no significant family history but smoked daily, consumed alcohol weekly, and was sexually active without contraception. On physical examination, she was noted to have multiple bruises present on her arms and inner thighs without significant organomegaly. A CBC was significant for pancytopenia with dysplastic platelets. Peripheral smear indicated the presence of metamyelocytes with toxic change and rare pseudo Pelger-Huët nuclei in her neutrophils. HIV testing was negative. Patient was admitted, Hematology/Oncology consulted, and a bone marrow aspiration/biopsy were preformed showing no evidence of leukemia but was significant for dysplastic changes present in all three cells lines. FISH studies confirmed the diagnosis of myelodysplastic syndrome by the presence of monosomy 7. The patient was supported with blood product transfusions until she was ultimately referred to Nationwide Children’s Hospital for HLA typing and bone marrow transplantation as her potential curative therapy.

Discussion

Consideration of social etiology is important for creating a comprehensive differential diagnosis. However, one must clinically correlate all the history, physical examination findings, and diagnostic workup to ensure the most inclusive diagnosis is reached.

HYPERINSULINEMIC HYPOGLYCEMIA IN A PATIENT WITH CARCINOID TUMOR-CHALLENGES IN DIAGNOSIS AND MANAGEMENT

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Background

Inpatient hypoglycemia in non-diabetics is not a common occurrence (1).

Case Presentation

38-year old patient with no significant medical history was admitted with abdominal discomfort and SOB. During the admission, patient was referred to Endocrinology service for hypoglycemia. Patient had no other pertinent history. He was on Prevacid for GERD.

On examination, vitals were stable. Abdominal examination showed hepatomegaly. Abdominal CT scan showed metastatic lesions in the liver. Hypoglycemia was thought to be due to impaired gluconeogenesis from metastatic disease. Patient was started on dextrose fluids. He had recurrent hypoglycemia with reduction in the rate of the fluids.

Detailed work up with plasma glucose 46mg/ml showed proinsulin of 134.8pmol, insulin 16.5IU/ml and betahydroxybutyrate of 2.7mmol/dl. C-peptide was 10.5ng/ml. Findings were consistent with hyperinsulinemic hypoglycemia.

Pathological analysis of the liver biopsy was significant for carcinoid tumor.

Patient was started on diazoxide. IV fluids were weaned off within 24 hours after commencing diazoxide and patient was discharged home with it.

Discussion

Hyperinsulinemia from pancreatic tumor is the commonest cause of endogenous hypoglycemia. Hypoglycemia here is caused by excessive insulin secretion.

Hypoglycemia can be mediated by other mechanisms amongst them include insulin, Insulin-like growth factor, impaired secretion of glucagon and impaired gluconeogenesis (2). Although rare, endogenous hyperinsulinemia could also be secondary to ectopic secretion (3)

Patient had a liver biopsy that showed neuroendocrine tumor with staining consistent with carcinoid tumor. He was seen by the Oncology team. Carcinoid tumors affect a lot of body organs but commonly seen in the GI and respiratory systems (4). Hepatic metastasis of carcinoid tumor is common (5). These patients can present with diarrhea and flushing sometimes.

Conclusion: Hyperinsulinemic hypoglycemia in the presence of carcinoid tumor is a rare finding. Exact source of the hyperinsulinemia is difficult to determine. Diazoxide can be of benefit in the management of these patients.

Product Overview and Case Review Quick Clot Hemostatic Bandage in the Trauma Setting

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Background

Quick Clot Interventional Hemostatic Bandage is embedded with Kaolin, an aluminum silicate. Kaolin is biologically inert and serves as a potent activator of the coagulation cascade. When the Quick Clot Bandage is applied with manual pressure to an actively bleeding wound, the Kaolin within the bandage makes contact with blood and increases the rate that both Factor XII and Factor XIII are converted to their active forms. It also promotes the conversion of prekallikrein to its activated form, kallikrein. All three of these products go on to promote the formation of cross-linked fibrin clots through the intrinsic clotting cascade (see figure 1). Quick Clot Interventional Hemostatic Bandage also possesses the added advantage of fostering platelet adhesion at the wound site.

The inert nature of kaolin eliminates the possibility of allergies at the site of application. This allows the use of Quick Clot Interventional Hemostatic Bandage to be ubiquitous with out any contraindications.

Case Presentation

Four cases are reviewed in this case study. All four came from HealthNet Aeromedical Services. The cases include a 29 year old male involved in a physical altercation involving a large knife, a female that accidentally lacerated herself in the hand while opening a can of biscuits, a 24 year old male involved in a roll over ATV accident, and a 77 year old female who suffered head lacerations after falling down a flight of steps.

Discussion

In our continued collaboration with HealthNet Aeromedical Services, we will track their use of Quick Clot while in the field. Our goal will be to qualify measurable outcomes in patients with the use of Quick Clot for hemostasis.

Craniopharyngioma as a Cause of Limbic Encephalitis

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Background

Limbic encephalitis (LE) is an autoimmune disorder caused by autoantibodies directed toward specific neuroantigens which results in acute to sub-acute mood and behavioral changes, memory problems and seizures. Paraneoplastic causes of LE are common and have typically been associated with a limited number of tumors, the most common being small cell lung carcinoma, testicular germ-cell tumors, non-small cell lung carcinoma, breast carcinoma, lymphoma and thymoma. A thorough review of the literature reveals no previous documented cases of limbic encephalitis reported in association with craniopharyngioma.

Case Presentation

W.B. is a 58 year-old, white male who presented to the emergency department with confusion and disorientation accompanied with intermittent right arm and face twitching as well as visual changes. This prompted an MRI brain that identified a craniopharyngioma which was then resected. He initially recovered completely, however seven weeks after surgery his mental status worsened and he developed recurrent jerking. He was admitted and underwent an MRI brain, LP and full serum studies and a diagnosis of LE was made based on those results. He was treated with solumedrol and IVIG and was discharged home on prednisone taper and weaned over several months, recovering completely. PET scan performed six months later confirmed the absence of any other malignancy to explain his presentation. CSF was sent to Johns Hopkins who identified a novel CSF protein marker in W.B.'s sample that had been seen there in a previous patient with LE and craniopharyngioma.

Discussion

Limbic encephalitis is commonly recognized as a potentially treatable cause of encephalopathy in certain malignancies, but craniopharyngioma is not one of them. We present a case in which a novel CSF marker was found in our patient with craniopharyngioma and LE that was shared with a second patient from Johns Hopkins that may serve as a screening tool in the future.

Saving young man's leg with chemotherapy in rare case of bone lymphoma

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Internal medicine, oncology

Background

Primary lymphoma of bone (PLB) is a rare disease that accounts for less than two percent of all lymphomas in adults. It is estimated that PLB accounts for 3 to 7 percent of primary bone tumors and 3 to 5 percent of all extra nodal non-Hodgkin lymphoma.

Case Presentation

A 24 years old male, leukemia survivor, Since then he has been in good health till recently, when he started having severe left knee pain for several months, he underwent work up by imaging studies , ended having MRI of the left knee and left leg which revealed aggressive neoplasm of the proximal tibia with soft tissue extension, eventually he was seen by Orthopedic Oncologist, underwent for biopsy. On physical exam, healthy young male. Initial work up revealed normal, except elevated LDH. The pathology report of the biopsy consistent with lymphoma, as there was an extensive staining for CD20 throughout the biopsy including the large atypical cells.

Accordingly PET - CT scan was ordered for staging, showed remarkable activity, associated adenopathy in the popliteal region and left groin as well as left external iliac chain, otherwise no disease elsewhere. Upon diagnosis it was challenging how to treat this gentleman, was treated with EPOCH and Rituxan. PET scan done which was consistent with significant response to therapy.

Discussion

Malignant lymphoma of bone is an uncommon tumor, many aspects of PLB are controversial: the definition, treatment, response criteria, and prognostic factors. Lymphoma is known to be responsiveness TO chemotherapy and radiation and this concept is mostly applicable in extranodal lymphoma. Our patient is young male with aggressive lymphoma that on top of mortality risk can cause disability. Early diagnosis and appropriate therapy approach with systemic chemotherapy can both improve survival and quality of life through saving limb from destructive disease and amputation.

Primary Gallbladder Carcinoma in a Pregnant Patient with Crohn's Disease Complicated with Gallbladder Involvement.

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Background

Primary gallbladder (GB) carcinoma and Crohn's disease (CD) of the GB are individually rare.

We present a case of a pregnant woman with CD found to have GB involvement and primary GB carcinoma.

Case Presentation

A 34-year-old female at 6 wk gestation with a 21 year history of CD of uncertain extent presented with 3 mo of diarrhea, urgency and abdominal pain. During work-up, she was found to have elevated transaminases and an abnormal alkaline phosphatase. Imaging revealed two gallbladder polyps both greater than 1 cm in size. Resection and histological evaluation was consistent with Crohn's involvement of the GB, poorly differentiated adenocarcinoma of the GB with invasion through the muscularis propria and matted lymph nodes in the porta hepatis positive for metastatic carcinoma (stage pT2N1).

Discussion

Six cases of CD involving the GB, two cases of primary GB carcinoma in CD, and ten cases of cholangiocarcinoma in pregnancy have been published. This is the only case that describes all three factors. Common features in CD of the GB include acute cholecystitis, ileal involvement, and presence independent of active intestinal disease. Common features in CD patients with GB malignancy include younger age of detection, a long history of CD, extensive colonic and ileal involvement of disease, the absence of cholelithiasis, and pre-existing gallbladder disease (primary sclerosing cholangitis and gallbladder polyps). Pregnancy is specific to this case. The role of CD in the development of GB malignancy is not well understood nor is the contribution of pregnancy to the spread of disease. Chronic inflammation and immunosuppression compounded by hormonal influence is implicated.

Pregnancy induced Microangiopathy, HELLP or TTP !

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Background

TTP is a potentially life-threatening disease if it is not detected early. Typically patients present with microangiopathic hemolytic anemia, thrombocytopenia, Altered mental status, fever, and renal abnormalities.

Case Presentation

26 year old Caucasian female, G1P0 at 35 weeks gestation, presented for a routine peripartum visit. Patient was found to have elevated blood pressure of 140/90 and 13 lbs weight gain in the last two weeks. She reported increased swelling in her legs and face one week prior to presentation. Hgb: 7.2 g/dL Platelets: 16 , WBCs: 9.2 , Peripheral Blood Smear schistocytes, microspherocytes, toxic PMN AST: 31, ALT: 21, Gamma GT: 9 ,PT: 9.9, INR: 0.92, aPTT: 25.5, Fibrinogen: 493.5, urine studies showed moderate amount of intact RBCs. It was suspected that the patient had HELLP syndrome. The patient was admitted for labor after transfusion of 2 units of PRBCs and 2 units of Plt. Patient continued to have hemolytic anemia and thrombocytopenia after delivery. Further labs studies showed direct Coombs test to be negative, negative ANA, Anti-cardiolipin ,B2-Glycoprotein 1 Ab, HIV and viral hepatitis profile. TTP/HUS was suspected and plasma exchange therapy was initiated ,After 1-2 sessions, the patient had significant improvement in her total platelet count. Her platelet count normalized by the 4th session with a maximum value of 216. The patient's ADAMTS13 activity level returned <10%, prompting the diagnosis of TTP. Her ADAMTS13 antibody results were negative, giving a final diagnosis of inherited TTP (Upshaw-Schulman syndrome).

Discussion

Inherited TTP is a rare syndrome that clinicians should be aware of. The syndrome can be misdiagnosed in pregnancy due to the assumption of HELLP which is more common in this patients group and has the similar presentation and workup.

Atypical Growth of an Osteochondroma in a 31 year old female.

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Background

We report an incident of a solitary osteochondroma that presented and grew in a skeletally mature patient. Osteochondromas are the most common benign cartilage forming tumors of osseous origin, comprising 20-50 % of benign bone tumors and 10-15% of all bone tumors. Solitary lesions present in 85% of cases, with malignant transformation into chondrosarcoma reported at 1%. Osteochondromas tend to be lesions of the skeletally immature, with growth occurring as long as the skeletal physes/growth plates have remained open. These facts, along with the benign nature of the lesion, are unique in our case. Further, we intend to highlight the difficulty establishing a histopathological diagnosis in cartilaginous tumors.

Case Presentation

A twenty-five year old female was found to have a small, solitary, chondroid lesion in the posterior aspect of the distal femur after presenting to her physician with knee pain. This was diagnosed as an osteochondroma. The patient was neurovascularly intact at this time, despite the close proximity of the lesion to popliteal fossa structures. Six years later, the patient again presented with knee pain following a twisting injury. This time, radiographs revealed a larger mass in the same location. A complete orthopedic oncology referral followed.

Discussion

Osteochondromas are generally lesions of skeletally immature individuals that are incidentally found during periods of rapid skeletal growth. If they present as multiple tumors there is more likely to be a genetic predisposition, such as multiple hereditary exostoses (MHE), which carries a much greater risk for malignant transformation into chondrosarcoma. Certain radiographic signs are important for regarding malignant transformation and will be discussed in detail. Due to the difficult diagnosis, a combination of radiographic, clinical, and histological workup is vital to correctly diagnosing these lesions. We believe similar, enlarging lesions in patients between 17-30 that are initially diagnosed as benign should be secondarily evaluated.

