9th Annual
Celebrating Innovation and Discovery at Baystate Medical Center

Research Week

Baystate Medical Center
Western Campus of Tufts University School of Medicine
ADVANCEMENT OF KNOWLEDGE is a strategic goal that is woven throughout the fabric of Baystate Medical Center. Scholarly activity is a core component of our residency and fellowship training programs, and an integral aspect of our faculty's professional lives. Research Week celebrates the accomplishments of our residents, fellows, faculty, coordinators, nurses, and others who are involved in biomedical and educational research.

BMC’s 9th annual Research Week is Tuesday, May 20, 2008 through Friday, May 23, 2008. The collection of work accomplished by our residents, fellows, faculty, coordinators, nurses, and others is located in various areas of the Chestnut Conference Center. Please visit, learn and recognize the breadth of scholarly contributions our residents, fellows, faculty, coordinators, nurses, and others have made to the field of medicine.

**Luncheon**

**TUESDAY, MAY 20, 2008**

Chestnut Conference Center, Room 1
12:00 - 1:00 pm

12:00 pm:  **Presentation of Awards**

*Hal B. Jenson, MD, MBA*
Chief Academic Officer, Baystate Health

12:10 pm:  **Authenticity and Authorship:**

*The Resident's Journey*

*David C. Leach, MD*
Former Executive Director of the Accreditation Council for Graduate Medical Education

**Research Week Exhibit**

Chestnut Conference Center
Chestnut Lobby, Chestnut 1 and Health Sciences Library

**Tuesday, May 20, 2008 - Friday, May 23, 2008**

7:00 am to 7:00 pm
David C. Leach, MD, is the former Executive Director of the Accreditation Council for Graduate Medical Education (ACGME), where he was awarded the 2007 Abraham Flexner Award for Distinguished Service to Medical Education.

In 1993, former Michigan Governor John Engler awarded Dr. Leach the Good Samaritan Award for more than 25 years of volunteer service at Detroit's Cabrini Clinic (the oldest free clinic in the United States). In 2004, Dr. Leach was inducted into the Gold Humanism Honor Society.

His interest in “chaordic” organizations, the teaching of improvement skills, aligning accreditation with emerging health care practices, and the use of educational outcome measures as an accreditation tool led Dr. Leach to transform the ACGME in its mission to improve the quality of health care by ensuring and improving the quality of graduate medical education programs.

Dr. Leach is deeply interested in the use of values as well as rules in guiding the behavior of physicians and teachers, believing that we teach who we are as well as what we are. Consequently, Dr. Leach's contributions are the implementation of duty hour limits, the creation of an electronic learning portfolio to help residents chronicle their experiences and track progress against defined learning objectives, and the development and introduction of the six core competencies for residency education that have increased emphasis on educational outcomes in the accreditation of residency education programs.

Dr. Leach was Assistant Dean at the University of Michigan for several years, primarily directing the Henry Ford experiences for Michigan students. He was a residency program director and Designated Institutional Official at Henry Ford. He is interested in how physicians acquire competence and are enabled to be authentic practitioners of the art, science and craft of medicine. He received grant support for innovative curricula for both medical students and residents from the Robert Wood Johnson Foundation and the Pew Charitable Trust.

Additionally, Dr. Leach instituted several awards programs—namely, the Parker Palmer Courage to Teach and Courage to Lead Award given annually to exemplary medical residency programs in the United States, and the John C. Gienapp Awards, recognizing individuals for outstanding contributions to graduate medical education.
# Table of Contents

*by Abstract*

## ANESTHESIOLOGY
Accuracy Of Caudal Needle Placement In Children: Comparison Of The Swoosh Test And Ultrasonography  
Karthik Raghunathan, MD, MPH, Donald Schwartz, MD, Neil Roy Connelly, MD ...............................1

## EMERGENCY MEDICINE
Blood Glucose Measurement In Patients With Suspected Diabetic Ketoacidosis: A Comparison Of Abbott Medisense Pcx Poc To Reference Laboratory Values  
Fidela Blank, RN, MN, Moses Miller, RN, BSN, James Nichols, PhD, Howard Smithline, MD, Gillian Crabbe, RN, Penelope Pekow, PhD .................................................................2

## INTERNAL MEDICINE
Persistent Mssa Bacterimia Secondary To A Prostatic Abscess Without Prostatitis  
Nathan J. Abare, MD, Mihaela Stefan, MD ..........................................................3
Donepezil And The Leaning Tower Of Pisa  
Ashish Arora, MD, Ashish Verma, MD, Javed Ashraf, MD, Maura Brennan, MD .................4
Effects of Oral Premedication on Cognitive Status of Elderly Patients Undergoing Cardiac Catheterization  
M. Javed Ashraf, MD, Marc Schweiger, MD, Neelu Vallurupalli, MD, Sandra Bellantonio, MD, James R. Cook, MD MPH ..........................................................5
Changes In Medical Research Outsourcing From 1995 to 2005  
Raquel K. Belforti, DO, Michal Sarah Wall, MD, and Michael B. Rothenberg, MD, MPH ..........6
False Positive Lactic Acidosis In Ethylene Glycol Toxicity: A Confounding Variable  
Raquel Belforti, DO, Giselle Cruz, MSIII, Barbara Greco, MD, Eliah Munikywa, MD ..........7
The Impact Of A Simulation Training Program On The Confidence Of Internal Medicine Residents To Lead And Perform Adult Resuscitation  
Raquel Belforti, DO, Mihaela Stefan, MD, Gerard Langlois, PA, Gladys Fernandez, MD, Elizabeth D'Amour, RN, Michael Rosenblum, MD .........................................................8
ICU Mortality Risk May Be Overestimated In Elders Without Other Risk Factors  
M. Brennan, MD, T. Higgins, MD, D. Teres, B. Nathanson, P. Jodka, MD ............9
Elder Abuse Screening: Why Is It An Important Tool?  
R. Cader, MD, R. Shaaban, MD, M. Brennan, MD ..................................................10
An Atypical Presentation Of Lymphoma: The Failure Of Ocam's Razor  
R. Cader, MD, R. Shaaban, MD, M. Brennan, MD, W. Ho, MD .................................11
Do Women Switching From Tamoxifen To An Aromatase Inhibitor Experience A Change In Weight?  
Capizzi, Todd, MD, Katz, Deborah, MD, Mertens, Wilson, C, MD and Makari-Judson, Grace, MD ....12
Optic Neuritis Associated With CSF Herpes Simplex Virus-Type 1 DNA  
Beth Carter, MD, Linda Bobo, MD, PhD, Brendan Kelly, MD ..................................13
Listeria monocytogenes Infection In A HIV-Infected Patient Manifesting as Cardiac Interventricular Abscess  
Khaled Dahche, MD, Jacqueline Caldwell, MD, Dmitri Iarikov, MD, Daniel Skiest, MD, Linda D. Bobo, MD, PhD .................................................................14
Capecitabine-Induced Palmar-Plantar Erythrodysesthesia In A Diabetic Patient  
Sarah L. Dews, MD, Venkata R.R. Kodali, MD, Michael J. Rosenblum, MD .....................15
Unusual Manifestation Of Disseminated Histoplasmosis In AIDS In A Central American Immigrant  
Imran Dosani, MD, MRCP, Mihaela Stefan, MD, FACP, Peter Butler, MD, Monica Hollowell, MD 16
Unilateral Anteromedial Thalamic Stroke Presenting As Anterograde and Retrograde Amnesia  
Tara DuVal, MD and Sandra Bellantonio, MD .........................................................17

* Resident and Fellow authors are bolded on abstracts.
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypercalcaemia After Topical Treatment With Calcipotriol</td>
<td>Jimmy C. Fune, MD, Sujathranin Thiruman, MD, Melissa Young, MD, FACE</td>
<td>18</td>
</tr>
<tr>
<td>Pyoderma Gangrenosum In An Uncommon Location: A Therapeutic Challenge</td>
<td>Jimmy C. Fune, MD, Katherine Gerstle, MD, and Darlene Haviland, PA</td>
<td>19</td>
</tr>
<tr>
<td>A Rapidly Re-accumulating Pleural Effusion</td>
<td>Theodore Hartenstein, MD, John Tsongalis, MD, Michael Rosenblum, MD</td>
<td>20</td>
</tr>
<tr>
<td>A Lively Centenarian With Giant Peptic Ulcer Disease</td>
<td>Jodie Hermann, DO, Maureen Brennan, MD</td>
<td>21</td>
</tr>
<tr>
<td>A Prospective, Case-Controlled Study Of The Effect Of Continuous Hemoglobin Monitoring (Hgb) Monitoring (Critline) On Hemoglobin Variability (Hv) And Erythropoietin (Epo) Dosing</td>
<td>Warren Ho, MD, Michael J Germain, MD, Jane Garb, MPH, Cherry Bartlett, Eric Will</td>
<td>22</td>
</tr>
<tr>
<td>Frequent Hemoglobin (hgb) Monitoring (12x/month) Can Inform Clinical And Organisational Decision Making</td>
<td>Warren Ho, MD, Michael J. Germain, MD, Jane Garb, MPH, Cherry Bartlett, Eric Will</td>
<td>23</td>
</tr>
<tr>
<td>Congestive Heart Failure (Chf) Exacerbation Precipitated By Unintended Overdose Of Baking Soda</td>
<td>C. Huang, MD, A. Lotfi, MD, A. Saxena, MD, S. Bellantionio</td>
<td>24</td>
</tr>
<tr>
<td>IgA Nephropathy In A Patient With Cocaine And Alcohol Abuse</td>
<td>Chunmei Huang, MD, Eileen Kehoe, MD, Giovanna Crisi, MD, PhD, Barbara Greco</td>
<td>25</td>
</tr>
<tr>
<td>Catastrophic Antiphospholipid Syndrome in Rheumatoid Arthritis?</td>
<td>Syed Hussain MD, Siddharth Wartak MD, Vivianne Bunin MD, Khaled Dahche MD</td>
<td>26</td>
</tr>
<tr>
<td>Cramping With Crohn’s: New Diagnosis Of Crohn’s In A 88 Year Old Man</td>
<td>Sandhya Komanna, MD, Lauren Meade</td>
<td>27</td>
</tr>
<tr>
<td>Methotrexate Monotherapy In Autoimmune Hepatitis</td>
<td>Syed Hussain, MD, Jeanne McCarthy, PA-C, Siddharth Wartak, MD, David Desilets</td>
<td>28</td>
</tr>
<tr>
<td>Patterns Of Drug Resistance To Antiretroviral Therapy In Treatment- Naive HIV Infected Patients In Greater Springfield</td>
<td>D. Iarikov, MD, M. Irizarry-Acosta, MD, C. Martorell, MD, Robert P. Hoffman, MD, C. Rauch, MD, D. Skiest, MD</td>
<td>29</td>
</tr>
<tr>
<td>Prevalence Of Drug Resistance To Antiretroviral Therapy In Treatment Experienced HIV Infected Patients</td>
<td>D. Iarikov, MD, M. Irizarry-Acosta, MD, C. Martorell, MD, D. Skiest MD</td>
<td>30</td>
</tr>
<tr>
<td>The Efficacy Of Intravenous Immunoglobulin In The Treatment Of Refractory Clostridium Difficile Diarrhea</td>
<td>M. Irizarry-Acosta, MD, M. S. Wall, MD, R. Michael MD, S. Haessler, MD</td>
<td>31</td>
</tr>
<tr>
<td>Case Study Of Bacteroides Splanchnicus Endocarditis</td>
<td>Jeyavarna Karthikeyan, MD, Lauren Meade, MD, Sarah Haessler, MD</td>
<td>32</td>
</tr>
<tr>
<td>Usefulness Of Serum Creatinine For Detecting Renal Insufficiency In Elderly Outpatients</td>
<td>Eileen Kehoe, MD, Michael Rothberg MD, Thabo Kenosi, MD, Penny Pekow, PhD, Maura Brennan, MD, Ricky Wang, Jeffrey Mulhern, MD, Gregory Braden, MD, Abbie Courtemanche, MD</td>
<td>33</td>
</tr>
<tr>
<td>Hepatocellular Carcinoma With Intracardiac Metastases</td>
<td>Cyrus Khan, MD, Abdullah Shaikh, MD, Michael Rosenblum</td>
<td>34</td>
</tr>
<tr>
<td>Spontaneous Tumor Lysis Syndrome In The Setting Of A Solid Tumor</td>
<td>Cyrus Khan, MD, Chunbai Zhang, MD, Stephen Ryzewicz, MD, FACP</td>
<td>35</td>
</tr>
<tr>
<td>Splenic Arterial Embolization: A Treatment Option For Hypersplenism</td>
<td>Basli Lau, MD, Mihaela Stefan, MD, Armen Asik, MD</td>
<td>36</td>
</tr>
<tr>
<td>Necrotizing Fasciitis In A Chronic Left Lower Extremity Wound</td>
<td>Ilse R. Levin, DO, MPH, Roy Sittig, MD</td>
<td>37</td>
</tr>
</tbody>
</table>