Nutrition Education at Marshall University Joan C. Edwards School of Medicine: A Resource Challenged Institution

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Background

Nutrition education is an essential component of Medical Education if new physicians are to be equipped to address common chronic diseases, including obesity and the associated diabetes, cardiovascular disease and cancer. Most Medical Students recognize this need and desire additional nutritional education however finding time in a Medical School curriculum is challenging.

Case Presentation

A survey was designed to assess satisfaction with nutritional education and nutritional knowledge of medical students in all 4 years.

Discussion

Openly available on-line resources and small group exercises are a cost effective means of providing basic nutritional information to Medical Students.

Rapid Decline in PML despite favorable neuroimaging

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Background

Enhancement seen on brain MRIs in patients with progressive multifocal leukoencephalopathy have generally been shown to be a positive prognostic factor. We present a patient who was noted to have enhancement on her initial MRI in the absence of any immunomodulation therapy who progressively worsened over time.

Case Presentation

34 year old female presents with a 3 month history of falls, incoordination, 2 month history of intermittent headaches, some sensory abnormalities on the left side of the body.

On exam, she had right-sided homonymous hemianopsia, with decreased sensation to light touch and pain perception on the left side of her face and decreased motor strength and sensation in the left upper and lower extremities.

MRI of the brain showed edema of the right insular cortex and old bilateral parieto-occipital and left thalamic infarcts. CTA head showed edema and encephalomalacia involving the right occipital lobe, right thalamus, and insular region and mesial temporal region on the right. Blood test was positive for toxoplasmosis and over 100,000 copies/ml of HIV RNA. CD4 count was 44. CSF fluid analysis was positive for JC virus. Treatment was initiated with HAART and toxoplasmosis. patient's neutropenia did improve, but her overall health continued to deteriorate. She developed respiratory distress and was intubated and transferred to the ICU, where her clinical condition continued to deteriorate. Given the poor prognosis of the patient, the patient was made comfort care and the patient expired after a 2 month long hospital course.

Discussion

PML is a CNS demyelinating disease and Lesions are typically bilateral and generalized to periventricular and subcortical areas of the brain. In our case, the patient had an unfavorable outcome, despite having enhancement on the MRI images, which is generally considered a positive prognostic sign. Hence, such a scenario ought to be kept in mind while managing such patients.

LV non-compaction syndrome: A rare congenital cardiomyopathy

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Background

Isolated LV non compaction cardiomyopathy (LVNC) is a relatively rare congenital condition that results from arrest of the normal compaction process of the myocardium during the first trimester of fetal development, resulting in a thin layer of compacted epicardium and thick hypertrabeculated myocardium with deep recess. It can be familial or sporadic.

Case Presentation

A 44 y/o white female presented with 2 week h/o progressive SOB associated with orthopnea, PND, lower extremities edema, and pleuritic type chest pain. She denied h/o CAD, HTN, DM and HLP. Physical examination showed stable vitals, elevated JVD and edematous lower extremities. Auscultation of lungs revealed bilateral basal crackles. EKG showed left bundle branch block. During hospital stay, she developed atrial fibrillation with RVR. 2D-Echo showed dilated LV with EF 25% and severe diffuse hypokinesia. Cardiac MRI confirmed diagnosis of LV non compaction. She was initially treated conservatively with Tikosyn, diuretics, beta blocker, ACE-inhibitor, statin, Xarelto and life vest. Eventually, CRT-D implantation was performed to prevent sudden death and to reduce heart failure morbidity and mortality.

Discussion

The American Heart Association classifies LVNC as a primary genetic cardiomyopathy. It has been diagnosed in children and adults. The clinical presentations are variable ranging from asymptomatic patients to patients who develop heart failure, atrial and ventricular arrhythmias, thromboembolism, and sudden cardiac death. Echocardiogram is required for diagnosis, CMR, CT and ventriculogram may be used. There is no specific treatment for LVNC. Management involves treatment of HF, arrhythmias, and thromboembolic events. Heart transplantation is reserved for patients with end-stage HF and/or patients who failed medical treatment. In summary, LVNC is associated with high rates of mortality and morbidity, aggressive workup and management is required in patients with suspected LVNC due to poor prognosis.

The work-up of lytic bony lesions in endometrial carcinoma: a case report

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Background

Endometrial cancer is the most common gynecologic malignancy and the fourth most common malignancy in women. The usual presenting symptom is post-menopausal bleeding, and most cases are stage one or stage two at time of diagnosis. Osseous metastasis is a rare occurrence in endometrial cancer – cited in the literature to occur in less than 1% of cases. This is known to be a poor prognostic indicator.

Case Presentation

Herein we report a case of endometrial cancer with an isolated lytic bony lesion detected on plain radiograph as initial work-up for leg pain. Extensive work-up including bone and positron emission tomography (PET) scans determined the bone lesion was isolated, highly suggestive of metastatic malignancy and at risk of impending pathological fracture. A computed tomography (CT) guided biopsy was obtained and failed to identify any malignancy. Subsequently, an open biopsy with internal fixation was done with final pathology consistent with benign bone. Although there was great suspicion of osseous metastasis based on clinical and radiological evidence, this was not confirmed on final pathology.

Discussion

A team approach including a gynecological oncologist, orthopedic oncologist, radiation oncologist and interventional radiologist was necessary for a comprehensive management of this care. Diligent diagnostic testing prevented unwarranted additional therapy and all of its undesirable side effects. This also allowed for a better counseling of the patient regarding her prognosis. This report emphasizes the need for proper evaluation of isolated osseous lesions in patients with endometrial cancer, which has the potential to change the treatment approach, the short and long term follow up as well as the patient's quality of life.

Esophageal Hyperkeratosis and Multiple Esophageal Rings in a Patient with Recurrent Dysphagia

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Background

The purpose of this case presentation is to describe a patient with recurrent dysphagia who was found to have Esophageal Hyperkeratosis (EH), which remained stable over a period of 5 years.

Case Presentation

This is an 87 year old female presenting in 2009 with dysphagia without heartburn, smoking, ETOH use, asthma, skin lesions, or weight loss. An EGD revealed whitish plaques in the upper esophagus, multiple partial rings at the mid/lower third of the esophagus, non-obstructive Shatzki's ring, and small hiatal hernia. Biopsy of the whitish plaques revealed keratinized esophageal mucosa with rare intraepithelial eosinophils. In 2012 after similar complaints repeat EGD revealed persistent, stable white plaques of the upper esophagus and biopsies demonstrated normal esophageal mucosa without eosinophils or hyperkeratosis. Again in 2014 an EGD showed whitish plaques in the upper third of the esophagus, a Shatzki's ring at the GE junction, and gastritis. Biopsies revealed squamous mucosa with hyperkeratosis and hypergranulosis. A review of all endoscopic pictures and histology slides revealed stability of these white plaques over a 5 year period.

Discussion

EH is a rare entity that reflects complete keratinization of the esophageal epithelium. Patients typically have heartburn and dysphagia, and biopsy typically confirms the diagnosis. There are multiple references describing esophageal hyperkeratosis as a complication of GERD. It's important to differentiate whitish lesions as they may represent a spectrum of conditions from benign mycotic exudates, Human papilloma viral infection, dysplastic syndromes, and squamous cell carcinoma. Association with cutaneous syndromes like Tylosis, Darier's disease, Vitamin A/ E deficiency, and alkali ingestion have also been reported.

Paclitaxel-Induced Acute Interstitial Pneumonitis

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Background

Paclitaxel is a chemotherapeutic agent with activity against a broad range of cancers. Pulmonary toxicity is rare. There have only been a few reported cases of paclitaxel-induced pneumonitis. We describe an unusual case of primarily unilateral paclitaxel induced interstitial pneumonitis. This case illustrates the need to consider paclitaxel-induced interstitial pneumonitis in the differential diagnosis when patients treated with paclitaxel present with respiratory symptoms and radiologic abnormality.

Case Presentation

A 72-year-old male non-smoker was recently diagnosed with advanced gastric cancer. Chemotherapy was initiated with Paclitaxel given every three weeks. Patient developed progressive dyspnea. In ER, room air oxygen saturation was 83%. The patient had no other associated symptoms. Exam revealed fine crackles only in the left lung. Labs were unremarkable. Chest CT scan showed diffuse left lung ground glass opacities with minimal findings on the right. IV antibiotics were given and patient underwent bronchoscopy with bronchoalveolar lavage of the left upper lobe. However, patient refused transbronchial biopsy. There were predominantly neutrophils (92%) in the BAL but no evidence of alveolar hemorrhage and all cultures were negative. Based on exclusion of other etiologies, patient was felt to have Paclitaxel-induced pneumonitis. He was started on oral prednisone. The patient showed improvement with resolution of symptoms, Chest CT scan and hypoxemia at 3 months. His chemotherapy regimen was altered to exclude Paclitaxel.

Discussion

Interstitial pneumonitis appears to be a rare complication during treatment with paclitaxel. Several cases of patients developing paclitaxel-induced interstitial pneumonitis have been reported, with an estimated frequency of 1%, all with bilateral lung involvement. BAL and biopsy are helpful in excluding other etiologies. Corticosteroid should be administered during the early stages. Our case is unique in that it presented with primarily unilateral lung involvement. Although this complication rarely occurs, physicians should be alert to this unusual adverse effect of paclitaxel, in order to begin steroid treatment as soon as possible.

Use of memantine in Autism Spectrum Disorder: A Literature Review and Case Report

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Background

Autism spectrum disorder (ASD) refers to a group of phenotypically similar neurodevelopmental conditions of which autism is the best known. ASD is characterized by deficits in social relatedness, communication, and interfering repetitive behaviors. Associated symptoms include inattention, aggression, irritability, hyperactivity, anxiety, and self-injurious behaviors. Currently, FDA-approved treatments exist to treat secondary symptoms but not core symptomatology. The etiology of autism and other ASD is thought to be multifactorial but is not well understood. Some studies suggest that glutamate excitotoxicity may play a role in the pathogenesis of ASD. Memantine, an NMDA-receptor antagonist, could potentially address core symptoms in ASD by targeting disease-specific pathophysiology.

Case Presentation

Our patient is an 11 year old Caucasian male who began treatment with memantine following parental request after learning of a phase II clinical trial utilizing the drug for treatment in autism. Following one month of receiving memantine 5mg daily the patient reportedly began showing increased verbal communication at home. Despite the patient not exhibiting verbal communication on patient interview at the clinic, the guardians reported that the patient had begun using 30 plus newly learned words, and had learned to communicate via sign language. Continued improvement in communication was noted over the course of one year of treatment with memantine.

Discussion

Memantine is currently undergoing several phase II clinical trials for the purpose of treating core symptoms of ASD. Multiple articles suggest the potential benefit of memantine due to suspected glutamate excitotoxicity as a contributor to illness development and the related drug mechanism of action. Several case reports as well as open-label trials suggest increased receptive and expressive use of language in autistic children and adolescents with memantine treatment. Our patient appeared to obtain similar benefit through increased use of verbal communication skills. Our case appears unique in that he also began using sign language.

Transient Horner's Syndrome Following Epidural Anesthesia Placement

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Background

This case report describes a young woman who developed transient Horner's Syndrome after placement of her epidural.

Case Presentation

The patient is a 27 year old multigravida woman admitted in active labor who developed conjunctival injection, miosis, and ptosis of the left eye shortly after epidural anesthesia placement and a spontaneous vaginal delivery.

Discussion

The patient was evaluated by neurology once her symptoms were identified. These findings were consistent with Horner's Syndrome. The symptoms resolved spontaneously once the effects of the epidural anesthesia wore off. Signs of Horner's Syndrome include miosis, anhidrosis, and ptosis. Cases of transient Horner's syndrome after epidural anesthesia have been documented, but is an uncommon occurrence. These symptoms resolve with time once the effects of the epidural were off.

Neuropsychiatric Symptoms in Anti-NMDA Receptor Encephalitis: A Case Report and Review of the Literature

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Background

NMDA receptor (NMDA-R) encephalitis is an autoimmune or a paraneoplastic process presenting with neuropsychiatric symptoms but can lead to permanent neurological sequelae or death if not treated promptly. It is associated with antibodies toward the NR1 subunits of the NMDA-Rs in the CNS which are important for synaptic plasticity and memory processes. This condition was first described in 2005 in four females with significant psychiatric symptoms and antibodies for the hippocampal NMDA-R. Patients may present with hallucinations, delusions, and behavioral disturbance, as well as cognitive deficits, seizures, autonomic instability, and coma. The disease typically affects adults, with 66%-80% being female. Twenty to 50% of patients have underlying cancer, usually ovarian teratoma, although testicular germ cell tumors, Hodgkin's lymphoma, and small cell lung cancers have been reported. In males, however, underlying cancer is less commonly found. Patients can make a full recovery if treated quickly. Currently, treatment includes steroids, plasmapheresis and IVIG followed by immunosuppression if symptoms persist.

Case Presentation

A 32-year-old male presented with new-onset seizures and mental status changes for one week. During a three month admission, he became more agitated and aggressive with auditory and visual hallucinations, along with bizarre delusions. An initial EEG revealed diffuse slowing at onset followed by temporal localization. MRI showed temporal lobe enhancement leading to an initial diagnosis of HSV encephalitis. Steroids and acyclovir were started. However, HSV antibodies and lumbar puncture were negative. Further workup isolated anti-NMDA antibodies. The patient was given IVIG. Although the patient's mental status improved, psychiatric and neurologic sequelae have persisted.