* Resident and Fellow authors are bolded on abstracts.
# Table of Contents

by Abstract

Alkalotic Diabetic Ketoacidosis  
**Gina Luciano, MD**, David Rose, MD, FACP, Michael Germain, MD, FACP .......................... 38

The Risks Of Lunch-Postprandial Hypotension  
**Gina Luciano, MD**, Maura Brennen, MD ................................................................. 39

Urticaria After Varicella Vaccine: The Need For A Graded Challenge  
**Mario Rodenas, MD**, Jonathan Bayuk, DO, Jacqueline M. Cook ................................. 40

Is This A Vascular Event?  
**A. E. Rosales, MD**, R. C. Schutt, **A. Arora, MD**, S. Bellantonio, MD ................................. 41

Sensory Impairment  
**A. E. Rosales, MD**, **A. Verma, MD**, A. K. Schutt, S. Bellantonio ................................. 42

DLBD - Diagnosis lost by delay  
**A. Saxena, MD**, J. Udayarani, MD ...................................................................... 43

Early Closure May Be Detrimental In The Elderly  
**Reham Shaaban, DO**, Sandra Bellantonio, MD .......................................................... 44

Young Female With Facial Eschar: Suspected Cervicofacial Actinomycosis  
**Reham Shaaban, DO**, **Aalya Ramadhan, MD**, Michael Grey, MD, MPH FACP .................. 45

Predictive Value Of CT Scanning For Common Bile Duct Stones  
**Abdullah Shaikh, MD**, David Desilets, MD, PhD ......................................................... 46

True Incidence Of CBD Stones At ERCP After Referral For “CBD Stone On Ultrasound”  
**Abdullah A. Shaikh, MD**, **Aixa Caraballo, MD**, David J. Desilets, MD, PhD .................. 47

Unusual Initial Presentation Of Lupus As Renal Infarcts And Pulmonary Embolism In Setting Of Nephrosis In Young Hispanic Male  
**Senthil K Sivalingam, MBBS**, Barbara Greco, MD ....................................................... 48

An Unusual Cardiac Cause Of Delirium  
**Senthil Sivalingam, MD**, Arnulfo Deray, MD .................................................................. 49

Near Fatal Foley  
**Senthil Sivalingam, MD**, Maura Brennen, MD ............................................................... 50

Permanent Pacemaker In A Patient With Lyme Carditis - A Rare Case Report  
**Senthil Sivalingam, MD**, **Javed Ashraf, MD**, James Cook, MD ................................. 51

Persistent Symptomatic Heart Block In A Patient With Lyme Carditis  
**Senthil K Sivalingam, MD**, **Javed Ashraf, MD**, James Cook, MD ................................. 52

A Case Of Lithium Associated Thyrotoxicosis  
**Ashish Verma, MD**, Mark Tidswell, MD .................................................................... 53

Late Post-Partum Eclampsia And Posterior Reversible Leukoencephalopathy Syndrome  
**Ashish Verma, MD**, **Basil Lau, MD**, **Shaji Daniel, MD**, Paul Jodka, MD ...................... 54

Atrial Stunning Following Cardioversion Resulting In Flash Pulmonary Edema  
**Michal S. Wall, MD**, Sandra Bellantonio, MD .............................................................. 55

Atomoxetine (Strattera): An Effective Treatment in Narcolepsy  
**Siddharth Wartak, MD**, **Syed Hussain, MD**, Asim Roy, MD ........................................ 56

Isolated Left Ventricular Noncompaction; A Rare Cardiomyopathy  
**Siddharth Wartak, MD**, **Syed Hussain, MD**, **Javed Ashraf, MD** ............................... 57

* Resident and Fellow authors are bolded on abstracts.
Sick Sinus Syndrome Secondary To Facial Injury
Siddharth Wartak, MD, Pradeep Sethi, MD, James Cook, MD, Syed Hussain, MD,
Reshma Mehendale, MBBS, DNB ................................................................. 58

Allergen Immunotherapy In A 45 Year Old Caucasian Male With A 20 Year History Of HIV With Severe
Allergic Rhinitis: Monitoring Of HIV Viral Load And T-Cells During Immunotherapy
John Wheeler, MD, Vanessa Van Stee, MD, Jonathan Bayuk, DO, FAAAAI ................. 59

The Challenge Of Predicting And Treating Hypersensitivity To Radiographic Contrast Dye In An Atopic
Patient With Suspected PE With CTA
John P. Wheeler, Jr., MD, Jonathan L. Bayuk, DO ........................................... 60

A Clinical Vignette With Allergic Reaction To N-acetylcysteine While On Immunosuppressant
Chunbai Zhang, MD, Stephen Ryzewicz, MD, FACP ..................................... 61

NURSING
A Time to Live, A Time To Die: End-of-Life Case Discussions
B. Babb, D. Plouffe, P. Jodka, MD, B. Stadnicki, N. Doubleday, P. Lusardi .................. 62

Improving Patient Satisfaction Through Aggressive Surgical Pain Management
C. Gryglik, MD, C. Reilly, M. Davis ................................................................. 63

The Role of Simulation in Critical Care Education
Susan Scott, RN ............................................................................................ 64

OBSTETRICS & GYNECOLOGY
Hysterectomy After Endometrial Ablation
Albert L. Hsu, MD, Carrie Bell, MD, Ronald Burkman, MD, Daniel Grow, MD .......... 65

A Formal Transition Program For Young Adults With Reproductive Endocrine Disorders
Kelly Lynch, MD, Ingrid Dunn, MD, Karen Rubin, MD ........................................ 66

Recurrent Low Oocyte Maturity (RLOM) During ICSI Compared With Age-, Response Rate, And
Stimulation Protocol-Matched Controls: A Retrospective Cohort Study
AK Moore, MD, DR Grow, MD, M Arny, PhD, K Lynch, MD, H Wiczyk, MD, MY Dawood, MD ..... 67

Use Of Human Papillomavirus Testing In The Management Of Atypical Glandular Cells
P.F. Schnatz, DO, FACOG, K.E. Sharpless, MD, PhD, R. Bansal, MD ...................... 68

PATHOLOGY
Diagnostic Utility Of Mammaglobin In Lesions Of The Uterine Cervix
M Assaad, MD, C N Otis, MD, S Marconi, MD, L Pantanowitz, MD ......................... 69

Ligneous Inflammation Of The Female Genital Tract
G Caponetti, MD, C Otis,MD, I Mert, S Marconi, V Schuster, M Ziegler, K Tefs, J Hecht, M Tug,
L Pantanowitz, MD ....................................................................................... 70

Adequacy Of Lymph Node Retrieval In Colonic Adenocarcinoma Depends On Surgical And Anatomic Factors
C.N. Chapman, MD, W.H. Duke, MD, J.D. Mueller, MD ....................................... 71

Thyroid Fine Needle Aspiration Biopsy: Diagnostic Categories And Surgical Correlation (Conventional
Smears versus ThinPrep®)
R. Goulart, MD, C. Otis, MD, L. Pantowitz, MD .................................................. 72

Utility Of Fine Needle Aspiration Biopsy In The Diagnosis Of Thyroid Lymphoma
Rukmini Modem, MD, Robert Goulart, MD, Liron Pantanowitz, MD ...................... 73

* Resident and Fellow authors are bolded on abstracts.
# Table of Contents

*by Abstract*

Outcome Of Clinically Based Large-Scale Screening For *Chlamydia trachomatis* Infection Using The ThinPrep Pap Test Collection Vial  
Liron Pantanowitz, MD, Maryanne Hornish, CT, MBA, Robert Goulart, MD ......................... 74

Cytologic Findings Of Psammocarcinoma In Peritoneal Washings  
Liron Pantanowitz, MD, Christopher N. Otis, MD, Robert A. Goulart, MD ......................... 75

Immunocytochemical Evaluation Of p16INK4A In ThinPrep® Pap Tests Diagnosed As Atypical Squamous Cells, Cannot Exclude High-Grade Squamous Intraepithelial Lesion  
Liron Pantanowitz, MD, Christopher N. Otis, MD, Robert A. Goulart, MD ......................... 76

Impact Of Digital Image Manipulation In Cytopathology  
**Jeffrey Pinco, MD,** Robert Goulart, MD, Christopher Otis, MD, Jane Garb, PhD, Liron Pantanowitz, MD .......... 77

**PEDIATRICS**

Poor Iron Status Is Associated With Inflammation In Obese Children  
**Leybie Ang, MD,** Matthew W Richardson, MD, Chrystal A Wittcopp, MD ......................... 78

The Effect Of Open Access On Infant Well Child Care In A Resident Continuity Clinic  
**Astrid M. Chabert, MD,** James Burns, MD, Kathleen Szegda, Cheryl D. Tierney, MD ................ 79

Infant Safe Sleeping In Homeless Family Shelters  
**Sonia Chaudhry, MD,** Nancy Miller, MD ................................................................. 80

An Education Program To Increase Knowledge Of And Immunization With Adult Pertussis Vaccination Among Parents Of Newborns  
**Pui-Ying Iroh Tam, MD,** Benjamin Smith, Donna Fisher, MD, FAAP .......................... 81

**PSYCHIATRY**

Early Predictors Of Medication Use In Young Children With ADHD  
Jack Fanton, MD, Elizabeth Harvey, PhD ................................................................. 82

**SURGERY**

Tumor-Targeted Delivery Of TRAIL Using *Salmonella typhimurium* Enhances Breast Cancer Survival  
**Sabha Ganai, MD, PhD,** Richard B. Arenas, MD, FACS, Neil S. Forbes, PhD .................. 83

Clinical Assessment Of The Axillary Sentinel Lymph Node For Breast Cancer Metastasis By The Surgeon: A Study Of One Institution's Voluntary Policy Change  
**Juliana Meyer, MD, Sabha Ganai, MD,** PhD, Robert A. Goulart, MD, Holly Mason, MD, FACS .......... 84

Performance Of Intraoperative Axillary Sentinel Lymph Node Touch Prep Evaluation: Effect Of Surgical Submission Of “Suspicious” Sentinel Lymph Nodes  
**J. Meyer, MD,** H. Mason, MD, **S. Ganai, MD,** A. Hornish, MD, G.M. Crisi, MD, R.A. Goulart, MD .......... 85

A New Web-Based Operative Skills Assessment Tool Effectively Tracks Progression In Surgical Resident Performance  
**Eyad M. Wohaaibi, MD,** David B. Earle, MD, Francis E Ansanitis, AS, Richard B Wait, MD, PhD, Neal E. Seymour, MD .......... 86

Demonstration Of Increasing Laparoscopic Clinical Skill Over Time: Use Of A New Network-Based Resident Assessment Tool  
**Eyad Wohaaibi, MD, David Lin, MD,** David Earle, MD, Neal Seymour, MD .......... 87

Surgical Resident Performance On A Virtual Reality Simulator Correlates With Operating Room Performance  
**Eyad M. Wohaaibi, MD,** David B. Earle, MD, Ron W. Bush, Neal E. Seymour, MD .......... 88

Suture Survival In An Acidic Environment: Implications For Natural Orifice Transgastric Endolumenal Surgery (NOTES)  
**Eyad M. Wohaaibi, MD, Sabha Ganai, MD,** Richard B. Wait, MD, PhD, John R. Romanelli, MD .......... 89

*Resident and Fellow authors are bolded on abstracts.*
Accuracy Of Caudal Needle Placement In Children: Comparison Of The Swoosh Test And Ultrasonography
Karthik Raghunathan, MD, MPH, Donald Schwartz, MD, Neil Roy Connelly, MD

Background: Caudal epidural blockade is a widely used technique for perioperative pain management in the pediatric population. An objective test to accurately predict successful caudal blockade would be extremely useful. The aim of the present study was to compare two such confirmatory tests -- the 'swoosh' test (a test which depends on sacral auscultation during caudal injection) and real time ultrasound imaging (both transverse 2D imaging and color flow Doppler imaging).

Methods: This was a retrospective observational study of caudal injections administered to 83 pediatric patients (0-11 years) presenting for elective surgery over a 4 month time period. While injecting small aliquots of local anesthetic, a standard stethoscope was placed over the lower lumbar spine to auscultate for the 'swoosh' test. The Sonosite Titan (Sonosite Inc., Bothell, WA) L38/10-5MHz broadband linear array transducer was applied transversely (perpendicular to the caudal canal) for scanning. Each test performed during the caudal injection (swoosh, turbulence on 2D imaging or color flow on Doppler imaging) was recorded as positive, negative or equivocal. Intraoperative vital signs, response to surgical stimulus, postoperative patient comfort in the PACU and evidence of motor blockade were all considered when deciding whether a caudal block was successful.

Results: Eighty out of 83 patients (96.4%) had a successful caudal block based on minimal or no perioperative narcotic use and minimal or no response to surgical stimulation. Ultrasound was significantly superior to 'swoosh' for sensitivity (96.3% vs. 57.5%), negative predictive value (40% vs. 5.6%) and likelihood ratio (2.89 vs. 1.73). Specificity and positive predictive value were not different between 'swoosh' and ultrasound. Of the ultrasound tests, turbulence was more sensitive than color flow Doppler (95.0% vs. 78.8%).

Conclusion: For confirmation that local anesthetic is going into the caudal space, seeing (ultrasound) works better than hearing ('swoosh'). The 'swoosh' test, in our experience, was less accurate than previously reported. We found that the presence or absence of ultrasonic turbulence within the caudal space was the best single predictor of caudal block success. Ultrasonography has the added benefit of defining caudal anatomy prior to a block. We think ultrasonography should be used, if available, while teaching pediatric caudal blockade.[table1]

Anesthesiology 2007; 107: A643
<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Positive Predictive Value</th>
<th>Negative Predictive Value</th>
<th>Likelihood Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swoosh</td>
<td>57.5 %</td>
<td>66.7 %</td>
<td>97.9 %</td>
<td>5.6 %</td>
<td>1.73 §</td>
</tr>
<tr>
<td>Ultrasound Turbulence</td>
<td>95.0 %</td>
<td>66.7 %</td>
<td>98.7 %</td>
<td>33.3 %</td>
<td>2.85 §</td>
</tr>
<tr>
<td>Ultrasound color flow Doppler</td>
<td>78.8 %</td>
<td>66.7 %</td>
<td>98.4 %</td>
<td>10.5 %</td>
<td>2.37 §</td>
</tr>
<tr>
<td>Ultrasound Turbulence or color flow Doppler</td>
<td>96.3 %</td>
<td>66.7 %</td>
<td>98.7 %</td>
<td>40.0 %</td>
<td>2.89 §</td>
</tr>
</tbody>
</table>

Ultrasound-based tests proved to be more sensitive than the ‘swoosh’ (p < 0.01, see 1 in Table). The presence of turbulence within the caudal space was more sensitive than the presence of color (p < 0.01, see 2 in Table). The negative predictive value for the ‘swoosh’ test was significantly lower than that of turbulence on ultrasound (p < 0.05, see 3 in Table). The likelihood ratios were significantly higher for all the ultrasound tests compared to the ‘swoosh’ see §.
Blood Glucose Measurement In Patients With Suspected Diabetic Ketoacidosis: A Comparison Of Abbott Medisense Pcx Poc To Reference Laboratory Values

Fidela Blank, RN, MN, Moses Miller, RN, BSN, James Nichols, PhD, Howard Smithline, MD, Gillian Crabbe, RN, Penelope Pekow, PhD

The purpose of this study is to compare blood glucose levels measured by a point of care (POC) device to laboratory measurement using the same sample venous blood from patients with suspected diabetic ketoacidosis (DKA).

Methods: A prospective observational design was used for this IRB-approved quality assurance project. The study site is a 50-bed emergency department (ED) of an academic, tertiary care facility in Massachusetts, with annual census of over 100,000 patient visits. The convenience sample consisted of 54 blood samples from suspected DKA patients with orders for hourly blood draws for glucose measurement. Spearman correlations of the glucose POC values, reference lab values, and differences between the two, were evaluated. A chi-square test was used to evaluate the association between the acidosis status and FDA acceptability of POC values.

Results: Patient age range was 10 - 86 years; 63% were females; 46% had a final diagnosis of DKA. POC values underestimate glucose levels 93% of the time. There is a high correlation between the lab value and the magnitude of the difference, (lab minus POC value) indicating that the higher the true glucose value, the greater the difference between the lab and the POC value.

Conclusion: The POC values are highly unreliable for use in monitoring suspected DKA patients.

Figure 1: Association of ED POC and Reference Lab measures of glucose in patients with suspected diabetic acidosis.

Note: Reference lines show line of equality and +/- 20%. Acidosis was defined by bicarbonate measurements.

Published
January 2008 by the Journal of Emergency Nursing
Persistent Mssa Bacteremia Secondary To A Prostatic Abscess Without Prostatitis

Nathan J. Abare, MD, Mihaela Stefan, MD

**Background:** Prostate abscess most commonly occurs as a complication of bacterial prostatitis. Organisms frequently isolated are gram-negative bacilli including Escherichia coli, Pseudomonas aeruginosa, Proteus species, and Klebsiella pneumoniae. Staphylococcus aureus is an uncommon pathologic organism for prostatitis and prostate abscess. Few case studies exist outlining this particular disease. The purpose of reporting this case study is to demonstrate an unusual case of prostate abscess without prostatitis.

**Case Report:** The patient is a 55 year old man presenting with non-specific symptoms of fatigue, malaise, back pain and intermittent subjective fevers over a 1 week period. He did not report any urinary symptoms. The patient was recently diagnosed with diabetes mellitus type 2 and hypertension. On examination, the patient was afebrile, mildly tachycardic, with scant rales at the lung bases and an otherwise negative exam. There was no tenderness, enlargement, or asymmetry to the prostate gland. Labs were remarkable for leukocytosis with neutrophilia, acute renal failure, and a UA consistent with a urinary tract infection. Blood and urine cultures were persistently positive for Methicillin-sensitive Staphylococcus aureus over a 7 day period. Computed tomography of the abdomen revealed a moderate-sized anterior bladder mass as well as a calculus. Notably, there was no edema or enlargement of the prostate on this scan. On cystoscopy the mass was discovered to be a prostate abscess, with organism confirmed by aspiration to be Staphylococcus aureus. The patient had no history of high risk behavior such as receptive anal intercourse and typical exposures such as TURP or prostate biopsy. He did not have any symptoms of prostatitis by history. Despite an extensive work-up, no other source for bacterimia was found. The two principal mechanisms of prostatic abscess formation are direct infection from urine containing gram-negative rods and bacteremia principally caused by Staphylococcus aureus. The complex bladder calculus (which also grew Staphylococcus aureus) found on cystoscopy was the probable unusual source of bactereuria and prostate seeding.

**Conclusion:** We present this case study to demonstrate and unusual case of prostate abscess without accompanying prostatitis. Though rare, prostate abscess can be a cause of fever of unknown origin and bacterimia.