Discussion

Although anti-NMDA is the most studied autoimmune encephalitis, there is still much to be learned about the presentation, pathophysiology, epidemiology, and effective treatment modalities. This case report adds to the knowledge of this uncommon but devastating neuropsychiatric disease.

A Case of Hypoglycemia in an Adult after Nissen Fundoplication

Carrie Casden, Omolola Olajide

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Background

Hypoglycemia is a serious condition with severe consequences. Dumping syndrome after Nissen Fundoplication can cause hypoglycemia. Dumping syndrome has been described in up to 30% of children after the procedure but few cases have been described in adults.

Case Presentation

The patient is a 78 year old female who presented for evaluation of hypoglycemia. She had no history of Diabetes. She was having spells of sweats, shaking and dizziness a few hours after eating and would resolve with orange juice. The symptoms started after she had a Nissen Fundoplication for gastroesophageal reflux disease.

She had documented post prandial capillary glucose levels in the 50-60 range with the lowest value in the 40's. She did not have fasting hypoglycemia at any point in time.

It was felt her symptoms were likely secondary to the Nissen Fundoplication causing dumping syndrome. She was encouraged to eat lower glycemic index foods and keep a food diary to get a better understanding of what foods make her blood sugar go low.

Her initial workup showed her A1C was 6.6%, insulin level was normal, 5.5 $\mu\text{IU/ml}$ (2.6-24.9) with a fasting venous glucose of 93 mg/dl. She reported a few hypoglycemic episodes on her follow-up visit but had not made the recommended changes to her diet.

Discussion

Dumping syndrome after Nissen Fundoplication is divided into 2 stages. The first is the early/osmotic stage which occurs around 45 minutes after intake and is due to accelerated gastric emptying of hyperosmolar contents and causes diarrhea. The second is the late/hypoglycemic stage and occurs 2-4 hours after eating. This is secondary to hyperinsulinemic response to the initial hyperglycemia. The glucose-dependent insulinotropic peptide (GIP) and glucagon-like peptide 1 (GLP-1) contribute to this phase. The treatment is a diet free from rapidly absorbed sugars and divided into several small meals.

A Rare Instance of Hospital Acquired Pneumonia Caused by Co-Infection with *Raoultella planticola*

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Background

Raoultella planticola, a gram-negative bacterium closely related to *Klebsiella* spp, is a rare cause of disease in humans. A literature search revealed only 19 other reported cases of *Raoultella planticola* causing disease in humans, and our case represents only the third known case report of *Raoultella planticola* pneumonia. Other reported cases have involved hospital-associated infections involving systemic organ dysfunction. This case, however, was the only reported case of a pneumonia co-infection with *Raoultella planticola*.

Case Presentation

We present a 43 year-old male with stage IV pancreatic cancer who was admitted to the hospital and found to have leukocytosis and a left lower lobe infiltrate on chest x-ray. Broad spectrum antibiotic therapy was initiated, but the patient's pneumonia worsened on radiographs, and spread to involve both lobes of the lungs. His sputum cultures grew *Raoultella planticola* as well as methicillin sensitive *Staphylococcus aureus* (MSSA). The patient responded to the antibiotic therapy, and a chest x-ray just over a week after admission showed near resolution of the lung infiltrates.

Discussion

Raoultella planticola is a gram-negative bacterium that is closely related to *Klebsiella* spp. There are very few cited reports of *Raoultella planticola* causing disease in humans, with many of the cases involving immunocompromised patients. Interestingly, this case is the only reported case of a *Raoultella planticola* co-infection causing pneumonia. Furthermore, the lung infiltrates in this case resolved in less than two weeks, as opposed to the normal 2-3 months it takes in most other cases of pneumonia. This case aims to increase physician awareness, especially when treating immunocompromised patients, of *Raoultella planticola* and the unique clinical manifestations associated with it.

Bladder "Geodes": A Rare Form of Cystolithiasis.

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Background

Urinary tract calculi may present in various configurations, based on their chemical compositions and anatomical locations in the kidneys, ureters, or bladder (e.g., staghorn, jackstone, etc.). One of the more exotic types of urinary stone morphology resembles the geodes which are found in nature. Geological formations of this stone variety develop over a period of millions of years. Their occurrence in the bladder is extremely rare and suggests that an accelerated mechanism must exist which allows for their growth in vivo.

Case Presentation

An elderly man presented to the urology clinic last year with prostatism, but remained symptomatic after being started on standard medical therapy with an alpha blocker and a 5-alpha reductase inhibitor. His urinalysis showed pH 5.5 and trace blood; urine culture was sterile. His PSA was normal. Subsequently, he was found on cystoscopy to have 2 large ovoid bladder stones in addition to prostatic enlargement. The calculi were broken up with Holmium laser energy and noted to be hollow, with crystals adherent to the stones' inner surface - this structure was identical to that of naturally-occurring geodes. The stones' lamellated outer layers were composed of uric acid, with crystalline ammonium urate salts inside their shells.

Discussion

The patient was started on allopurinol plus sodium bicarbonate, and his stones have not recurred to date. After treatment, he was symptomatically improved, and his post-void residual volumes have remained low. There was no foreign body in the bladder, such as a Foley catheter balloon, to explain the growth of such stones; hence, they must have developed in the same manner as their analogs in nature, albeit at a much faster rate. Other than a rat study demonstrating the formation of geode-like stones in the renal calyces, there are no reports in the world literature of this stone type occurring in a living organism.

A Rare Case of Fatal Paraneoplastic Pemphigus in a Patient with Newly Diagnosed Diffuse Large Cell Lymphoma (DLCL)

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Background

Paraneoplastic pemphigus (PNP), is a rare and often fatal mucocutaneous blistering disease associated with many malignant disorders, especially Non Hodgkin lymphomas. The presentation of PNP varies from painful mucositis, polymorphous cutaneous lesions, systemic manifestations and pulmonary complications. The association with diffuse large B cell lymphoma is rare, with only 3 previous case reports. We report a rare case of fatal PNP that was initially clinically thought to be toxic epidermal necrolysis.

Case Presentation

A 74 year old male was transferred to our burn ICU from an outside facility for suspected Steven's Johnson syndrome with desquamating rash. He originally presented to his physician 3 weeks earlier complaining of mouth pain and was treated with Nystatin for suspected Candidiasis. He subsequently developed a full-body rash consisting of numerous red, round macules covering his entire body. At the outside facility, the skin was biopsied but the result was lost. He also had an abdominal mass which was biopsied and found to be diffuse large B cell lymphoma. He was subsequently started on chemotherapy with one cycle of the R-CHOP regimen and was discharged home. While there, he had almost total desquamation of the skin and was transferred to our burn unit for suspected TEN. Dermatology performed a skin biopsy. However, the patient quickly deteriorated and developed septic shock with *Serratia pneumoniae*. IVIG infusions were given for suspected TEN. The patient passed away on hospital day 4, with the skin biopsy result showing paraneoplastic pemphigus.

Discussion

PNP is often fatal with high mortality rates approaching 90%. This is often due to sepsis with resultant multi-organ failure, evolution of malignancy or respiratory failure. The mainstay treatment for PNP is high dose corticosteroids. A better understanding of the presentation of this disease should improve the effectiveness and outcome of its management.

Detection of an Extragastric Dieulafoy's Lesion

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Background

The following case describes the detection of an extragastric Dieulafoy's lesion using an ERCP scope with side view optics. Dieulafoy's lesions occur most commonly in the stomach but may occur at any location of the gastrointestinal tract. Approximately 30% of Dieulafoy's lesions are undetected on endoscopy. Use of an ERCP scope may be helpful in detecting these bleeds.

Case Presentation

A 36 year old gentleman presented to the Emergency Department with a one-day history of bloody stools and associated abdominal cramping. His hemoglobin was noted to be 6.0 g/dL and a rapid blood transfusion was indicated. The patient required a total of six units of blood. On physical exam, patient complained of no peritoneal signs. He had good bowel sounds and no ascites. The remainder of the exam was normal.

It was suspected that the patient had a bleed in the upper gastrointestinal (GI) tract, and he was scheduled for an upper endoscopy. The patient has a history of previous GI bleed & Hepatitis C. He has no other outstanding medical issues.

Discussion

During endoscopy, the bleeding lesion was difficult to visualize with the gastroscope. It was decided to use an ERCP scope with side view optics to better visualize bleeding source. This showed an actively bleeding "spurting" dieulafoy's proximal to Ampulla of Vater this was initially injected with Epinephrine, followed by coaptive coagulation, followed by endoclip placement with successful control of bleeding. No further bleeding was encountered and patient was discharged. One month follow up patient remained bleeding free.

In summary, Dieulafoys lesions should be included in the DDx for obscure GI bleeds. Endoscopic management is the treatment of choice. Combination treatment of mechanical clipping & either thermal or injection management has been linked to decreased likelihood of re-bleeding.

Pain after motor vehicle accident is not always due to trauma

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Background

We report a patient who complained of pain that started after a motor vehicle accident. This case is interesting because physicians who saw the patient assumed that her pain was secondary to trauma when it was due to metastatic carcinoma.

Case Presentation

A 74 yo female patient with a PMH of a renal cell carcinoma (RCC) with partial nephrectomy, presented to her primary care physician with band-like abdominal pain and back spasms after a MVA with a negative CT Abdomen done in the ER. Physical exam revealed a non-tender spine, clear lungs, and normal neurologic exam. Spine films were negative and the patient was sent for physical therapy. She presented again to the ER for worsening abdominal and back pain and had negative CT ABD with oral contrast and negative spine film.

She followed up with her primary care doctor with persistently severe back pain associated with paresthesias and weakness in her legs. MRI T-spine showed enhancement of the T7 vertebral body suggestive of new metastases with spinal cord compression. CT guided biopsy confirmed the diagnosis of metastatic RCC, clear cell type. Her pain improved with dexamethasone and radiation therapy.

Discussion

The incidence of RCC recurrence beyond 5 years was 4% in a large review. Our patient had a partial nephrectomy because she donated her other kidney years ago. Although studies have shown no benefit of radical nephrectomy over partial if the tumor size is < 4 CM, our patient had a 7.3 cm tumor and if she still had her other kidney might have benefited from total nephrectomy.

Physicians felt our patient's pain was secondary to trauma as it occurred simultaneously, however the pain did not improve with time, a finding that should prompt re-evaluation of the diagnosis.

Recurrent Parathyroid Crisis from Primary hyperparathyroidism.

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Background

Parathyroid Crisis is a rare and serious complication of primary hyperparathyroidism in which patients develop severe hypercalcemia with signs and symptoms of multiple organ dysfunction. Medical optimization is an important initial step providing an effective bridge to surgical treatment.

Case Presentation

45 y/o Caucasian female presented to ER for evaluation of fatigue, polyuria, polydipsia and mental status changes. She denied headache, dizziness or focal neurological signs. Her Past medical history was notable for hypothyroidism on levothyroxine replacement, Type 2 Diabetes controlled on Glipizide and Metformin, Hypertension, CVA with residual left sided weakness and Multiple Sclerosis. She denied prior problems with calcium, kidney stones or fractures. She was disoriented and had residual left sided weakness from prior CVA on exam. Upon evaluation was noted to have calcium 17.1mg/dl, low normal magnesium and phosphorus with normal kidney function. Vitamin D is 27.4ng/ml with an intact PTH 657pg/ml and TSH 70mu/l. Neck ultrasound was noted to have a hypochoic mass 3.5x3.1x4.5 cm posterior to left thyroid lobe, without thyroid abnormalities or lymphadenopathy. Sestamibi scan revealed increased uptake in left parathyroid lobe. Her calcium has normalized with IV hydration and calcitonin and was discharged home. She re-presented in 3 weeks with calcium level 17.4mg/dl. Her calcium levels have responded to IV hydration, calcitonin and cinacalcet; however use of cinacalcet was limited after her discharge as she could not afford the medicine. Surgery was delayed for few days on account of uncontrolled hypothyroidism. Final pathology revealed 4.4 cm parathyroid adenoma measuring 15 gm. Her postoperative course is complicated by mild hypocalcaemia and left lower extremity DVT.

Discussion

Calcium is usually slightly elevated in primary hyperparathyroidism, and extreme elevations with 5-10 fold elevations in PTH, suggestive of parathyroid crisis is an unusual presentation. Emergent parathyroidectomy is the recommended management. Cinacalcet can be used in patients with persistent primary hyperparathyroidism after parathyroidectomy or with contraindications to parathyroidectomy.

SEVERE HYPOMAGNESEMIA AND BREAKTHROUGH SEIZURE WITH PROTON PUMP INHIBITORS USE

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Background

Case Presentation

A 72 year old female presented to the ED with three witnessed seizures. She had a medical history of Parkinson's disease, seizure disorder, dyslipidemia, COPD, GERD, ulcerative colitis, hypotension, and fibromyalgia. Initially her calcium (Ca⁺⁺) was found to be 5.8 (corrected 7.0), ionized Ca⁺⁺ 0.78mmol/L and Potassium of 3.5mEq/L. Magnesium (Mg) levels were undetectable (less than 0.2mEq/L). Records showed she was on esomeprazole for about six months. Two months prior, her Ca⁺⁺ level was 8.4 and at that time esomeprazole was changed from 20 mg to 40 mg daily. She was also on Mg oxide 800mg twice a day, cholecalciferol 2000units a day and multivitamins. Vitamin D metabolites, thyroid function tests, creatine kinase and phosphorus levels were normal. Intact Parathyroid hormone (PTH) of 52pg/ml, abnormally normal. She was on keppra and lamotrigine, levels of both were therapeutic. EKG exhibited tachycardia and prolonged QT interval. She was obtunded with eyelids twitching and tetanic contractures of upper extremities. PPI was stopped; magnesium and calcium were replaced IV and then orally when levels normalized, within 48 hours. Her spasms resolved and her magnesium levels remained steady throughout the rest of her hospitalization without any more seizure.