**Abstract Submission**

American College of Physicians (ACP) MA Chapter

October 13, 2007; Waltham, MA
Donepezil And The Leaning Tower Of Pisa
Ashish Arora, MD, Ashish Verma, MD, Javed Ashraf, MD, Maura Brennan, MD

Introduction: Pisa syndrome or pleurothotonus, is an acquired, persistent dystonia, characterized by an involuntary side flexion of the trunk and a backward axial rotation; the patient tilts like the leaning tower of Pisa! It is a rare but established side effect of anti-psychotics and is often reversible. We report a series of three cases of pleurothotonus due to donepezil therapy.

Cases: A ninety year old female with newly diagnosed Alzheimer's disease was prescribed donepezil. Two weeks later, the patient's sister reported gait instability, abnormal posturing and frequent falls. The patient described a sensation of shaking in the bed, especially from front to back. She had never been on any antipsychotic medications. Donepezil was discontinued and the abnormal posturing soon resolved. The second case was a 76-year old female who was also treated with donepezil for Alzheimer's dementia. Within two weeks, the family noticed a significant physical change. Examination revealed a masked facies, cogwheeling and tremors. The trunk was extremely rigid and flexed to the right. Donepezil was discontinued; the symptoms resolved within six days.

The third patient was a 90-year old male who developed truncal and limb rigidity within two weeks of treatment with donepezil. Again, the physical changes were first noticed by the family and withdrawal of donepezil led to resolution of the abnormal posturing.

Discussion: Pisa syndrome was first described by Ekbom et al. in 1972. General incidence rates are not known due to the small number of reported cases. Most authors have described Pisa syndrome as a side effect of prolonged exposure to conventional neuroleptics. Recently, other agents, including atypical antipsychotics, antiemetics, tricyclic antidepressants and valproic acid have been implicated. There are a total of 14 case reports of Pisa syndrome related to cholinesterase inhibitor use; the length of exposure varies from 1 month to 4 years. However, a number of these patients had prior exposure to antipsychotic medications and one of them had been treated for Parkinson's disease. Our patients are unique in the early onset of symptoms, lack of prior exposure to confounding drugs like neuroleptics and absence of preexisting extrapyramidal symptoms. The pathophysiology is not well understood but a dopaminergic-cholinergic imbalance induced by cholinesterase inhibition is postulated. Switching to another cholinesterase inhibitor often causes relapse. Treatment with anticholinergic agents has been proposed but this is clearly a high risk intervention for demented patients. The definitive therapy is discontinuation of the offending agent.

Conclusion: Pisa syndrome should be suspected if patients develop Parkinsonian features on cholinesterase inhibitor treatment. Physicians must be more aware of this potential side-effect so that the drug can be promptly stopped. This will prevent falls and functional decline and maximize quality of life for frail dementia patients and their families.

Abstract Submission
American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
Effects of Oral Premedication on Cognitive Status of Elderly Patients Undergoing Cardiac Catheterization

M. Javed Ashraf, MD, Marc Schweiger, MD, Neelu Vallurupalli, MD, Sandra Bellantonio, MD, James R. Cook, MD, MPH

Background: As the US population ages, the number of elderly patients undergoing invasive cardiac procedures is increasing. Peri-procedural sedatives and analgesics are often administered to achieve appropriate level of conscious sedation. Appropriate concerns have been raised regarding post procedure delirium and adverse consequences related to peri-procedural medication in the elderly. The objective of this prospective randomized study was to investigate the effect of premedication on new onset delirium and procedural care in elderly patients.

Methods: Patients ≥70 years old and scheduled for elective cardiac catheterization were randomly assigned to receive either oral diphenhydramine and diazepam (25 mg / 5 mg) or no premedication. All patients underwent a mini-mental state examination (MMSE) and delirium assessment using confusion assessment method (CAM) prior to the procedure and repeated at four hours after the procedure and prior to discharge. Patients’ cooperation during the procedure and ease of post-procedure management were measured using a Visual Analog Scale (VAS). The degree of alertness was assessed immediately on arrival to the floor, and twice hourly afterward using Observer’s Assessment of Alertness/Sedation Scale (OAA/S).

Results: A total of 93 patients were enrolled in the study, of which 47 patients received premedication. The mean age was 77 ± 4.2 years, 56% were male. The baseline mean MMSE score was similar in each group (27.7± 1.4 in premedication group versus 28.2 ±1.4 in patients without premedication). None of the patients in either group developed delirium after the procedure as measured by CAM. Patients’ cooperation and the ease of procedure was greater and pain medication requirement less both during and after the procedure in the premedicated group (p<0.05 for all). Nurses reported an improvement with patient management in the premedicated group (p=0.08).

Conclusion: Premedication did not cause delirium or confusion in elderly patients undergoing cardiac catheterization. The reduced pain medication requirement, perceived procedural ease and post procedure management favors premedication in elderly patients under going cardiac catheterization.

Oral Presentation
American Heart Association Scientific Sessions
November 4-7 2007; Orlando, FL
Changes In Medical Research Outsourcing From 1995 to 2005

Raquel K. Belforti, DO, Michal Sarah Wall, MD, and Michael B. Rothberg, MD, MPH

Introduction: Literature on medical research ethics has speculated that outsourcing of medical research has been an increasing trend. Outsourcing provides a financial benefit to those conducting the research as well as financial incentives to the developing countries hosting the research. Overall, it appears as though outsourcing is becoming a mainstay of conducting medical research; however, little is currently known about how frequently it is occurring and its impact on the quality of research being conducted.

Methods: Data was obtained from a six-month period in 1995 and 2005 for a cross sectional comparison of three medical journals: The New England Journal of Medicine (NEJM), The Journal of American Medical Association (JAMA), and The Lancet. The data collected included first author and senior author countries, conflict of interest, type of trial, age of study population, number of study participants, study population country, funding source, and area of medical specialty. The primary outcome was the percentage of first authors from high income countries compared to patients from developing countries for 1995 and 2005. The high income countries were defined by the World Bank.

Results: We reviewed a total of 598 articles. Over the ten-year period from 1995 to 2005, the proportion of published papers which were randomized trials increased from 25% to 39% (p<0.001). Study size also increased, with 24% of the research studies in 2005 having populations greater than 6000 patients compared to only 14% in 1995 (p=<0.001). The proportion of studies limited to a single country declined from 78% to 58% (p<0.001). In both years, the majority of the studies pertained to cardiology or infectious disease, but the largest percentage increase was in the field of oncology. Foundations were the most common funding source, funding approximately 51% of studies in both years. At the same time, studies funded by the NIH increased from 19% to 30% and those funded by industry from 16% to 24%, whereas unfunded research declined from 26% to 11% (p=<0.001). The proportion of first authors from high income countries declined from 97% in 1995 to 94% in 2005 (p=0.07), and senior authors declined from 97% to 95% (p=0.11). During the same period, the percentage of studies including participants from developing countries increased from 5% to 16% (p=<0.001). In 2005, 66% of these studies involved medications, 37% were focused on infectious diseases, and 35% were financed by pharmaceutical companies.

Conclusion: Over a ten-year period, studies in top medical journals have become larger, and include more randomized trials, requiring support from Foundations, the NIH, and the pharmaceutical industry. The resulting costs of research may be driving authors to seek study populations in lower income countries.
False Positive Lactic Acidosis In Ethylene Glycol Toxicity: A Confounding Variable

Raquel Belforti, DO, Giselle Cruz, MSIII, Barbara Greco, MD, Eliah Munikywa, MD

Case Presentation: A 36-year-old male with no past medical history presents unresponsive to the emergency department. The patient was found unresponsive by his wife, having not been seen for twelve hours. Upon presentation, the patient was hypertensive, tachycardic, and intubated for airway protection. Laboratory findings showed leukocytosis 38,000 k/mm3, hyperkalemia 6.4 mmol/L, bicarbonate 7 mmol/L, anion gap 31, and creatinine 1.9 mg/dl. Initial arterial blood gas revealed a pH 6.72, pCO2 of 34 mm Hg, pO2 254 mm Hg, and bicarbonate 4 mmol/L on 100% FIO2. The patient was given narcan with no effect, started on a bicarbonate infusion, and given sodium thiosulfate in the emergency department for possible cyanide toxicity. Upon arrival to the intensive care unit, further laboratory findings revealed an osmolal gap of 61. Given the severe anion gap metabolic acidosis with osmolal gap, the patient was empirically given fomepizole and dialyzed for possible ethylene glycol toxicity. When using a black light to examine the urine for calcium oxalate crystals, no fluorescence was found. There were crystals identified in the urine, however these were needle shaped, rather than classic maltese cross oxalate forms. Despite the high lactic acid level of 19.5 mmol/L, the high osmolal gap was assumed to be related to a toxic substance until proven otherwise. Screens for other alcohols and ethylene glycol were sent. Approximately 7 hours after presentation, the ethylene glycol level was available and found to be 185 mg/dl. Fortunately, the patient had received urgent dialysis and fomepizole presumptively prior to toxicology confirmation on the basis of the osmolal gap.

Discussion: Literature has shown that there can be false elevations of measured plasma L-lactate concentrations in the presence of glycolate. Glycolate is a toxic metabolite of ethylene glycol that is similar to lactate in chemical configuration. Therefore, the presence of glycolate can cross react with L-lactate assays and cause false elevations of measured lactate. This reactivity can delay the diagnosis and management of ethylene glycol toxicity which leads to increased patient morbidity and mortality. Case reports have shown that in similar situations with elevated lactate levels, patients have undergone surgical interventions looking for bowel ischemia, when the underlying diagnosis was in fact ethylene glycol toxicity. Lactic acidosis would not explain the large osmolal gap in this case. Given the consequences of ethylene glycol toxicity, clinicians should not delay empiric therapy in the setting of an anion gap metabolic acidosis with high osmolal gap, despite laboratory measurement of elevated lactic acid, due to the potential of cross reactivity with glycolate. It is important for physicians to be aware of this confounding variable and know if the lactic acid assay used at their own institution is susceptible to cross reactivity with glycolate.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
The Impact Of A Simulation Training Program On The Confidence Of Internal Medicine Residents To Lead And Perform Adult Resuscitation

Raquel Belforti, DO, Mihaela Stefan, MD, Gerard Langlois, PA, Gladys Fernandez, MD, Elizabeth D'Amour, RN, Michael Rosenblum, MD

Introduction: Human Patient Simulation (HPS) has become an integral part of postgraduate medical education, particularly in refining residents' ability to perform adult resuscitation. Residents want to master ACLS leadership skills in the safe and forgiving environment provided with HPS. Residents were observed running mock codes in the simulation lab, and through these observations a four session course was developed to provide the residents with the necessary skills to be effective ACLS code leaders.

Methods: Using HPS, twenty-four second year residents participated in four sessions aimed to teach the skills needed to be code leaders during ACLS. The residents completed a pre and post simulation survey.