Discussion

Conclusion:

Magnesium, one of the most common intracellular cation, is essential for the maintenance of electrolytes and PTH release. Estimates show that half the population of the US is believed to be deficient in their daily dietary consumption of magnesium. Approximately one third of the consumed magnesium is absorbed in the bowel. The gastric acidity is believed to keep magnesium salts suspended and allows for better absorption. With PPIs the acidity is decreased and thus absorption. Magnesium citrate might be a better option for replacement because of better bioavailability. This patient experienced severe hypomagnesemia within 6 months of PPI use which usually happens with longer use.

I can't walk!!: Acute Paraplegia Secondary

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Background

Spinal cord ischemia is rare and acutely debilitating, especially in patients with prior neurological and musculoskeletal disorders. As in this clinical vignette, a prior history of ankylosing spondylitis can increase risk of cord infarction.

Case Presentation

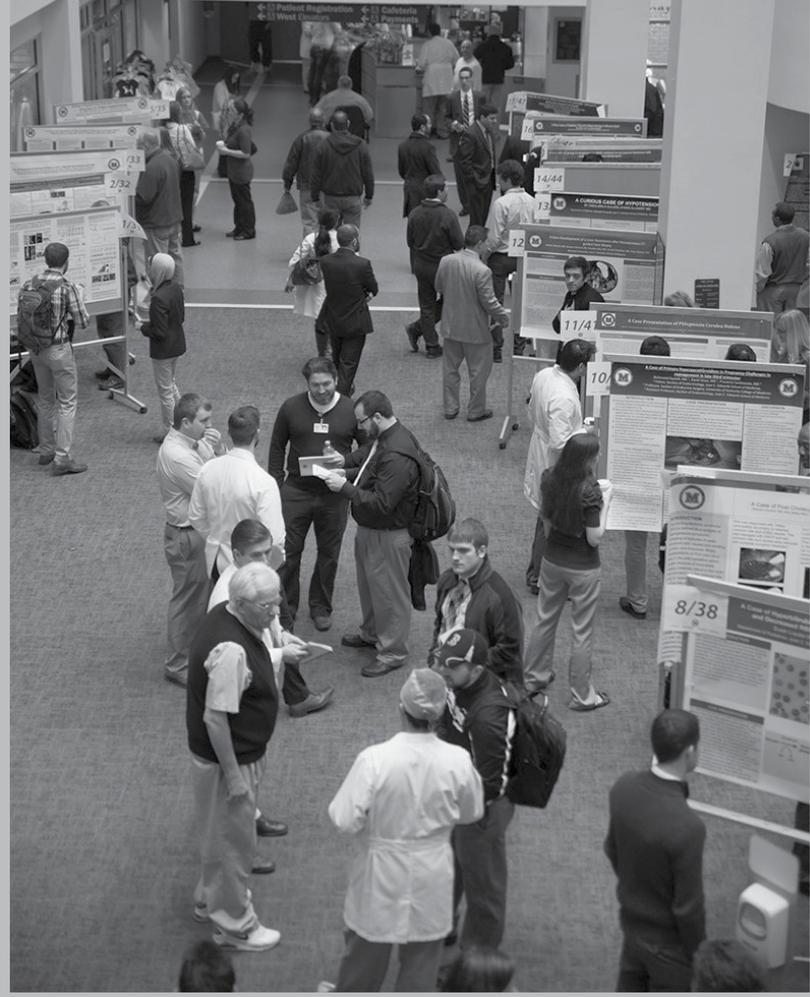
A 51-year-old patient with a thirty-year history of ankylosing spondylitis presented to the clinic with bilateral leg paresthesias that started suddenly on his right thigh and progressed to involve both legs, feet, and lower back. Within 24 hours, the patient's symptoms evolved, leading to gait instability and near paraplegia. He presented to the clinic and was noted to be paraplegic and in distress. The patient denied history of rash, tick bite, or trauma. He did complain of inguinal and perianal paresthesias, but denied symptoms of urinary or fecal incontinence or obstruction. Exam was unremarkable with the exception of neurologic findings. Motor and sensory function was intact in his upper extremities bilaterally. In the lower extremities, sensation was diminished and strength was 0/5 bilaterally. The lower extremities were hyperreflexic, with preserved rectal and cremasteric reflexes. On admission to the hospital, lumbar and thoracic MRI showed areas of acquired neural foramina narrowing and ischemia around T9-T10. The patient was treated supportively and was referred to physical therapy. Residual symptoms quickly resolved, and he began ambulating again with the aid of a walker. Currently, the patient lives an active lifestyle and has had no recurrence of paraplegia.

Discussion

This case demonstrates how a patient with a history of ankylosing spondylitis can present with spinal cord ischemia and acute paraplegia. Early diagnosis with physical exam findings and MRI imaging made it possible to observe for the sequelae of spinal cord infarction, which are usually irreversible. We recommend practitioners utilize MRI for diagnosis of acute paraplegia, as it is helpful for diagnosis and for ruling out other causes of paraplegia.

RESEARCH DAY

**Cabell Huntington Hospital**





POSTER PRESENTATIONS • SESSION II • 2:30 PM – 3:15 PM

27TH ANNUAL RESEARCH DAY POSTER SESSION

A Case of Bilateral Triple Negative Invasive Breast Cancer with BRCA-2 Mutation and Glioblastoma Multiforme.

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Background

Breast cancer is the most common cancer and second leading cause of death among women. Glioblastoma Multiforme (GBM) is the most common and lethal primary brain tumor. We present the case of a woman previously diagnosed with triple negative ductal carcinoma of the breast (TNBC) and a carrier of familial BRCA2 mutation who subsequently developed a second primary TNBC and GBM after ten years.

Case Presentation

48YO F with strong family history of breast cancer, diagnosed with left TNBC stage (T1N0M0) twelve years ago. The patient underwent lumpectomy followed by four cycles of AC regimen and radiation therapy. She was found to have a BRCA2 mutation. Ten years later, patient developed TNBC-stage (T1N0M0) of right breast. Bilateral mastectomy was performed. Few months later, patient had recurrence in right chest wall/axillary region. It was resected and patient received four cycles of TC regimen. Within a month, she developed aphasia with headaches. MRI showed a ring-enhancing mass in the left temporal-occipital region. Brain lesion was resected followed by chemoradiation and Temozolomide. Pathology showed GBM. Follow up scan showed no evidence of disease.

Discussion

Genetic mutations in most cases of breast cancer are sporadic rather than inherited. The majority of hereditary breast cancers are associated with deleterious mutations in BRCA1/BRCA2. There are few case reports describing the observation of GBM in patients previously diagnosed with breast cancer, however, no association between BRCA2 mutation with GBM has been reported. We present a patient with BRCA2 mutation who developed bilateral TNBC 10 years apart and subsequently developed GBM. This incidence of BRCA2 mutation, TNBC and GBM in our patient makes this case unique as this combination has not been previously described. Whether, in our patient, a definite association exists between these two solid malignancies in the setting of BRCA2 genetic mutation or is explained by mere chance, remains unclear. In view of the poor clinical outcome and aggressive behavior of TNBC/GBM, further investigation is required to better understand the possible relationship between malignancies and BRCA2 pathway which probably play a critical role in management.

An Unusual Pulmonary Complication of Statins: A Case Report.

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Background

The new 2013 ACC/AHA guidelines on the treatment of blood cholesterol increase the eligibility for patients to take statin medications. This case points out a patient whose worsening pulmonary complication improved after statin medication cessation. After performing a literature review, other cases were found that demonstrated pulmonary complications felt to be due to statins. This case is unique in that there were no significant radiographic or laboratory findings. Since pulmonary complications are not listed as a common potential side effect in the package insert, it is important to note that this rare side effect has been reported in the literature.

Case Presentation

An 82-year-old Caucasian female with a history of hypertension, hyperlipidemia and CAD presented with worsening dyspnea and generalized weakness without cough, fever, chest pain, or sputum production. She had been very active and was dancing up until these symptoms occurred. Physical examination revealed normal blood pressure, moderate respiratory distress and generalized weakness, now using a wheelchair for mobility. She underwent a thorough cardiac and pulmonary evaluation that demonstrated no significant findings.

Two months after presentation, due to persistent unexplained symptoms, the patient had a heart catheterization with stent placement to the proximal LAD with initial improvement, but symptoms quickly returned and a repeat heart catheterization showed a patent stent. The patient discontinued use of statins at the advice of a friend and noted a dramatic improvement in her dyspnea and generalized weakness. Within days, the patient regained mobility and was once again able to walk without assistance. Eight months after discontinuation she is still having some mild dyspnea and although she is 90% better, she is not back to her baseline.

Discussion

Physicians should be aware of unexplained dyspnea and weakness being a potential statin side effect and after thorough evaluation of other causes, offer a statin drug holiday.

EXTRA-ADRENAL MYELOLIPOMA

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Background

Myelolipomas are rare, benign and biochemically inactive tumors, which are most commonly found in association with the adrenal glands. However extra-adrenal sites have been reported, most of these lesions are discovered incidentally. The typical extra adrenal myelolipoma is a solitary, well-defined mass within the abdomen. We present a rare case of an 87-year-old male who was referred for evaluation of retroperitoneal mass that was found on CT scan, which has been done for history of hematuria. We review the imaging characteristic and management options for this condition.

Case Presentation

A eighty-seven year old Caucasian male who was referred for evaluation of retroperitoneal mass that was found on CT scan that was done for the evaluation of hematuria, the only significant medical problem he had was history of a remote prostatic cancer, which was treated with surgery. The pathology report revealed, retroperitoneal mass, CT scan biopsy showed fragments of fibro adipose tissue with marrow elements demonstrating trilineage hematopoiesis. The biopsy consists of adipose tissue, fibrous tissue and cellular marrow with trilineage hematopoiesis but is negative for trabecular bone; a histological finding may represent Myelolipoma.

Discussion

Extra-adrenal myelolipomas particularly those arising as retroperitoneal masses, are rare. The differential diagnosis of retroperitoneal masses should include myelolipoma, although these lesions are rare. Extra-adrenal gland myelolipoma should be considered clinically, radiologically and pathologically in differential diagnosis of adrenal gland lesions. These lesions are universally benign and therefore can be treated conservatively. Fine needle biopsy is helpful in confirming the diagnosis in uncertain cases so that an asymptomatic patient will avoid unnecessary surgery

Blunt trauma: uncommon cause of common bile duct injury

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Background

Blunt force trauma is a rare cause of extrahepatic biliary tract disruption, infrequently reported in the literature. Common bile duct (CBD) injuries are frequently missed during the initial evaluation of trauma patients. This can lead to significant morbidity and mortality.

Case Presentation

Here, we present a 46 year old male involved in a motor vehicle accident with injury to the distal common bile duct in addition to other injuries with accompanying suggestive imaging findings and our management strategy. In addition we will discuss different mechanisms, diagnostic modalities and different management options for this type of injury.

Discussion

The purpose of this case is to discuss the significance of timely diagnosis of traumatic blunt force trauma to the CBD and a thorough literature review for diagnosis and management of this injury.

Conversion Disorder in an Appalachian Community: A Prevalence and Case Control Study

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Background

Conversion disorder (CD) has long been a debated diagnosis in both the psychiatric and general medical literature; requisite diagnostic criteria have evolved in sequential versions of the Diagnostic and Statistical Manual of Mental Disorders (DSM). CD is thought to be the manifestation of physical and/or neurological symptoms for primary gain without an identifiable organic cause. Historically, CD has been described as being more common in women, in those with a lower educational level and socioeconomic profile, and in rural communities. Prevalence of reported CD on psychiatric consultation services varies widely (5-25%) depending on the population. For example high rates are reported in military hospitalized populations. However, there is little evidence in the literature supporting that CD is in fact more common in rural areas. To our knowledge, there is no known prevalence or other study of CD in the Appalachian population.

Case Presentation

In this case control study, we examined the prevalence of CD in a rural Appalachian community hospital-based psychiatric consultation service in Huntington WV. In addition, we examined 21 patients diagnosed with CD (cases) and compared them to 42 control subjects, who were randomly selected from the same consultation service during the same time period. The prevalence of CD in our consultation service was 6.6% within a 13 month period.

Discussion

The prevalence is compared to other described consultative and clinical populations and discussed. Demographic, clinical, and associated factors of CD were examined and compared between the cases and controls. By examining these data, a better understanding of the prevalence and associated correlates of CD in a rural Appalachian population can be determined. In addition, this study adds to the literature regarding the associated factors of CD. Given the relatively low prevalence of CD in our study, our results do not support that CD is more common in rural areas.