Session One: Focused primarily on the operation of equipment used during ACLS, such as the defibrillator and transcutaneous pacemaker. Residents were introduced to leadership skills including task delegation, closed loop communication, and crisis resource management.

Session Two/Three: Each resident had the opportunity to be a code leader for a minimum of two scenarios. After each scenario the entire group was able to debrief and learn from their strengths and weaknesses with real time feedback from an ACLS instructor.

Session Four: This session was interdisciplinary involving nurses and nurses' aides. This final session provided an opportunity for residents and other medical personnel to practice the teamwork skills required during code situations.

Results: The pre and post simulation survey consisted of ten questions rated on a five point Likert scale. The residents were asked to evaluate themselves on their confidence regarding adult resuscitation. The survey addressed three main areas: each resident's confidence in performing and leading ACLS, familiarity with necessary skills (ie. defibrillation and intubation), and cardiac rhythm recognition and management. The average score for performing and leading the cardiac arrest team improved from 2.87 to 4.04. Confidence in management of airway and equipment improved from 2.75 to 3.90. Recognition and management of cardiac rhythms improved from 2.70 to 3.75.

Conclusion: Overall, the use of a simulation training program to teach second year medicine residents how to be effective ACLS code leaders was found to be successful and an integral component of postgraduate medical education. There was improvement in all areas addressed by our survey. The next phase of this ongoing educational innovation is to obtain objective data using pre and post training videotapes of residents performing code scenarios and having them evaluated by an independent observer.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
ICU Mortality Risk May Be Overestimated In Elders Without Other Risk Factors
M. Brennan, MD, T. Higgins, MD, D. Teres, B. Nathanson, P. Jodka, MD

Rationale: The ability to estimate outcomes for older ICU patients is crucial to counsel families, target appropriate use of resources and assess ICU performance. Recent models show that the relationship between age and other predictors is complex. The Mortality Probability Model (MPM-III)\(^1\) revealed that 14% of patients had only age as a risk factor; this subgroup had remarkably low mortality risk (2% vs. 14% overall, \(p<.001\)) raising the possibility that "healthier" geriatric ICU patients may do better than previously anticipated. The authors sought to better define mortality risk for elderly critical care patients.

Methods: Project IMPACT (2) data from 135 ICUs for 124,855 patients treated in 2001-2004 were analyzed. Hospital mortality by decile of age was studied for the entire population, and for four subgroups: elective surgical patients versus emergency medical/unscheduled surgical patients, and for each group with and without other MPM risk factors.

Results: For all four categories hospital mortality rose with age. Emergency medical/unscheduled surgical admissions with 1 or more additional risk factors had the highest hospital mortality (12% to 35% from youngest to oldest decile). Elective surgical ICU admissions had the lowest mortality; even nonagenarians have >90% survival. In fact, patients in their nineties who lacked other risk factors and were admitted emergently to the intensive care unit were more likely to survive than similar patients in their fifties with risk factors.

Conclusion: Although mortality risk rises with age, it does so at different rates for patients with and without other MPM risk factors; age alone does not preclude successful surgical and ICU intervention. Geriatricians must be aware of this when guiding patients and families whether to seek major elective surgeries or emergent critical care admissions. Future collaborative research is needed between geriatric and critical care experts to further clarify the relative importance of a broad range of predictors for older ICU patients.

References:
2) www.cerner.com/piccm (Project IMPACT website) Accessed August 27, 2007

Poster Presentation
American Geriatrics Society (AGS)
April 30 - May 4, 2008; Washington, DC
Elder Abuse Screening: Why Is It An Important Tool?

R. Cader, MD, R. Shaaban, MD, M. Brennan, MD

**Background:** Elder abuse is defined as placing an elderly person in the line of harm by doing something or failing to do something that results in harm or places the person at risk of harm. The no. of persons in the US over the age of 65 increased by a factor of 11 in the 20th century. This means that many now and in the future will be cared for by others. Hence it is important to be aware of the risks that the elderly face, and be vigilant to ensure that they are safe and not subject to abuse and neglect. Our case is used to remind physicians to be aware of elder abuse and treatment dilemmas that arise especially when the patient has Alzheimer’s and may not be able to care for himself.

**Case:** A patient came to my office after having a CVA. PT and VNA were recommended but the patient was adamant that she did not want anyone entering her house, she informed us that her husband had dementia and she did not want to expose him to anyone else. A month later she was admitted to the hospital with end stage lung cancer and at that point asked the hospital to check on her husband who was home with his 30 year old son. On arrival to the house, the social worker found the patient in his own decrement, weak and confused. He was in acute renal failure, hypercalcemic and had urinary retention from possible prostate cancer, PSA was elevated 47.1. He was admitted and conservatively treated. A decision was made by his new assigned health care proxy not to further investigate the elevated PSA and he was discharged to a nursing home close to his wife who was in hospice care. An investigation into elder abuse was started by the state.

**Discussion:** Neglect comprises a significant proportion of Elder abuse cases and it can take many forms. Unfortunately, a recent study estimated that 84% of cases are not reported. Abuse may be obvious to the treating physician but neglect may be a much harder entity to identify. Risk factors for elder abuse include shared living with the abuser, social isolation, mental illness, substance abuse of the caregiver, or dementia as in the case outlined above. In our case it was unclear who the abuser was, whether it was the wife, or the son or a combination of the two. We routinely look out to protect children from harm, the elderly are a similar group and we need to be aware of the warning signs to ensure their safety also.

**Poster Presentation**

American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
An Atypical Presentation Of Lymphoma: The Failure Of Ocam's Razor

R. Cader, MD, R. Shaaban, MD, M. Brennan, MD, W. Ho, MD

Background: Lymphoma is a common cancer in older patients. We report an atypical presentation which included spontaneous tumor lysis syndrome and renal failure. Furthermore, the diagnosis was delayed because caregivers focused attention on concomitant nephrolithiasis.

Case: A 76 yo community dwelling elder developed left flank and leg pain and was treated by his PCP for spinal osteoarthritis. The pain progressively worsened over 3 weeks and a CT revealed renal calculi with mild hydronephrosis and multiple bilateral lesions which raised the possibility of a malignancy. The patient had a lithotripsy and the ureter was stented. An outpatient evaluation was planned for the lesions on the CT scan. His symptoms improved, but after 3 days pain recurred and the stent was removed. A follow up CT showed persistent bilateral calculi, with extravasated fluid, likely blood, in the area of the renal pelvis. The pain persisted, he became incontinent and developed significant leg weakness and was unable to walk more than a few feet. He returned to the hospital in acute renal failure with a Cr of 3.2, and a uric acid of 16.4. A repeat CT showed interval migration of the left ureteral calculus to the UV junction. Bilateral ureters were stented; the next day he had flaccid paralysis of his legs. An MRI of his spine documented abnormal epidural soft tissue throughout the thoracic and lumbar spinal canal resulting in cord compression. A perirenal biopsy revealed diffuse large B cell lymphoma. He began chemotherapy but developed neutropenia and delirium. His family decided to withdraw aggressive treatment and he passed away peacefully shortly thereafter.

Discussion: This sad case makes at least three important teaching points. First, many diseases present atypically in elders; this lymphoma was characterized by spontaneous tumor lysis and leg weakness but lacked classic signs such as weight loss and lymphadenopathy. Second, the clinical imperative to resolve the hydronephrosis distracted caregivers from making the important lymphoma diagnosis earlier. Finally, there is also a dearth of data around the relative risks and benefits of aggressive treatment in elders; it is not always clear when one ought to shift the goals of care. Collaborative research between geriatricians and oncologists may help to resolve these challenges.

Poster Presentation

American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Do Women Switching From Tamoxifen To An Aromatase Inhibitor Experience A Change In Weight?

Todd Capizzi, MD, Deborah Katz, MD, Wilson C. Mertens, MD, Grace Makari-Judson, MD

Background: Women treated with early stage breast cancer often gain weight in the two years following diagnosis, with adjuvant chemotherapy, younger age, lower body mass index (BMI) and pretreatment menopausal status being associated factors; no further weight gain was realized in the third year (Breast J 2007; 13:258). Tamoxifen (TAM) did not contribute to weight gain compared with placebo in the Breast Cancer Prevention Trial; TAM- and aromatase inhibitor (AI)-treated patients experienced similar weight gain in the ATAC study. Clinical trials evaluating sequencial TAM-to-AI therapy have not reported the impact on patient weight.

Purpose: to determine the degree of weight change experienced by breast cancer patients switching from TAM to AI.

Methods: Retrospective review of postmenopausal women with non-metastatic, invasive, hormone receptor-positive breast cancer sequenced from TAM to AI. Weights and height were recorded while on TAM 12 and 6 months prior to switching, at the time of the switch and 6 and 12 months beyond the switch. Variables evaluated included age at diagnosis, adjuvant chemotherapy, BMI, SSRI use, co-morbidities, and menopausal status.

Results: Data on 80 eligible patients revealed mean weight change from 12 months prior to 12 months post-switch was 0.7 kg (95%CI: -0.16, 1.5 kg, p=.15) with most of the change occurring before the switch (mean change from 12 months prior to switch 0.8 kg, 95%CI: 0.14, 1.5 kg, p=.03). No significant difference was found between weights obtained from switch to 12 months after (mean change 0.1 kg; 95% CI: -0.53, 0.74, p=.75). Current smokers lost weight over the 2-year observation period (mean change -1.6 kg, p=.05). Both univariate and stepwise multivariate analysis revealed that patients with stage IIIIB disease (mean change 9.9 kg, p=.0002) and those with hypothyroid history (4.9 kg, p=.04) gained, with the changes occurring in the year prior to the switch. No association with age, BMI, menopausal status, specific AI employed, duration of TAM treatment, adjuvant chemotherapy, surgery type, alcohol or SSRI use, or other co-morbidities was found, and no factor was associated with weight change over the year after the switch.

Conclusions: While patients switching from TAM to an AI experienced modest weight gain over the two years of observation beginning 12 months prior to the switch, no significant change was seen after the switch. Switching TAM to an AI did not result in significant weight change after 12 months of observation. Future prospective studies should address changes in weight distribution in breast cancer survivors on AIs, particularly years after diagnosis.

Abstract Submission
Breast Conference
December 2007; San Antonio, TX
Optic Neuritis Associated With CSF Herpes Simplex Virus-Type 1 DNA
Beth Carter, MD, Linda Bobo, MD, PhD, Brendan Kelly, MD

Background: There are only three reports in the literature of optic neuritis (ON) associated with HSV-1 in a human. This abstract describes the first case of coincident bilateral ON and HSV-1 in the CSF.