Subacute Milk Alkali Syndrome due to Consumption of Milk, Antacids, NSAIDs and Midol: A Case Report

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Background

Milk alkali syndrome (MAS) was a common cause of hypercalcemia a few decades ago related to the use of calcium-based antacids and milk for the treatment of peptic ulcer disease. MAS decreased in incidence in the 1980's with the introduction of proton pump inhibitors. Unfortunately, MAS is increasing in incidence due to over-the-counter calcium-based antacids and the usage of calcium carbonate for treatment of osteoporosis and chronic renal disease. MAS can present with nausea, vomiting, mental status changes, and weakness; however, the most common presentation is now an incidental finding on laboratory results. Because MAS is on the rise and is usually asymptomatic, the clinician must have a low threshold for diagnosing this disease.

Case Presentation

A 66 year old male presented to the emergency department with an incidental finding of hypercalcemia (>14 mg/dL) after a regular appointment with his primary care physician. The combination of milk, antacids, NSAIDs, vitamin supplements, and Midol resulted in hypercalcemia and volume depletion leading to subacute milk alkali syndrome with acute kidney injury.

Discussion

MAS arises from overconsumption of calcium resulting in hypercalcemia, metabolic alkalosis, acute renal failure and suppressed intact parathyroid hormone. Hypercalcemia causes vasoconstriction which decreases the GFR and decreases activation of calcium-sensing receptors in the ascending tubule aiding in sodium excretion. Volume depletion arises because of calcium-induced diuresis. This causes bicarbonate absorption by the renal tubules. Consequently, the combination of alkali intake and renal absorption, decreased GFR, and volume depletion, metabolic alkalosis will develop. In this patient, the volume depletion and concurrent hypercalcemia was worsened by Midol and NSAIDs. Midol contains a methylxanthine diuretic known as pamabrom. NSAIDs decrease GFR via constriction of the afferent arteriole. This added to his acute kidney injury. Risk factors for MAS for this patient included age, 32oz of daily milk consumption, antacids, NSAIDs, vitamin supplements and Midol.

DELAYED HEMOTHORAX AFTER REMOVAL OF PLEURAL CATHETER

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Background

50 -60% of ICU patients have pleural effusion, however, it is not clear how much role does that have in the etiology of weaning failure. Use of small-bore pleural catheter is less invasive way of draining effusions. Hemothorax is the presence of blood in the pleural space. This is usually a consequence of blunt or penetrating trauma. Much less commonly, it may be a complication of disease, iatrogenically induced following thoracentesis, transthoracic biopsy, chest tube placement or spontaneously. Coagulopathy is likely to contribute to such occurrences

Case Presentation

We present a 77 year old lady with h/o COPD, CAD on Plavix. She was admitted with acute respiratory failure due to pulmonary edema requiring intubation and ventilatory support. Bilateral effusions persisted despite diuresis and resolution of edema hindering weaning and extubation. Bedside US guided bilateral pigtail pleural catheter placement resulted in complete drainage of serous effusion over 48 hours and subsequent liberation from Mechanical Ventilation. Pleural catheters were removed and patient was moved out of ICU to telemetry bed. 48 hours later, she developed respiratory distress with new large left effusion developing and drop in Hb by 3 gms requiring reintubation. Following stabilization, left thoracotomy was performed for suspected Hemothorax with removal of 2L of clotted blood

Discussion

The widespread availability of bedside Ultrasound has not only facilitated earlier detection of pleural effusion, but also safer sampling and drainage. In the majority of patients, pleural drainage leads to improvement in lung function as literature showed. The effects on respiratory mechanics are less clear. Limited data on clinical outcome from pleural drainage exist; however, it appears to be safe with a low risk of major complications. Pigtail catheter is safe and effective method of draining pleural effusion. Though Hemothorax has been a recognized complication of various diagnostic and therapeutic chest procedures, however, not commonly as a delayed event of following removal of pleural catheter. Patients with coagulopathy from different causes might be at a higher risk for such risk than normally anticipated

Adenocarcinoma of the Lung with metastasis to male breast

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Background

Lung cancer is the leading cause of cancer-related mortality globally. despite advances in diagnosis and care, the 5 year survival of lung cancer remains at 16%.

Case Presentation

We present a case of lung cancer with unusual presentation. 58 y/o male with history of COPD, stroke 3 years ago with right sided residual weakness, ex-smoker- 80 pack year, quit seven years ago presented with 4 months history of a lump in the left breast associated with localized tenderness. No nipple discharge. Mammogram and Ultrasound breast showed a mass in the superior aspect left breast measuring 1.8 cm at 12 o'clock position strongly suspicious for carcinoma. Core biopsy performed showed Invasive ductal carcinoma, grade 3 (tubules - 2, nuclei - 3, mitoses – 3 ER/PR negative, Her2neu Negative (1+). Further immunohistochemistry evaluation and revision confirmed adenocarcinoma with glandular formation with mammoglobin, GCDFP and ITF-1 positivity and strong nuclear positivity consistent with lung adenocarcinoma

PET/CT showed hypermetabolic lesion in the left breast with hypermetabolic hilar lymphadenopathy as well as a small peripheral pulmonary nodule in the left lower lobe and a small left adrenal nodule suspicious for malignancy. EBUS with transbronchial Lymph node sampling showed malignant cells of similar features.

Discussion

Lung cancer metastasis to the mammary gland is uncommon especially if it occurs in males. Metastasis to the mammary gland should be considered when mammary gland mass does not show typical characteristics of breast cancer. Correct diagnosis helps proper management and delivery of appropriate care.

A patient with Mixed Connective Tissue Disease (MCTD) and Interstitial Lung Disease (ILD) with Features of Both Non Specific/Lymphocytic Interstitial Pneumonia NSIP/LIP

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Background

Lymphocytic Interstitial Pneumonia (LIP) is a rare form of Interstitial lung disease (ILD) that is characterized histopathologically by infiltration of the interstitium and alveolar spaces of the lung by lymphoreticular elements.

It occurs in association with autoimmune diseases, immunodeficiency , or as in this case with connective tissue disease. We are presenting a case of Non Specific Interstitial Pneumonia (NSIP)/ LIP in association with Mixed Connective Tissue Disease (MCTD).

Case Presentation

A 45 years old female, nonsmoker, presented to outpatient pulmonary clinic with history of chronic worsening dyspnea and dry cough for 12 months . 8 years ago , she was diagnosed with MCTD with Raynaud's phenomena. She denies any other symptoms . She had no significant occupational or environmental exposure. Chest x ray show chronic fibrotic changes bilaterally, Echo was normal, PFTs revealed severe restrictive pattern with decreased diffusion capacity. HRCT thorax shows ground glass opacities predominant in the lower lobes.The following labs were normal: CPK ,ACE, C3 and C4 level, Anti-SCL 70 , Anti SSA, Anti SSB, ANA , HIV and Hepatitis serology .Rheumatoid factor 1: 220 and Anti CCP > 250. VATS biopsy showed reactive lymphoidproliferation with microscopic honeycomb cystic remodeling and scattered germinal centers, histologic features suggestive of NSIP/LIP pattern.

Discussion

Pathologic finding in both NSIP which is more common occurrence in CTD as well as LIP features.

The natural history and prognosis of LIP are poorly understood, Progression of LIP to pulmonary lymphoma has been reported.

LIP pathogenesis unknown, it occurs with autoimmune disease , CTD , HIV infection or idiopathic.The treatment of adults with LIP differs depending on the severity of the patient's symptoms, the degree of functional impairment, and the presence or absence of associated

diseases. Definitive guideline treatment is not established, though prolonged course of steroid, cytotoxic drug might be needed.

Idiopathic Carotidynia: An Atypical Cause of Neck Pain

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Background

The clinical concept and classification of acute idiopathic carotidynia (AIC) is currently considered controversial, but as imaging techniques improve and clinicians begin to recognize this uncommon cause of neck pain and utilize these diagnostic tools the diagnosis is being made more regularly and with more certainty. Several recent publications have shown distinct structural abnormalities and characteristic radiological findings of focal eccentric carotid wall thickening, presumably related to an inflammatory reaction in the carotid adventitia.

Case Presentation

A.B. is a 28 year-old Caucasian female with a past medical history significant for migraines who developed anterior cervical neck pain, tenderness and fullness. She was originally seen by her primary care doctor and tried on three separate antibiotics without any response. This prompted an ER visit where a CT neck confirmed an eccentric hypodensity around the right common carotid artery at the bifurcation, extending around the proximal internal carotid artery. The apparent edematous changes were noted at the level of her pain and a diagnosis of AIC was made based on clinical presentation and CT findings. She was treated with a 7 day prednisone taper and her symptoms resolved.

Discussion

Neck pain is a common complaint seen in many urgent care settings and while AIC is a rare cause of this complaint, if the symptoms are localized in a region around the carotid bifurcation and are refractory to treatment with antibiotics then further imaging to confirm this unusual diagnosis could be appropriate, especially in the setting of previous migraine headaches which are thought to be correlated with increased risk of development of AIC. While AIC is typically a monophasic disease, there are some rare instances in which it can recur on the ipsilateral or contralateral side so confirming the diagnosis initially may aid in diagnosis and prompt treatment with any recurrent presentations.

Case Report: Infected Total Knee with Normal Labs at Presentation

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Background

A patient status-post right total knee arthroplasty who presented to the emergency department complaining of a painful, warm, swollen right knee. Labs were normal at presentation. The patient was initially diagnosed with a hemarthrosis and subsequently found to have a periprosthetic joint infection.

Case Presentation

A 64-year-old male 4 years status-post right total knee arthroplasty who presented to the emergency department complaining of a painful, warm, swollen right knee. The patient's medical history was significant for atrial flutter and cardiac arrhythmias that were treated with long-term Coumadin therapy. At the time of presentation blood work, ultrasound, and xrays were all normal. Three days later the patient was re-evaluated and repeat lab work revealed an elevation in inflammatory markers with subsequent knee aspiration being indicative of infection. The patient underwent irrigation and debridement with modular polyethylene exchange and given a plan for 6 months of home IV antibiotics following discharge.

Discussion

The incidence of prosthetic joint infection following total knee arthroplasty ranges from 1-2% with the occurrence of hemarthrosis following total knee arthroplasty ranging from .3-1.6%. Patients in whom both the ESR and CRP are within normal limits have an infection rate of 3-4%. Given the patients chronic anticoagulation therapy and normal lab work he was initially diagnosed with a hemarthrosis but subsequently found to have a periprosthetic joint infection. This case illustrates the importance of close short-term follow-up and maintaining a clinical suspicion for infection in patients having total knee arthroplasty and diagnosed with a hemarthrosis, despite normal blood panel values at initial evaluation.

Three rare cases of pulmonary toxicity as a life threatening complication from commonly used Chemotherapy agent.

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Pulmonary / Oncology

Background

Docetaxel is an anticancer agent belongs to Taxane family. It can be used as monotherapy or combined therapy. Common side effects include hematological and neurological toxicities. A rare side effect is hypersensitivity, like Interstitial Pneumonitis. Here we present three cases of pneumonitis related side effect.

Case Presentation

A 37 y/o female with Ewing Sarcoma with lung metastasis who is being treated with Doxorubicin and Gemcitabine, she presented to ER with progressive dyspnea, initial work up revealed hypoxia bilateral ground glass changes on CT scan, infection and thromboembolism were ruled out. IV steroid made dramatic clinical improvement, discharged on home oxygen and tapered steroid; follow up CT shows resolution. Subsequently chemotherapy regimen was changed.

A 60 y/o female with early stage breast cancer underwent therapeutic mastectomy and adjuvant chemo of Docetaxel and cyclophosphamide, after the third cycle, she was hospitalized with extensional dyspnea, fever and leukocytosis. CT chest showed a new patchy ground glass opacities throughout both lungs, infectious causes were ruled out, bronchoscopy with bronchial lavage and Trans bronchial biopsies was performed. Started on high dose steroid clinical and radiological improvement achieved.

A 74 y/o male with metastatic prostate cancer who treated with single agent Docetaxel, after third cycle, he developed fever, severe hypoxic respiratory failure which required mechanical ventilation, CT chest showed diffuse patchy opacities, no underlying cause was revealed, started therapy with high dose steroid subsequently oxygenation improved, weaned off mechanical ventilation. However because of long course of cancer, he chose hospice care.

Discussion

As described in the above cases that interstitial pneumonitis as a Docetaxel related toxicity can be seen in different type of cancers. Diagnosis mostly based on exclusion of other etiologies and the response to corticosteroid therapy, however the definitive diagnostic test is lung biopsy which is not always feasible option in cancer patient.

Case Report Investigating Psychiatric and Psychologic Characteristics of Ohdo Syndrome

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Background

Ohdo Syndrome, Say- Barber- Biesecker-Young- Simpson (SBBYS) variant, is a rare genetic condition with occurrence of less than one case per million. In fact, less than 30 cases are reported in the literature. Genetically, it is caused by an abnormality of the KAT6B gene on chromosome 10, which is thought to be involved in early development of the nervous and skeletal systems. Clinically, it is characterized by dysmorphic facies with specific features including; blepharophimosis, ptosis, cleft palate, and abnormalities of the lacrimal glands. Given its rarity, little psychiatric or psychologic description of children with Ohdo syndrome exists. Intellectual disability which, when present, is severe has been noted through case reports.

Case Presentation

In this report, a three year old male child with Ohdo Syndrome, Say-Barber-Biesecker-Young-Simpson (SBBYS) variant, is described with a focus on behavioral issues, psychiatric and psychologic assessment including assessment for Autism Spectrum Disorder (ASD).