Case Report History: A healthy HIV-negative 40-year old female presented with three weeks of progressive bilateral vision loss, dyschromatopsia, and headache. Three days prior to admission, lumbar puncture (LP) showed an opening pressure (OP) of 22 mmHg. Preliminary diagnosis of pseudotumor cerebri was made and acetazolamide was commenced. Past medical history included migraines, panic disorder, recurrent labial "cold sores" with none in the past year, and cosmetic botulinum toxin type A injection of the forehead one month prior. Physical examination on current admission showed temperature of 97.6 F, supple neck, and tenderness over fronto/temporal regions of the head. Pupils were 5 mm bilaterally and non-reactive to light. Fundoscopic exam showed 3+ disc edema. Vision was 20/200 bilaterally. The remainder of eye and neurological examination was normal. LP showed OP 18 mmHg, glucose 59, protein 40, and 2 WBC/ul. One week later, CSF PCR from the second LP showed 50 copies/ml of HSV-1 DNA. Patient was readmitted for intravenous acyclovir, and corticosteroids were initiated for the possibility of Devic's Syndrome. CSF studies from the third LP were negative for: bacterial culture, HSV and VZV PCR, oligoclonal bands, and myelin basic protein. Serum HSV IgG was positive, and HSV IgM was negative. Serum neuromyelitis optica antibody, Lyme titers, RPR, ANA, and ACE levels were all normal. Chest imaging was normal. Brain MRI was consistent with optic neuritis. Brain MRA/MRV and MRI of thoracic and cervical spine were normal. At six month follow-up, the patient has slowly regained most vision, with only residual decreased contrast sensitivity, and brain MRI and Visual Evoked Potentials are consistent with improved, but persistent optic neuritis.

Discussion: This is the first documented case of bilateral ON associated with HSV in the CSF. An extensive evaluation found no other etiology. At the same time, several diagnostic possibilities remain including Devic's Syndrome without transverse myelitis, early multiple sclerosis presenting as bilateral ON, or an autoimmune demyelinating process due to viral infection, or botulinum toxin. Of note, there are three recent case reports of ON related to non-cosmetic usage of botulinum toxin type A injection. The relevance to our patient is unclear as she was injected one month prior to presentation for cosmetic purposes. We conclude that her bilateral ON was most likely caused by HSV-1 infection and improved with anti-viral therapy.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham MA
Listeria monocytogenes Infection In A HIV-Infected Patient Manifesting As Cardiac Interventricular Abscess

Khaled Dahche, MD, Jacqueline Caldwell, MD, Dmitri Iarikov, MD, Daniel Skiest, MD, Linda D. Bobo, MD, PhD

Background: Approximately 7.5% of Listeria infections involve the heart, primarily presenting as endocarditis. Listeria interventricular septal abscess (IVSA) has not been reported previously.

Case Report-History: A 51-yr old HIV-infected male presented with rigors for three days, and decreased exercise tolerance accompanied by intermittent chest pain for several weeks prior to presentation. His CD4+ count and HIV viral load were 207/mm³ and 310,765 copies/mm³, respectively, and he was not receiving antiretroviral treatment. Past medical history also included hypertension. On admission, the patient had a temperature of 99.7 F, was tachycardic and tachypneic, and no heart murmurs were appreciated. Laboratory evaluations were significant for leukocyte count of 12,500 cells/mm³, creatinine of 4.3, ESR of 65, CRP of 20.2, and Troponin T of 0.1 with normal creatine kinase (CK) and CK-MB. ECG showed new 1 mm ST depressions in the inferior leads. Subsequent Troponin T was 0.06 with no change in ST depressions. Blood cultures were drawn, and Persantine-MIBI and ECHO were planned. The next morning one of two blood cultures grew gram positive rods and additional blood cultures were drawn. Due to absence of fevers and apparent clinical stability antibiotics were not started. The patient subsequently developed a temperature to 102.3 F. The following morning he became asystolic and could not be resuscitated.

Pathology: Five of six blood cultures grew Listeria monocytogenes. At autopsy, a non-ruptured abscess within the IVS measuring 3.5 x 3.5 x 3.0 cm was found, ending at the level of the mitral valve annulus. There was no gross evidence of any valvular lesions, but on microscopic review, some endocarditis was present. Histologic sections from the abscess stained by Brown and Brenn showed gram positive bacillary forms morphologically compatible with Listeria.

Discussion: This is the first case of Listeria infection presenting with insidious development of an IVS abscess. Listeriosis usually presents as febrile gastroenteritis, bacteremia, and CNS infection. Cardiac involvement is uncommon overall, and is exceedingly rare in association with HIV infection. Defective T-cell immunity is considered a risk factor for listeriosis, and HIV-infection poses a 500-fold risk for listeriosis. However, it is unclear why there is not increased cardiac infection in association with HIV.

Poster Presentation

American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
Capecitabine-Induced Palmar-Plantar Erythrodysesthesia In A Diabetic Patient

Sarah L. Dews, MD, Venkata R.R. Kodali, MD, Michael J. Rosenblum, MD

Background: Cutaneous side effects are increasingly recognized with novel chemotherapeutic agents. We describe a case of palmar-plantar erythrodysesthesia (PPED), or Hand Foot Syndrome (HFS), in a diabetic man on capecitabine. This condition was first reported in 1984 as an adverse reaction to long-term continuous infusion of doxorubicin or 5-fluorouracil (5-FU). It is more recently recognized as a side effect of the oral chemotherapeutic capecitabine, a pro-drug for 5-FU, a pyrimidine analog antimetabolite. Capecitabine is FDA-approved as first-line monotherapy for Duke’s C colon cancer, and is administered on an outpatient basis. A similar subset of HFS with prominent onycholysis is described in patients receiving paclitaxol, and is known as PATEO (Periarticular Thenar Erythema and Onycholysis).

Case Report: A 78-year-old man presented with fever and confusion. Past medical history was significant for DM type II, oxygen-dependent idiopathic pulmonary fibrosis, and colon cancer. Medications included capecitabine, started six months earlier for colon cancer. Review of systems revealed fever, cough, decreased appetite, mild confusion, nail changes, and tender sores on palms and soles which had worsened during a recent trip to Europe. The lesions had appeared several months prior to presentation, but had worsened significantly during his travels. Vital signs were significant for tachycardia and hypoxia. Palmar and plantar surfaces showed diffuse erythema and edema bilaterally, with multiple tender, bullous, and ulcerated lesions, 1 mm to 5mm in diameter, on fingertips, palms, and soles [see Figure 1]. Lower extremity exam showed bilateral onycholysis. Chest X-ray revealed a left lower lobe infiltrate. The patient was admitted and treated for pneumonia. Due to concern regarding cutaneous capecitabine toxicity, chemotherapy was discontinued, and wound care was initiated. The lesions improved significantly during the patient's eighteen-day hospitalization for pneumonia. Oncology recommended resuming capecitabine once the lesions healed, with close follow-up and early intervention should symptoms recur.

Discussion: With increasing outpatient use of oral chemotherapeutic agents like capecitabine, cutaneous side effects may not come to medical attention rapidly. In this case, the patient's diabetes confounded the problem, since he believed he was experiencing diabetic complications. Onycholysis is more commonly described in the PATEO subset of HFS associated with taxanes rather than in PPED, but diabetes may have predisposed our patient to onycholysis. Conclusion: Every patient on newer chemotherapeutic agents should be informed of potential side effects and advised to seek medical attention for cutaneous changes. Physical examination of the patient receiving chemotherapy should include careful attention to dermatologic disease.

Poster Presentation
American College of Physicians (ACP) MA Chapter, October 13, 2007; Waltham MA
Massachusetts Medical Society Research Symposium, April 26, 2008; Waltham, MA
American College of Physicians International Medicine 2008 National Conference
May 16, 2008; Washington, DC
Background: Histoplasmosis is the most prevalent endemic mycosis in the United States with a risk of 2 to 5% for AIDS patients from endemic areas. Reactivation can occur in immunocompromised patients but is difficult to prove and probably rare. We report a case of Histoplasmosis in an AIDS patient, immigrant from Honduras who presented with massive cervical lymphadenopathy.

Case Report: A 28 year-old male presented with two weeks of neck swelling, sore throat and intermittent fever. He is a known case of AIDS diagnosed one and half year ago and is on efavirenz, emtricitabine, and tenofovir. He also had a history of syphilis, which was treated with Penicillin. He denied weight loss, night sweats, chills, GI or pulmonary symptoms, penile discharge, cat bite, recent travel or recent TB exposure. Recent PPD testing was negative.

Physical exam was notable for multiple bilateral firm, bulky, rubbery, non-tender anterior and posterior cervical lymphadenopathy, small epitrocheal and inguinal lymph node, no hepatosplenomegaly or skin lesions. CT scan showed bilateral anterior and posterior cervical lymphadenopathy with central necrosis, no thoracic or abdominal adenopathy.

Laboratory analyses were significant for elevated liver enzymes, CD4 197, HIV viral load less than 400. Multiple blood cultures showed no growth. Serology for CMV, EBV, Parvovirus, Syphilis, Bartonella, Toxoplasma and Cryptococcus and lymph node cultures were negative after 4 weeks. The first excisional lymph node biopsy was not able to isolate any tissue because the lymph node contents were liquefied. On the second attempt, cytology showed necrotizing granulomata, with small budding yeast possibly histoplasma. Histology revealed palisading granulomas with central necrosis. The GMS stain showed scattered round or cup-shaped yeasts, suggestive of histoplasma. Multiple AFB stains were negative.

Discussion: Massive cervical lymphadenopathy is a rare presentation of histoplasmosis in AIDS patients and should be considered under initial differential diagnosis along with lymphoma and TB. Although culture is the gold standard for diagnosis, isolation can take up to 4 weeks, and therefore is impractical as a criterion for treatment initiation. Fungal stains of tissues are positive in less than half of cases. Diagnosis of DH requires both a high index of suspicion and awareness of the use and limitations of mycologic and serologic tests. Physicians have to be perseverant in obtaining a tissue diagnosis. Such individual are at high risk of developing severe and often fatal progressive forms of infection if not treated.
Unilateral Anteromedial Thalamic Stroke Presenting As Anterograde And Retrograde Amnesia

Tara DuVal, MD, Sandra Bellantonio, MD

Introduction: Geriatricians are often asked to assess confused patients with new memory loss. Often they prove to have gradually progressing dementias. The authors present an unusual case in which a thalamic infarct resulted in a "dementia" which arose abruptly.

Case: A 71 year old diabetic man with hypertension and a distant history of alcohol abuse developed confusion and both retrograde and anterograde amnesia. Relatives denied any prior memory loss. He was alert but could not recall why he was in the hospital, how he had gotten there, the names of his children, where he lived or his past profession. His memory deficits waxed and waned; his MMSE score was 13. He had a disorganized thought process, dysnomia and difficulty with word finding. An MRI revealed an acute 16 x 13 mm infarct in the anteromedial aspect of the left thalamus extending to the genu and the posterior limb of the internal capsule.