Discussion

Psychological testing focusing on assessment of possible ASD included testing with the Autism Diagnostic Observation Schedule Module-1, which indicated an appropriate diagnosis of ASD due to impairments in the core criteria necessary for diagnosis. Furthermore, the Gilliam Autism Rating Scale- 3 classified the patient into the “very likely” category in terms of an ASD diagnoses based on these core criteria. The Vineland Adaptive Behavior Scale- II questionnaire was completed by the patient’s mother and showed a consistent pattern of delay across all core areas. Baily Scales of Infant Development, which aimed to measured current cognitive development, obtained questionable validity due to difficulties in patient engagement. Clinical exam revealed multiple stereotypies, restricted interest, and a limited ability to initiate socialization. The child was found to meet criteria for ASD. Further details and findings of this patient will be discussed.

Graves' Ophthalmopathy in Hashimoto's Thyroiditis.

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Background

Graves' Ophthalmopathy, also called as Thyroid associated ophthalmopathy is an autoimmune disorder of the extraocular muscles and surrounding orbital tissue and fat and is generally associated with Graves' disease, but rarely accompanies to euthyroid or hypothyroid chronic autoimmune thyroiditis.

Case Presentation

66 y/o Caucasian female initially presented to walk in clinic for evaluation of diplopia, which is worse on upward gaze. She denied headache, dizziness, focal numbness or weakness. She was evaluated for vasculitis which was negative. She subsequently had an MRI which was notable for bilateral proptosis, left greater than right with increased fullness of inferior rectus muscle and increased intraconal fat bilaterally, suggestive of Graves' ophthalmopathy. She was then referred to endocrinology for evaluation of ophthalmopathy. She has history of hypothyroidism and has been on levothyroxine replacement for about twenty five years. She denies any history of hyperthyroidism. She never had history of head and neck radiation. Her family history was significant for Graves' disease in her maternal aunt. She had no history of goiter. She denied any compressive symptoms. She was clinically and biochemically euthyroid on levothyroxine replacement. She had high titres of thyroid antibodies including thyroid peroxidase, thyroglobulin and thyrotropin receptor antibodies. She was then referred to ophthalmologist and has been placed on high doses of corticosteroids. She eventually had significant improvement in her symptoms.

Discussion

Thyroid associated Ophthalmopathy can sometimes occur in Hashimoto's thyroiditis, and awareness of this atypical form is important, as glucocorticoid treatment results in significant improvement of this disorder.

Esophageal Diagnosis of a malignant aspergilloma

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Pulmonary

Background

Introduction

Aspergillomas occur in pre-existing pulmonary cavities caused by tuberculosis or sarcoidosis or other processes. There are a small number of case reports of aspergillomas in association with lung malignancy. We describe an interesting case of lung cancer arising from the cavity wall in a patient with a pre-existing aspergilloma diagnosed via the esophageal approach.

Case Presentation

Case Report

A 59 year old male patient developed a new 4 x 6 cm cavitary LUL lesion over a 2 month period. The patient had a prior history of a surgically resected Stage IA non-small cell lung cancer in the right upper lobe 3 years prior. He was treated for infection with radiographic improvement on subsequent imaging. Further imaging after 3 months revealed an oval soft tissue density within the cavity with air crescent sign. Bronchoscopy with transbronchial biopsies showed acute and chronic granulomatous inflammation. *Aspergillus fumigatus* was noted on culture and Voriconazole was initiated. Subsequent Imaging showed initial improvement and then stability of cavity size. However, eleven months later, the medial wall of the cavity showed increased thickness. Bronchoscopy showed no endobronchial lesions. Esophageal ultrasound guided fine needle aspiration using the endobronchial curvilinear ultrasound Bronchoscope (EUS-B) was performed for sampling of the cavity wall that was abutting the mediastinum. The aspirate showed squamous cell lung cancer, therapy was started after appropriate staging.

Discussion

Conclusion

When aspergillomas are associated with lung cancer, the lung cancer typically precedes the development of the aspergilloma. Our case is quite unusual in that the lung carcinoma developed in the wall of a pre-existing cavity with aspergilloma. We believe the cancer to have developed in the cavity due to the chronic inflammation related to the infection. In addition, Diagnosis was made utilizing EUS-B instead of routine methods. We advocate the use of the curvilinear ultrasound Bronchoscope by pulmonologists in the esophagus.

Focal motor deficit, a rare complication of herpes zoster

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Background

We report a case of zoster complicated by motor weakness to remind clinicians of this rare complication.

Case Presentation

An 86-year-old Caucasian female presented with complaints of left leg weakness and falling for two weeks. She had shingles over her left leg four weeks prior to presentation and was treated with valacyclovir. The patient had worsening of the pain in her left leg and hip since the fall. She denied loss of consciousness, weakness in any other part of the body, diplopia, dysarthria, seizures, or incontinence. Over her left lower leg and thigh were hyperpigmented macules in a dermatomal pattern. She had hypesthesia over the anterior thigh. Strength was 3/5 in the left leg with absent patellar and ankle deep tendon reflexes and decreased muscle tone. Sensation to pinprick was intact. X-ray of the lumbar spine, sacroiliac joint and left hip showed degenerative changes. She could not undergo an MRI due to having a pacemaker so she had a CT spine that revealed a posterior disc protrusion from L5-S1. As the patient desired conservative treatment she was given a trial of steroids and has had improvement in her strength with physical therapy.

Discussion

Motor weakness is a rare complication of zoster seen in less than 3 percent of cases. The virus spreads distally and proximally resulting in neuritis and secondary demyelination. An MRI is recommended to help exclude degenerative disorders such as spinal stenosis or malignancy. Weakness usually occurs within 2-3 weeks of onset of rash, but can precede the skin eruption or occur long after the rash. Clinicians should be aware of this rare complication of a common disease.

Acute Acalculous Cholecystitis: A Surprise Complication during Epstein-Barr Virus Infection

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Background

Acute acalculous cholecystitis (AAC) is a widely reported complication of surgery, traumas, and burns in adults. Infectious disease causes most cases in children. Diagnosis is based on clinical presentation, the absence of gallstones, and two or more of: gallbladder wall thickening >3mm, gallbladder distension, localized tenderness, and pericholecystic fluid.

Case Presentation

An 18-year-old previously healthy female was transferred to CHH due to peritonsillar abscess and airway compromise. She had a five day history of sore throat, fever, and fatigue progressing to “neck tightness” and dyspnea. Upon arrival, she was tachycardic but otherwise stable. Physical exam was significant for pharyngeal erythema, 3+ tonsils bilaterally, and tender cervical lymphadenopathy. Initial workup demonstrated a mild leukocytosis, elevated CRP, mild thrombocytopenia and anemia; bilirubin and liver enzymes were within normal limits. A neck CT scan showed tonsillar enlargement with a probable left-sided abscess. IV Clindamycin and Decadron were begun.

Epstein-Barr virus (EBV) serology confirmed acute infection. Initial symptoms improved, but then right-sided abdominal tenderness developed. Abdominal ultrasound revealed positive Murphy’s sign, gallbladder wall thickening (9mm) and pericholecystic fluid, without gallstones. Repeat labwork was significant only for AST of 48 U/L (normal 10-40 U/L). With no other identifiable cause, the patient was diagnosed with AAC secondary to EBV infectious mononucleosis (IM). Antibiotics were changed to levofloxacin and metronidazole, with which she was discharged home on hospital day 7 following marked clinical improvement.

Discussion

AAC is a rare complication of EBV infection, with only 14 reported cases—none in the United States. Direct viral invasion of the gallbladder and bile stasis are postulated as possible mechanisms. Our findings support that AAC may emerge during acute EBV infection and can be successfully managed non-operatively, unlike AAC due to other causes. Interestingly in our case, the patient never experienced marked elevation in liver transaminases or bilirubin, in contrast to all previous reports.

Black Esophagus in a 51 year old male

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Background

Acute esophageal necrosis, or “black esophagus” is a rare occurrence seen in less than 1% of the population. The pathogenesis is not completely understood, however ischemia is likely to be a confounding factor, reducing esophageal perfusion causing necrosis. When transient decrease in perfusion occurs in the distal 1/3 of the esophagus, necrosis ensues due to its relative hypovascular mucosa. EGD will demonstrate sharp transition in the necrotic esophagus at the gastro esophageal junction.

Case Presentation

A 51 year old male presents to an outlying facility with complaints of hematemesis for 5 days duration. He was hemodynamically stable with hemoglobin of 7.0. The patient was given 2 units of packed red blood cells and transferred to a facility with higher level of care and specialists in gastroenterology. An EGD was performed which showed “black/necrosed” esophagus involving the lower 2/3 of the esophagus with sharp transition to normal mucosa at the GEJ. The distal 1/3 is black without any perforation and portal gastropathy. Cardiothoracic surgery was consulted and advised medical management due to CT scan without evidence of mediastinitis. Repeat EGD with biopsy 5 days later showed regenerative changes with severe confluent esophagitis in the lower 2/3 of the esophagus. Acute and chronic inflammatory changes with debris from inflammation, representing ulceration were noted on biopsy of esophageal mucosa. He was discharged on PPI for 6 months and soft diet with instructions for anti-reflux measures and counseled on avoidance of alcohol.

Discussion

Black esophagus is an idiopathic process seen in less than 1% of the population. Although rarely encountered, prognosis for acute esophageal necrosis carries a high mortality of 25%-30%, making early recognition and treatment key in patient outcomes.

IS IT GOUT, CELLULITIS OR CHARCOT NEUROPATHIC OSTEOARTHROPATHY?

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Background

Charcot Neuropathic Osteoarthropathy (CNO) is a relatively painless, progressive, and degenerative arthropathy of a single or multiple joints caused by underlying neurologic deficits. It can sometimes present acutely and this can be a diagnostic challenge. We present a case of Acute CNO of the foot diagnosed after lack of response to treatment for cellulitis and Gout.

Case Presentation

A 61 year old woman with Type 2 Diabetes mellitus presented to our clinic with a two week history of left foot swelling associated with erythema of her left great toe. She denied any history of pain, trauma and had a past medical history of Gout, Diabetic Neuropathy, hypertension and stage 3 chronic kidney disease. Given her past history of gout and the possibility of associated cellulitis she was placed on Colchicine and antibiotics, however her symptoms did not improve.

On physical Examination, her left foot was diffusely edematous with erythema and blisters around the base of the great toe. Peripheral pulses were normal and neurologic examination using a 10g monofilament revealed loss of neuroprotective sensation bilaterally. Skin was intact with no signs of infection. Rest of her examination was unremarkable.

Magnetic resonance Imaging of her left foot showed severe destructive changes at the Lisfranc joint consistent with Charcot changes. She was referred to Podiatry for treatment of Charcot foot.

Discussion

Diabetes is the leading cause of CNO and presents a diagnostic and therapeutic challenge. CNO usually presents with swelling, warmth and erythema that can be difficult to distinguish from infection and other causes of arthropathy like gout as seen in our patient. This can result in injudicious use of antibiotics and delayed treatment. A high index of suspicion is key to early diagnosis in a diabetic with peripheral neuropathy who presents with new-onset swelling, erythema, and increased warmth of the foot and ankle.

Hypomagnesaemia with an iatrogenic component

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Background

Hypomagnesaemia is a common electrolyte abnormality. It's easily detected and corrected, but this simplicity makes hypomagnesaemia easy to overlook in the differential diagnosis.

Case Presentation

63-year-old male presented to the ED with a 4-day history of weakness, muscle twitching in his hands, and calf cramps. PMH included Crohn's disease, anorectal fistula, and ileal/ ileocecal valve resection. Secondary to this, he had bile salt-induced chronic diarrhea, and gastrointestinal losses resulted in hypomagnesaemia. Coupled with low vitaminD levels secondary to chronic kidney disease, this also resulted in hypocalcaemia. Among the patient's medications were twice-daily Prilosec and 800mg magnesium-oxide tablets TID, but patient was taking all tablets at once. Magnesium level was found to be 0.2(normal is 1.5-3).

Patient's magnesium was replaced, Prilosec was discontinued, magnesium-oxide changed to 400mg TID. Patient was educated on the proper way to take his medications. By discharge, calcium and magnesium levels had normalized.

Discussion

Given his PMH, patient had multiple reasons for chronic hypomagnesaemia. Had his risk been recognized earlier, further iatrogenic hypomagnesaemia could have been prevented. He was given a dose of magnesium-oxide that was too high for his stomach to tolerate, and he was not educated properly on how to take his medications. This case should serve to raise our awareness of hypomagnesaemia: signs, symptoms, and causes. Hypomagnesaemia could lead to fatal outcomes. The patient could have had a tragic outcome, as he could have had cardiac arrhythmias that may have led to his death. Most physicians don't pay attention to or even know the iatrogenic causes of hypomagnesaemia. Long-term ppi use is a commonly missed cause of hypomagnesaemia. More investigation is needed on hypomagnesaemia and ppi use, as there are not enough studies to know if other conditions can exacerbate the decrease in magnesium levels. This case should also serve as a sign that further education and investigation is needed.

Acute Respiratory Distress Syndrome after Treatment of Metastatic Prostate Cancer with Taxotere: A case report and literature review

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Background

We report a case of ARDS in a patient with metastatic prostate cancer treated with docetaxel(Taxotere). Docetaxel has emerged as important and widely prescribed chemotherapeutic agent exhibiting broad range of antitumor activity. Taxotere has many adverse reactions but ARDS is not included in the package insert.