Discussion: Thalamic strokes may result in both behavioral changes and cognitive deficits. Most commonly, they occur in the anterior, paramedian, inferolateral or posterior areas. However, Carrera et al.2 reported overlapping regions in 21 of 70 patients with thalamic strokes. Of the 21 cases with "variant" stroke territories, only 9 (13%) had anteromedial infarcts and most were bilateral. Many of Carera's patients with left sided thalamic lesions had amnesia and 3 had aphasia. However, although anterograde amnesia was common, only 1 case had retrograde amnesia as well. Patients frequently also had a loss of self-activation, a mildly decreased level of consciousness and vertical gaze paresis.

Conclusion: Our patient is unique. He had a unilateral infarct in an uncommon vascular territory with both retrograde and anterograde amnesia. He lacked aphasia, abulia, an altered sensorium and cranial nerve deficits. Decreased thalamic reserves from his past ethanol abuse may have contributed to this atypical presentation. Geriatricians are frequently called upon to evaluate patients with acute changes in cognition; thalamic infarcts are a rare but important cause of sudden memory loss.

References:

Poster Presentation
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Hypercalcaemia After Topical Treatment With Calcipotriol

Jimmy C. Fune, MD, Sujathranin Thiruman, MD, Melissa Young, MD, FACE

Calcipotriol, a vitamin D analogue used for a variety of skin disorders including plaque psoriasis, has been shown to induce hypercalcaemia even at its recommended dose. Cessation of treatment leads to improvement of calcium levels. Although hypercalcaemia is often an incidental finding in an asymptomatic patient, its manifestations involve the neuromuscular, gastrointestinal, renal and cardiovascular system. We report the case of a patient who developed symptomatic hypercalcemia after being treated with Calcipotriol for possible psoriasis.

A 76-year old nursing home resident was sent for admission due to hypercalcemia. Disoriented on presentation, he claimed he had hematuria, but denied other urinary, abdominal, skeletal and cardiopulmonary symptoms. On examination, he was alert but not oriented. He did not have signs of dehydration, corneal calcifications, cardiac rhythm irregularity and abdominal tenderness. He had desquamation and scaling on his forearms and legs. There was no focal neurological deficit and reflexes were normal. He was ambulatory at the nursing home. History was significant for hypertension, seizure disorder, CAD, paroxysmal atrial fibrillation, spinal stenosis and history of DVT. His medications were amiodarone, coumadin, levetiracetam and esomeprazole. He was not taking any supplements. On admission, his total calcium level was 16 mg/dl and ionized calcium 1.61. He was resuscitated with normal saline and furosemide, and given calcitonin and zoledronic acid. An intensive search for the cause of hypercalcemia was initiated. His intact PTH was normal, pointing to a non-PTH-mediated cause—malignancy, granulomatous disease, milk-alkali syndrome or vitamin D toxicity. PTHrP, TSH, alkaline phosphatase, phosphorous, PSA, serum electrophoresis and imaging studies were all normal. On further review, it was found that he was treated for the desquamating rash with calcipotriol for 7 months. Calcitriol level was elevated. His serum calcium returned to normal level after treatment and discontinuation of the topical Calcipotriol and his mental status improved significantly. This case report illustrates that Calcipotriol can produce hypercalcaemia even when applied in the recommended dose and should be thought as one of the cause. Physicians rarely think of the ointment forms of medications as a possible cause of affecting calcium homeostasis and may miss it from the medication list. Although in all reported cases so far serum and urine calcium levels returned to normal after discontinuation of therapy, calcipotriol-induced hypercalcemia is an adverse effects of serious concern. It is, therefore, of essential importance to closely monitor the serum calcium levels in patients treated long term with Calcipotriol therapy, even when the manufacturer's guidelines are adhered.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham MA
Pyoderma Gangrenosum In An Uncommon Location: A Therapeutic Challenge

Jimmy C. Fune, MD, Katherine Gerstle, MD, Darlene Haviland, PA

First described in 1930, Pyoderma gangrenosum is a rare and uncommon, noninfectious neutrophilic dermatosis, of unknown etiology. Diagnosis is difficult and delay in diagnosis and treatment result in extensive scarring. An underlying systemic disease like inflammatory bowel disease, rheumatic or hematological disease or malignancy, is found in at least 50% of patients. We present a case of a patient with PG in an unusual location who was very difficult to treat.

A 77-year old female with a history of RA, coronary artery disease, bronchial asthma and chronic anemia, presented five months before admission with non-healing ulcerations on both breasts resistant to antibiotics and local wound care. Biopsy from the ulceration edge was consistent with pyoderma gangrenosum, without evidence of vasculitis or malignancy. The wound was also infected with MRSA and E. coli. She was treated with rifampicin, ceftriaxone and prednisone 60mg/day and the wound initially improved. Because of recurrence when prednisone was tapered, Minocycline was tried but the patient did not tolerate it thus Cyclosporine was started. Infliximab was about to be initiated when she developed fever due to secondary infection of the breast ulcerations. Examination revealed painful 4x5cm grade 3 ulcers with irregular violaceous border overhanging the ulcer on both breasts. The base was erythematous and covered with foul-smelling yellow discharge Therapy with broad spectrum antibiotics was begun. Wound culture grew P. aeruginosa, sensitive to fluoroquinolone. Steroid and cyclosporine were resumed. She improved clinically during her hospitalization and the ulceration started to heal gradually.

Pyoderma gangrenosum is a medical challenge to physicians, mainly due to its similarities to other ulcerating lesions and nonspecificity of histopathology. Differential diagnoses include malignancy, traumatic ulceration, infection, vascular occlusive or venous disease and vasculitis. Treatment of this condition involves steroids, cytotoxic drugs and immunosuppressants. Despite these, the prognosis remains unpredictable. Concomitant rheumatoid arthritis seems to indicate a poorer prognosis. Our case illustrates the challenge in treating this infrequent condition.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham MA
A Rapidly Re-accumulating Pleural Effusion

Theodore Hartenstein, MD, John Tsongalis, MD, Michael Rosenblum, MD

**Background:** There are a wide array of causes for pleural effusions, including cardiac disease, hepatic disease, malignancy, pneumonia, hemorrhage and tuberculosis. However, when the clinical picture involves a rapidly re-accumulating effusion, the differential diagnosis list shortens, with malignancy at the top. Typically when a patient has a malignant effusion, there are other symptoms of an underlying malignancy (e.g. unexplained weight loss, night sweats, fevers, etc). The most common causes of malignant effusions are lung, breast and hematologic cancers.

**Case:** A 77 y/o woman presented to a community hospital with several days of progressive dyspnea and non-productive cough. She denied fevers, malaise, diarrhea or fatigue. Her past medical history was significant for CAD, DM and fibromyalgia. She had a 60 pack-year history of tobacco use, and denied any environmental or occupational exposures. A chest radiograph showed a large left pleural effusion with question of left lower lobe pneumonia. 1400 ml of serosanguinous fluid was removed by thoracentesis. The pleural fluid was exudative with negative cytology. Within several days, the effusion recurred, prompting transfer to our facility. A second thoracentesis was performed, and again showed an exudative fluid with negative cytology. The patient was discharged with a course of levofloxacin for community-acquired pneumonia with parapneumonic effusion.

Several days later, the patient was re-admitted for increased dyspnea and low oxygen saturations. A radiograph showed a completely opacified left lung field with mediastinal shift. She underwent a third thoracentesis. She subsequently was taken for a VATS procedure that revealed multiple fleshy lesions throughout the pleura and chest cavity. Frozen section was positive for small cell carcinoma (incidentally, the cytology from the third thoracentesis came back the following day as positive for small cell carcinoma). Our patient opted for aggressive palliative care and was discharged home on hospice.

**Discussion:** Despite multiple negative cytologic tests and a high index of suspicion, our patient had small cell carcinoma metastatic to the pleura, found with biopsy during VATS visualization. It is important to remember that with a combined diagnostic yield of 80-90%, thoracentesis and pleural biopsies miss up to 20% of malignancies. However, when biopsies are taken under direct thoracoscopic visualization, the yield exceeds 90%. Given the risks, thoracoscopy should be reserved for situations in which thoracentesis and closed pleural biopsies have not yielded a diagnosis, or when a pleural malignancy has been identified (to better classify histologically).

**Poster Presentation**
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham MA
A Lively Centenarian With Giant Peptic Ulcer Disease

Jodie Hermann, DO, Maura Brennan, MD

Introduction: GI bleeding is a major problem for geriatric patients resulting in 0.1-0.15% of all hospital admissions with a mortality rate > 30% due to frequent presence of comorbidities. The authors report a case of a centenarian with a giant "geriatric" gastric ulcer due to NSAID use.

Case: A 100 year old lady with DM, htn and PVD was living independently despite a BKA. She took frequent NSAIDS for her DJD, developed 2 wks of severe epigastric pain, and was admitted. She did not drink alcohol or smoke and denied nausea and vomiting. An UGI series with gastrograffin under fluoroscopic guidance displayed esophageal dysmotility, a hiatal hernia, 2 esophageal ulcers and two cratered ulcers in her stomach, one of which measured 4 cms across. Fortunately, pathology revealed only chronic gastritis with intestinal metaplasia. She stabilized after conservative treatment with proton pump inhibitors and was discharged home.

Discussion: Older patients are more likely to bleed while using NSAIDS and are prone to develop "giant" geriatric ulcers, which pose additional risks of morbidity and mortality. These giant ulcers may result from an increased use of NSAIDS, greater prevalence of chronic gastritis in elders and proximal migration of the pyloric fundic junction. Any ulcer (2 cm's is termed a giant ulcer. Complications include bleeding, perforation, gastric outlet obstruction and penetration. Perforation occurs in 5-10% of patients, most require surgery. It is important to discontinue NSAIDS and treat any H. Pylori infection while suppressing acid secretion. There is a 10% malignancy rate even with treatment. Repeat endoscopy and biopsies are recommended to monitor response to treatment. Patients may require PPI therapy for up to 2 years.

Conclusion: Giant ulcers are a common and dangerous complication of peptic ulcer disease (PUD) in elders. Older patients are at high risk if they become hemodynamically unstable and require emergency surgery. Thus, early detection of PUD in senior citizens before the development of "giant" ulcers is desirable; the prevention of PUD by treating H. Pylori infections and avoiding NSAIDS also is critical. Finally, since symptoms may be atypical as in this case (the patient only reported 2 weeks of distress) geriatricians, surgeons and internists alike need to be more aware of this dangerous complication of peptic ulcer disease.