Case Presentation

74 YO M diagnosed with metastatic prostate cancer.He was started on concurrent hormonal therapy with Docetaxel.The dose of docetaxel was reduced due to neuropathy.After cycle3, he presented to the ER with fever,fatigue and generalized weakness.CXR showed bilaterial lower lobe atelectasis vs infiltrate.Labs showed pancytopenia.Treatment was initiated with empiric antibiotic.CT chest consistent with pulmonary edema.Echo showed preserved EF.No source of infection was found.No improvement with diuresis.He required intubation for persistent hypoxemia.PaO₂/FIO₂ ratio was less than 200.These findings were suggestive of ARDS.The patient was started on high dose steroid and continued on supportive management.The patient was eventually extubated and started on CPAP.The patient did not want further aggressive management and requested palliative care.

Discussion

The common patterns of taxane related lung toxicity varies from diffuse interstitial pneumonitis to relatively rare capillary leakage that could be life threatening.AARDS has been reported with docetaxel however in both cases docetaxel was given in combination with gemcitabine, an agent that has also been reported to cause ARDS in the past.It was not clear in those case reports if ARDS was associated with a single agent or was the consequence of a synergy between the two drugs.Above we have described a case of a patient on docetaxel who experienced ARDS without any other discernible causes.Infection had been effectively ruled out and there was no evidence of trauma or heart failure.Our patient received docetaxel as sole chemotherapeutic.Bringing awareness of cases such as these may help haste the diagnosis of other patients presenting with similar signs and symptoms,therefore aiding in a quicker recovery.

Ludwig's Angina Misdiagnosed as Metastatic Carcinoma

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Background

Ludwig angina, although uncommon, is a very serious and potentially fatal condition caused by cellulitis of the floor or the mouth which can be complicated by airway compromise and asphyxiation. Diagnosis and treatment must be done in a timely manner in order to prevent the serious complications of this condition.

Case Presentation

We report a 50 year-old male transferred to our facility from another hospital with fever, abdominal pain, weakness, vomiting and hyponatremia. At the time of transfer, he was noted to have stridor and obtundation, requiring emergent and difficult intubation due to airway compromise from a neck mass. Past history was significant for outpatient head, neck and chest CT scans done 3 days prior to his current admission showing both a neck mass and multiple lung lesions suggestive of metastatic disease.

In the ICU, the patient was continued on mechanical ventilation, cultured and started on broad spectrum antibiotics. Repeat CT scans showed multiple ill-defined lung masses and a left soft tissue density starting at the level of the tongue base and extending to the hyoid bone. There was asymmetric enlargement of submandibular salivary gland and significant narrowing of the oropharyngeal airway. Blood cultures showed MRSA. Infectious etiology was suspected. Surgery consultation revealed a diagnosis of Ludwig's angina with septic pulmonary emboli. Surgical drainage of the abscess was performed and the patient received prolonged antibiotic therapy. The patient recovered fully from his acute illness.

Discussion

Physicians should be aware of the Ludwig's angina as a diagnosis as it can lead to very serious complications and may mimic other diseases. Early recognition of the clinical scenario will allow effective treatment including lifesaving airway protection techniques, parenteral antibiotics and formal surgical drainage of the infection. Ludwig angina may be fatal if not diagnosed in a timely manner and properly managed.

That looks "Sweet" Syndrome: A rare inflammatory skin disorder.

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Background

Sudden onset of large blisters on the hands have a rather wide range of differential diagnoses. They can range from the common contact dermatitis to the severe Stevens - Johnson syndrome. We present an uncommon cause of blistering on the fingers, the not so aptly named Sweet syndrome.

Case Presentation

A 65 y/o white male presented with a 3 days of painful red purple bullae on the 1st, 2nd fingers, thumb and hypothenar eminence of both hands. The lesions started initially as a redness but progressed and were now bleeding. Patient also complained of having a low grade fever as the bullae got worse. About 10 days previously the patient had completed a course of Azithromycin and Tessalon pearls for a URTI. On examination the patient was febrile, skin examination revealed 1.5-2 cm purple bullae on 1st, 2nd fingers and thumb of both hands. Few bullae had already derroofed and had a sero-sanguinous discharge. Lab results were normal except for leukocytosis and a chronic hyponatremia. Dermatology was consulted and a skin biopsy was performed with a suspected diagnosis of Sweet Syndrome. Patient was started on IV steroids and then transitioned to a slow steroid taper after showing good response to treatment. Biopsy confirmed pustular vasculitis as a variant of Sweet Syndrome. The patient did well and is following up with Dermatology

Discussion

Sweet syndrome is an uncommon inflammatory disorder, characterized by the sudden onset of fever, an elevated white blood cell count, and tender, red, well-demarcated papules and plaques that show dense infiltrates by neutrophil granulocytes on histologic examination. Sweet Syndrome is considered a cutaneous marker of a systemic condition including malignancy, streptococcal infections, autoimmune conditions, pregnancy and some drugs. It can often precede the development of malignancy by 6 months and these patients should be closely monitored for the same.

Primary Care Fall Risk Assessment for Elderly West Virginians

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Background

West Virginia is ranked second nationally for the percent of its population being at least 65 years of age or older. The elderly are especially susceptible to falls with fall risk increasing as age increases. Because falls are the number one cause of injury-related morbidity and mortality in the West Virginia elderly, evaluation of fall risk is a critical component of the patient evaluation in the primary care setting. We therefore highlight fall risk assessments that require no specialized equipment or training and can easily be completed at an established office visit. High quality clinical practice guidelines supported by the American Geriatric Society recommend yearly fall risk evaluation in the elderly. Those seniors at greatest risk of falls will benefit from the standardized therapy protocols outlined and referral to a balance treatment center. Patients with low-to-moderate fall risk attributed to muscle weakness or fatigue should be prescribed lower extremity strengthening exercises, such as kitchen counter exercises, to improve strength and balance.

Hypothesis

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Methods

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Results

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Conclusion

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Pleural Fluid Albumin, a surprisingly low sensitivity to detect Exudates

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Background

Light's criteria are still the standard of care to differentiate exudative from transudative effusions. Serum-pleural fluid albumin gradient can improve specificity of these criteria and help identify the transudates mislabeled as exudates.

Hypothesis

We report our experience with the use of this test and urge institutions to set their own guidelines for diagnosis.

Methods

We retrospectively reviewed cases of pleural effusion over the past two years in our institution. Satisfaction of any one of the three Light's criteria was enough for identification of an exudate. The serum-pleural albumin gradient of or > 1.2 or a serum-pleural protein gradient of or > 3 was considered consistent with transudate.

Results

A total of 102 patients were identified. Only 55 patients had data for complete assessment. There was a wide discrepancy between different criteria used. Based on clinical suspicion, 65% of cases were exudates. Light's criteria identified 83% of cases as exudates. The serum-pleural gradient of albumin (SPAG) identified only 18% of effusions as exudates while the serum pleural protein gradient identified 58% of effusions as exudate.

Conclusion

There seems to be a big discordance between the various methods utilized to classify an exudate in our population. It seems that the SPAG has a very low sensitivity for exudates. Potential causes for the discordance include laboratory errors in processing of samples, the characteristics of the study population or the concomitant presence of a transudative process. We do not recommend abandoning the use of SPAG. There are potential differences in laboratory processes and institutions need to verify any evidence before using it on different populations. Light's criteria remain the best available method to detect exudates in our institution.

Smoking Cessation - a Quality Improvement Project

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Background

Smoking has been shown to have a number of harmful effects on the cardiopulmonary system. In patients already diagnosed with pulmonary disease, it is particularly important that smoking cessation occurs.

Hypothesis

As part of the basic evaluation, all patients should be questioned regarding their smoking history. Active smokers should have counseling regarding the risks and advised of the need to quit smoking. They should also be evaluated as to readiness to quit and offered aides to smoking cessation.

Methods

All Fellows and Faculty in the Pulmonary clinic reviewed charts to determine if the patients had been asked about tobacco use, staged for motivation to quit, advised of risks and offered cessation aides. A faculty member then gave an educational session to review staging of patients, risks, and various cessation techniques. After the educational activity, all fellows and faculty again reviewed charts for changes in tobacco cessation counseling.

Results

All physicians very frequently assessed patients for tobacco use and advised quitting but improved after the educational session. However, passive smoking is not always assessed. Practitioners assessed stage of motivation for quitting the majority of the time. There was a significant improvement in informing patients about the risks of smoking after the educational session. Practitioners improved counseling on the risks of cardiac disease (61% compared to 36%) and cerebrovascular disease (65% compared to 21%) after the educational session. Practitioners informed the patient about risk for lung disease a similar percentage of the time (66% compared to 65%). Most smoking cessation aides were discussed more frequently after the educational session.

Conclusion

This study emphasizes the need to evaluate patients regarding smoking and cessation with additional

Assessment of psychiatric education in primary care residency programs

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Background

The purpose of this study is to examine current trends in psychiatric teaching within primary care residency programs and to assess program director satisfaction regarding amount and effectiveness of training.

Hypothesis

We hypothesized that programs nationally would show little change in behavioral health instruction when compared with earlier surveys.

Methods

An 18-item anonymous questionnaire was sent to a total of 1,386 program directors of ACGME-accredited residency programs in family medicine (FM), internal medicine (IM), pediatrics (P), and obstetrics/gynecology (OB). Respondents were asked about teaching methods and settings, learning topics, quantity of teaching, and perceived educational quality. Both multiple choice and open-ended responses were obtained. Satisfaction with training was assessed using a Likert Scale (1 = very dissatisfied, 3=neutral, 5 very satisfied).

Results

300 of 1386 programs (21.6%) completed the survey. Family Medicine (FM) programs reported a greater variety of teaching modalities and settings. Across all disciplines the most common pedagogy was didactics(98.2%). FM programs were most likely to teach behavioral health in the ambulatory clinic utilizing a psychiatrist or non-MD mental health clinician (83.8%) or a primary care attending physician (93.8%). Satisfaction with teaching faculty was generally high across specialties. FM satisfaction with the overall amount of psychiatric training was 3.47 with other programs significantly trailing (2.67 IM, 2.54 OB, 2.85 P). Satisfaction with effectiveness of training showed a similar trend with FM 3.54 versus 2.85IM, 2.77OB, and 3.08P. P programs showed notable improvement when compared to earlier surveys in the number of behavioral health topics covered. Numerous specialty-specific trends were noted.

Conclusion

The high educational performance of FM programs is likely attributable to their unique ACGME program requirement for an integrated behavioral health curriculum. Given the high disease burden and barriers to accessing psychiatric specialty care nationally, it is imperative that primary care physicians are adequately trained to manage common behavioral health conditions.

Hyperinsulinism and Obesity in Diabetic Cardiomyopathy

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Background

Diabetes mellitus is an epidemic in West Virginia, with an incidence nearly double the national average. The link between diabetes and heart attacks is well known, but the link with heart failure is less understood. The aim of this study is to determine if there are differences in mechanical or biochemical cardiac markers in hyperinsulinemia and obesity.

Hypothesis

Inclusion criteria for the study requires previous diagnosis of diabetes mellitus (type 1 or type 2), age 18 to 40, and BMI > 30. Exclusion criteria include previous history of cardiac disease and gestational diabetes. The hypothesis is that once the parameters and biomarkers are statistically analyzed, the risk of diastolic function will be increased in patients with hyperinsulinemia and obesity compared to those with obesity alone.

Methods

Echocardiography will be examined for 24 obese diabetic patients and the results will be compared to case-control non-diabetic patients. Echocardiographic measurement of systolic and diastolic parameters will be measured to determine early preclinical evidence of cardiomyopathy. Stress echocardiography will be carried out on all study patients to rule out preclinical obstructive arteriosclerosis. Advanced biomarkers, inflammatory markers, and standard laboratory panels for glucose, Hemoglobin A1c, and lipids will be measured. Biomarkers and echocardiographic evidence of diastolic dysfunction will be used to define a sub population of diabetic obese patients at risk of developing diabetic cardiomyopathy and early congestive heart failure. This sub population will be followed longitudinally with plans for appropriate intervention.

Results

There was no difference in left ventricular mass and systolic function between patients and controls. Early acceleration peak, deceleration peak, peak filling rate, and transmitral early-to-late diastolic peak flow ratio were significantly decreased in patients compared with controls.

Conclusion

Diastolic parameters may be of value in identifying preclinical diabetic cardiomyopathy.

Athletic Performance and Fitness: the Emerging Role of Vitamin D

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Background

Vitamin D is more than just a vitamin. This fat-soluble vitamin is a secosteroid hormone that can alter gene expression on over 2000 genes. Sufficient levels obtained through sunlight exposure, diet and supplementation. Unfortunately sufficient levels can rarely be obtained via diet and sun exposure alone and supplementation is often required. Vitamin D deficiency is correlated with adverse outcomes in bone health, immunity, muscle function, and physical performance.

Hypothesis

Vitamin D sufficiency is defined at 25-hydroxyvitamin D3 > 30ng/mL and ultimately being below 30 ng/mL is considered deficient and results in possible morbidity.

Methods

Testing for vitamin D, 25-hydroxyvitamin D3, deficiency is obtained from a simple, non-fasting blood test and termed deficient if <30 ng/mL.

Results

Vitamin D deficiency among athletes is practically an epidemic, even at the elite collegiate and professional levels. There remains a direct correlation between vitamin D and the frequency of stress fractures, musculoskeletal pain, sickness, and even inflammatory processes. When levels are sufficient all the aforementioned have decreased frequency. It is now understood that in order to achieve performance enhancement that levels of 25(OH) D need to be greater than 40 ng/mL. Increasing vitamin D levels can also decrease pro-inflammatory cytokines while simultaneously increase anti-inflammatory cytokines.

Conclusion

It is imperative that vitamin D deficiency (>30 ng/mL) be recognized and treated in athletes, especially those with musculoskeletal injuries. The secosteroid properties of vitamin D facilitate a vast array of effects on both musculoskeletal and extra skeletal systems but when an athlete is deficient, the likelihood of morbidity increases.

Contingency Management for Smoking Cessation in Pregnancy.

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Background

This pilot study examined the feasibility of applying Contingency Management (CM), where the woman receives financial compensation for abstinence from smoking, with counseling from the WV Quitline.

Hypothesis

It is expected that the effects of the two treatment programs will be additive, with the group receiving both treatments having more participants achieving abstinence by late pregnancy and more participants continuing abstinence postpartum than the group receiving CM treatment alone. Furthermore, we expect to see more healthy birth weights, normal gestational age-at-birth, and less PICU visits in the group receiving both treatments than CM alone. Overall, we hope to improve birth outcomes in the participants.

Methods

Six subjects were recruited from Marshall's OB clinic and randomly placed into one of two groups. One group received CM and WV Quitline treatment while another received CM alone. CO levels are measured twice daily using online video recording for 6 weeks. CO values will be compared between the two groups. Quit rates will be determined at the end of the six-week study period and again at the end of pregnancy. Birth outcomes will be measured at delivery.

Results

Currently, there are four enrollees at various stages of the program. Two participants withdrew from the program.

Conclusion

There are barriers to enrolling pregnant smokers in clinical trials. Likely reasons for low enrollment include a small applicant pool, unwillingness to admit smoking while pregnant due to social stigmas, and exclusion due to concomitant drug abuse. Enrollees that have abandoned the program claim stress and inability to commit time required to participate as barriers. Enrollment criteria have been relaxed to allow for concomitant marijuana and Suboxone use. Future research should address these barriers when making a plan for patient recruitment. Study outcomes comparing smoking cessation rates are pending at this time.

Incidence of hypomagnesemia on proton pump inhibitors at the Huntington Veterans Affairs Medical Center – IHOP

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Background

Hypomagnesemia associated with PPI has received continuous case reports over the past years about PPIs and low magnesium, the FDA issued a warning announcing the association between long-term PPI use and severe hypomagnesemia. Hypomagnesemia from use of PPIs is considered a long-term complication that can take months or years to develop with no clear dose relationship. Most case reports occurred after one year of PPI treatment, but there are some reports of hypomagnesemia occurring in patients after 3 months. Low magnesium can cause both minor and serious complications depending on the severity. Symptoms may range from gastrointestinal upset, weakness, and cramping to other metabolic abnormalities, cognitive changes, seizures, and arrhythmias. Although most mild cases go unnoticed, more severe cases could result in life-threatening events. The association between PPIs and low magnesium may warrant more frequent monitoring in patients on long-term therapy.

Hypothesis

The primary benefit for the current research is to determine the incidence of hypomagnesemia with long-term PPI therapy. This information can be used to determine if supplementation or a change in therapy is needed.

Methods

Retrospective chart review will be performed on random charts of patients who have been receiving long-term PPI therapy. Available magnesium levels will be reviewed to determine incidence of hypomagnesemia with PPI use. Data will be collected from the VAMC EMR and assess via manual chart review.

Results

Research is still ongoing. Results will be discussed at presentation.

Conclusion

PPI are widely used for the treatment of acid-related disease states. PPIs are generally considered safe in most patient populations. However, there are several adverse effects that can occur especially with long-term use. Hypomagnesemia is a newer complication. The true incidence of hypomagnesemia associated with PPI use is still somewhat unclear at this time. PPIs and low magnesium will likely warrant more frequent monitoring in patients on long-term therapy.

The Medicare Annual Wellness Visit: Barriers and Patient Perceptions

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Background

The Annual Wellness Visit (AWV) is a part of the Patient Protection and Affordable Care Act of 2010. In 2011, Medicare beneficiaries became eligible for this visit, which focuses primarily on the identification of patient health risks and establishment of personalized disease prevention plans conducted by a physician, physician assistant, or other non-physician medical professional. We hope to use the results of this survey to improve future visits.

Hypothesis

Patients may not be completely satisfied with AWV because there would be no physical exam and no new complaints would be addressed during the visit.

Methods

We contacted 1,574 patients by telephone, scheduled their AWV appointments, and asked for their voluntary completion of a 13 item survey.

Results

Of 1,574 patients contacted, 211 (13%) of these agreed to schedule their AWV and 37 (2%) were excluded as they were under age 65. Although 33% of those patients who refused offered no reason for declining, the remaining 67% stated that they: 1) found no reason to come in because they already had a primary care provider (57%) 2) had too many physicians and other healthcare providers to see (42%), and 3) were skeptical of and/or disliked the Affordable Care Act (1%). From 66 surveys, 87% of patients said the visit "met expectations," "would recommend," and "would do it again." Only 8% were disappointed that new problems were not addressed and 3% were dissatisfied that physical exams and blood tests were not included.

Conclusion

Our hypothesis that patients would not be satisfied with their visit was not supported. There are barriers to getting the wellness visit. We found that patients tend to defer to their primary care providers, even after receiving an explanation of the contents of the AWV. If primary care providers recommended the AWV, more patients may participate in the future.

Mild Hypoglycemia (MH) and Coronary Artery Calcification (CAC) - An Analysis of Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications (DCCT/EDIC) Data

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Background

Literature on effects of MH on cardiovascular disease is scarce. Recently an inverse association between MH and mortality in type 2 diabetes was found.

Hypothesis

We hypothesized that HbA1c and severe hypoglycemia modify the effect of frequent mild hypoglycemia events on CAC. We aim to examine the association between MH and CAC in type 1 diabetes; interactions with HbA1c and severe hypoglycemia rates (SHR) were of special interest.

Methods

We analyzed public available DCCT/EDIC data. All 1205 patients with CAC measures during EDIC-year ~7-9 were included. Regression models with robust error variances were applied to evaluate associations between self-reported MH and CAC > 100 Agatston units, modified by SHR and HbA1c during DCCT, EDIC or combined DCCT/EDIC [DCCT/EDIC-HbA1c: < 7.5% (58 mmol/mol)- good control, > 7.5% -poor control]. HbA1c was then stratified by either DCCT-quartiles or combined DCCT/EDIC-HbA1c. Probing of 2-way interactions (DCCT-MH, DCCT-SHR) in stratified cohorts included graphing and simple slope analysis.

Results

Three-way interactions [DCCT- or DCCT/EDIC-HbA1c, DCCT-MH, DCCT-SHR] and 2-way interactions (DCCT-MH, DCCT-SHR) for the first DCCT-HbA1c quartile and DCCT/EDIC-HbA1c < 7.5% were significant ($p < 0.01$). For above 2-way interactions, significant simple slopes of opposite signs were found at low and high values of SHR. In a simplified model (severe hypoglycemia (SH) treated as yes/no) a one unit increase in the monthly mean of MH for a patient with good glycemic control during DCCT/EDIC and no SH led to a risk reduction of 10%. However, if patient experienced SH, a 3% risk increase of having a CAC > 100 was noted. Although 3-way interactions [EDIC- or DCCT/EDIC-HbA1c, EDIC-MH, EDIC-SHR] were not significant, 4-way interaction including age and group treatment instead of HbA1c was significant ($p < 0.05$).

Conclusion

To our knowledge, we are one of the first groups to show that modifiers of MH in CAC exist. These findings are integral in understanding the complexity between hypoglycemia and CVD and warrant further investigations.

Placental ADRB1 mRNA as a Potential Predictor of Outcome and Possible Therapeutic Target in High Risk Pregnancies.

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Background

Preeclampsia affects approximately 5-8% of pregnancies. Risk factors include chronic hypertension, diabetes mellitus, a history of preeclampsia, and a high body mass index. It has been established that patients at risk for preeclampsia demonstrate a significant increase in adrenergic beta receptor 1 (ADRB1) mRNA expression in placental tissue. The early use of beta blockade treating hypertension in pregnancy can reduce rates of preeclampsia. However, the mechanism and clinical efficacy are not well understood. One explanation could be associated with changes in placental beta receptors.

Hypothesis

ADRB1 mRNA expression is increased in placental tissue of women diagnosed with preeclampsia.

Methods

Sample groups were: normal pregnancies, preeclamptic pregnancies, pregnancies treated with beta blockade developing preeclampsia, and pregnancies treated with beta blockade without preeclampsia. Total RNA was extracted and reverse transcription PCR was used to estimate ADRB1 mRNA expression. Results are reported as fold changes of each experimental group as compared to controls. Group comparisons to controls were performed utilizing simple two-tailed t-tests.

Results

Analysis revealed that controls (normal: 1.0) and preeclamptic groups receiving either no therapy (1.21) or treatment with beta-blockade (1.25) demonstrated similar levels of mRNA expression. There was nearly a three-fold (3.25) increase in ADRB1 mRNA expression in pregnancies receiving beta-blockade and not developing preeclampsia. Statistical analysis did not reveal this to be a significant change.

Conclusion

Our data demonstrate agreement with previously published data showing an increase in ADRB1 expression in high-risk pregnancies. No significant change is likely due to the small sample size. Nonetheless, increased ADRB1 mRNA in high-risk pregnancies receiving beta-blockade without preeclampsia suggests that this population is optimal for targeted beta-blocker therapy, either pharmacologically or with gene-based therapy. On the contrary, the lower levels of ADRB1 mRNA in preeclamptic patients receiving beta-blockade may implicate that these patients are not prime candidates for this therapy and may benefit from alternative therapies.

Standard of Care Four Doses of Dose Dense Paclitaxel in The Adjuvant Treatment of Breast Cancer Has Equal Toxicity Profile Compared to Weekly Paclitaxel

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Background

Paclitaxel based adjuvant chemotherapies are considered the standard of care in treatment of breast cancer; two commonly used Paclitaxel regimens are either dose dense Paclitaxel(ddP) or weekly Paclitaxel(wP). The standard of care ddP is administered every two weeks schedule X four doses (175mg/m²), while wP is administered weekly X twelve doses (80mg/m²). Paclitaxel induced toxicity might bias clinical oncologists to choose regimen over the other favoring wP since less toxicities were observed with wP in the S0221 trial. However in S0221, wP was compared to six cycles of ddP instead of standard of care of four cycles. To our knowledge so far no data exist comparing toxicities and tolerability between two commonly used standard of care Paclitaxel based regimens.

Hypothesis

Does standard of care ddP chemotherapy has equal toxicity and tolerability compared to wP?

Methods

Retrospective single-institution charts review of 121 breast cancer patients who were treated with Paclitaxel based chemotherapy between January 2008-June 2014.

Results

76 patients were treated with ddP(Group A) and 45 patients were treated with wP(Group B). We found that the variables are comparable in both groups with no difference. Applied CTCAE criteria to grade most common Paclitaxel related toxicities (Neuropathy, hematologic and musculoskeletal). We also compared rate of treatment discontinuation and dose reduction. Comparison among the two groups showed that ddP does not have a more toxic profile than wP. Both are equally tolerable as well as the need for dose reduction or treatment discontinuation was seen equally in either regimen subset.

Conclusion

Comparing commonly used schedules of Paclitaxel showed that the standard ddP is comparable wP in terms of toxicities and tolerability. This retrospective study showed no difference in toxicity profile in both groups of patients. Furthermore, severe grades (3 or 4) neuropathy were seen in the same percentage in either of the groups. Further prospective trials are needed to compare these two common standards of care Paclitaxel-based regimens to validate our findings.

Outcomes of a novel treatment protocol for hyperglycemia in pregnancy

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Background

Traditional insulin regimens in pregnancy include NPH insulin and other forms of medium-acting insulin. These regimens have been used for decades until recent times when the use of metformin and insulin detemir quickly became the new protocol. This study is targeted to examine if there are improvements in maternal-fetal outcomes in the current diabetes treatment regimens when compared to the traditional treatments.

Hypothesis

There is decreased weight gain with the use of combined therapy over insulin alone. There is improvement in specific maternal fetal outcomes with the use of combination oral and insulin therapy including gestational age at delivery, birth weight, hypoglycemia, bilirubin levels, Apgar scores, route of delivery, NICU admission and length of stay.

Methods

Data is collected retrospectively using patient charts and hospital records. Inclusion criteria are pregnant women with gestational diabetes diagnosed by oral glucose tolerance testing and fasting glucose testing. The patients are divided into three groups: traditional insulin; metformin only; metformin and insulin detemir.

Results

So far, 96 cases have been completely reviewed. Mean maternal weight gain for the traditional insulin group is 13.3 kg. Mean weight gain for the metformin and levemir group is 7.6 kg. Mean weight gain for metformin only group is 11.03 kg.

Conclusion

There is less weight gain in patients using metformin and levemir when compared to those using metformin only or traditional insulin. Vaginal deliveries appeared to be more common in patients using metformin only whereas c-section was the more common route of delivery for the groups using metformin plus levemir and traditional insulin. Further statistical analysis will be performed to determine if the difference is statistically significant. Also, further statistical analysis will be performed to determine the statistical significance of differences in average blood glucose, neonatal hypoglycemia and bilirubin levels, and length of NICU stay.