Poster Presentation
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
A Prospective, Case-Controlled Study Of The Effect Of Continuous Hemoglobin (Hgb) Monitoring (Critline) On Hemoglobin Variability (Hv) And Erythropoietin (Epo) Dosing

Warren Ho, MD, Michael J Germain, MD, Jane Garb, MPH, Cherry Bartlett, Eric Will

Hypothesis: 12 Hgb values per month (12qm) would better predict Hv (SD of residuals from each patient's own predicted regression line) and trends in response to EPO dosing than monthly Hgb measurement (1qm). Forty nine unselected patients, comprising one dialysis facility, used Critline to assess Hgb each dialysis treatment over the course of 15 months. Each patient served as their own control. During the 3 month Baseline period Hgb was recorded at each dialysis treatment but no change was made in volume management (staff were blinded to the Critline). During the second phase (6 months) staff followed a strict protocol of fluid management based on the results of the blood volume monitor. During the last 6 months a computer algorithm (AMIE, Leeds, UK) will give suggested EPO and iron doses based on the predialysis 12qm, and be compared with the 1qm. Figure 1 demonstrates the bias of 1g/dl higher value of the lab Hgb vs the Critline Hgb measured concurrently (12 vs 11, p<0.001). There is an increased estimate of Hv with 12qm (0.27) vs 1qm(0.126)(p=0.001). Figure 2 (to be shown on poster) demonstrates a patient who had a cycling of the Hgb values during the month that was not apparent from the 1qm values. Hv ,which may be associated with increased mortality, can be more accurately assessed with 12qm. 12qm also allow earlier detection of trends in Hgb slopes. This can alert staff to intercurrent events. The more frequent Hgb values provide early evidence of response to EPO doses, and allow more appropriate, timely and confident changes in renal anemia management. It is anticipated that the more frequent Hgb monitoring data used with a computer algorithm will reduce undesirable Hv.

Poster presentation
National Kidney Foundation
April 3-5, 2008; Dallas TX
As part of a prospective, case controlled study of per hemodialysis treatment measurement of hgb (critline) it was possible to examine the routine factors that influence out-patient renal anemia management (n=49). A written unit wide protocol of EPO management was followed based on the monthly lab hgb. The staff was blinded to the critline hgb results. 43% of patients had predictable, orderly declining or stable slopes of Hb change, with minor reductions in EPO dose. The factors that impinged on management could be divided into Organisation and Patient related issues. Organisational issues: 1) missing data rate of 4% including laboratory results and clinical events. 2) There were 4 episodes of 'therapeutic inertia', where little changes to EPO dose occurred despite a downward trends in Hb. 3) 9 episodes of 'therapeutic overenthusiasm'. These responses were not protocol driven. 4) In 4 cases the thrice-weekly hgb gave more useful information than the monthly blood hgb.(fig1) Pt factors 1) 16% of pts had resistance to epo (> 300iu/Kg/wk). High ferritin values suggested undiagnosed clinical acute phase responses in 3 patients. 2) 23% of patients were hospitalised over the three month data collection period and two transfused with blood. These data indicate the routine activities that confounds the management of renal anemia, even when appropriate protocols are in place. Facility protocol is a necessary but not sufficient tool. More frequent hgb measurements have the potential to more quickly establish responses to epo dose changes and confirm trends earlier. This will allow more rapid and confident titration to stable doses. Some unstable/resistant patients are likely to remain beyond such titration. The focus on compliance with changes in epo payment policies and guidelines potentially frustrates the long-term titration to stable doses that is required. Protocol management is ineffective unless the context and logistics are carefully designed and clinicians comfortable enough not to over-ride decision support. This ongoing study will assess the effect of a computer algorithm on anemia management assessed by the q treatment critline hgb.
Congestive Heart Failure (Chf) Exacerbation Precipitated By Unintended Overdose Of Baking Soda

C. Huang, MD, A. Lotfi, MD, A. Saxena, MD, S. Bellantonio, MD

Background: Adverse drug-related events may cause profound consequences in geriatric patients, resulting in increased hospitalizations or mortality. We report a case of CHF exacerbation due to baking soda overdose.

Case: An 82 year old male patient with CHF and chronic renal insufficiency (CRI) was admitted to the Cardiac Intensive Care Unit for respiratory distress due to CHF exacerbation. Physical examination was notable for BP 180/98, jugular venous distention to the mandible, bilateral crackles and 4+ pitting edema. Lab data included a Na+ 144 (baseline 137) mmol/L, K+ 4.4 mmol/L, Cl- 107 mmol/L, CO2 20 mmol/L, BUN 67 mmol/L, Cr 6.4 (baseline 6) mmol/L and proBNP 7267 pg/mL. EKG was unremarkable with normal sinus rhythm and without ST elevation. Chest x-ray showed diffuse increased interstitial markings bilaterally, suggesting CHF. ECHO was consistent with diastolic dysfunction with a left ventricular ejection fraction of 55-60%. The patient's home medications and recent events were reviewed with the patient and his family members to determine the cause of CHF exacerbation. The patient was compliant with his home medications, including Lasix 40mg BID. However, the patient was recently prescribed sodium bicarbonate 325 mg BID to correct chronic metabolic acidosis secondary to progressive CRI. Because the patient could not obtain this medication due to financial difficulties, his primary care physician suggested using baking soda as an alternative. The patient reported that clear dosage instructions were not given. Consequently, the patient took several teaspoons of baking soda twice a day, which was estimated to equal about 2g of sodium bicarbonate BID, for three weeks prior to admission. During the hospitalization the patient's CHF was well compensated with BIPAP, diuretics and nitroglycerin drip therapy. He was discharged home with clear diet and medication instructions.

Conclusion: In this case, the overdose of baking soda due to unclear or misunderstood instructions likely caused sodium and water retention, resulting in CHF exacerbation in an elderly vulnerable man with CRI and diastolic dysfunction. Discussion: Lack of access to medication, financial support or clear medical advice are major reasons for unintended drug-related adverse events in geriatric patients. Clear instruction should be given when alternative medication or food supplement are suggested.

Poster Presentation

American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
IgA Nephropathy In A Patient With Cocaine And Alcohol Abuse

Chunmei Huang, MD, Eileen Kehoe, MD, Giovanna Crisi, MD, PhD, Barbara Greco, MD

Introduction: A wide spectrum of renal complications has been reported in patients using cocaine, the most common being acute renal failure due to rhabdomyolysis and accelerated hypertension associated renal injury. Rare cases of renal infarction, antiglomerular basement membrane antibody-mediated glomerulonephritis and acute interstitial nephritis have also been reported. We report a case of IgA nephropathy associated with acute hepatic injury in the setting of acute cocaine and alcohol intoxication in a patient with longstanding drug abuse.

Case Report: A 35 yr old female with more than 10 years of alcohol and intranasal cocaine use presented after intoxication with cocaine and alcohol. Past medical history was notable for depression and anxiety. Physical examination was significant for tachycardia, normal blood pressure, obtundation, and diffuse abdominal tenderness. Admission laboratory values were notable for severe alcoholic ketoacidosis, a creatinine of 1.3 mg/dl and creatinine kinase 876 units/L which later peaked at 8273 units/L. Urinalysis showed proteinuria, microhematuria with nondysmorphic red blood cells, granular casts and many uric acid crystals. The patient's creatinine peaked at 11.9 mg/dl and she required hemodialysis support. Acute hepatic injury was evident with transaminase peak levels including AST 11160 units/L and ALT 10900 units/L. Viral hepatitis and HIV serologies were negative. CT of abdomen showed liver swelling without evidence of cirrhosis. The patient required dialysis for three weeks, during which time microhematuria and nephrotic range proteinuria persisted. Serum protein electrophoresis showed elevated IgA of 688 mg/dL and complement levels were normal. Kidney biopsy demonstrated IgA nephropathy in addition to myoglobinuric acute tubular injury. Within 5 weeks of presentation, creatinine had recovered to 1.1 mg/dl and liver function tests normalized.

Discussion: IgA nephropathy has been reported in association with cirrhosis. IgA nephropathy presents in this young woman without prior history of cirrhosis in the setting of acute hepatic injury caused by acute alcohol and cocaine toxicity. Potential mechanisms in the pathogenesis of IgA nephropathy in this case include the possibility of enhanced stimulation of IgA production associated with intranasal cocaine abuse and reduced clearance due to episodic acute hepatic injury. Liver biopsy would be needed to rule out cirrhosis.

Conclusion: IgA nephropathy may be a further manifestation of cocaine associated toxicity. Further studies are needed to clarify this association.

Abstract Submission
American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
Catastrophic Antiphospholipid Syndrome In Rheumatoid Arthritis?

Syed Hussain, MD, Siddharth Wartak, MD, Vivianne Bunin, MD, Khaled Dahche, MD, Sandhya Kommana, MD, Lauren Meade, MD

**Introduction:** Antiphospholipid syndrome (APS) is an autoimmune disorder in which the antiphospholipid antibodies promote thrombogenesis in the arterial and venous systems. APS can present as a primary process or secondary in association with lupus or, less commonly, other autoimmune conditions. A rare, but potentially lethal, syndrome called catastrophic antiphospholipid syndrome (CAPS) may occur in patients with APS. In CAPS there is a rapid progressive disseminated thrombotic microangiopathy causing multiorgan failure.

**Case:** A 66 year old woman with a history of rheumatoid arthritis (RA), hypertension, hyperlipidemia, cholelithiasis, and carpal tunnel syndrome presented with acute onset right-sided hemiparesis and aphasia. The patient was fully independent and a smoker. She was well until the day of admission when she had sudden onset of right arm weakness and slurred speech. Her medications were: aspirin, lisinopril, furosemide, simvastatin, atenolol, methotrexate, folic acid, and prednisone. Family history was non-contributory. Physical examination revealed T 98.1, BP 190/80, P 75, RR 16, O2 Sat 99% on room air; a right facial nerve palsy, right-sided tongue deviation, expressive aphasia, and right upper limb weakness. Pertinent lab finds were: Platelet = 87, BUN= 27, creatinine =2.1, INR = 2.1, and low complement levels. MRI brain showed multiple, bilateral foci of ischemia suggestive of an embolic phenomenon. Embolic work-up revealed multiple vegetations involving the mitral and aortic valves. Patient remained apyrexial, and all blood cultures are negative. She was therapeutically anticoagulated with low molecular weight heparin.

One week after presentation, the patient developed multiple purpuric coetaneous lesions with worsening PT, thrombocytopenia and complement levels, prolonged PTT, and fragmented red blood cells on blood smear. She had medium/high titers of anticardiolipin (aCL) and antiphospholipid (aPL) antibodies (IgG, IgM and IgA). Although she was found heparin-induced thrombocytopenia (HIT) antibody positive, serum release assay test was normal. For safety she was anticoagulated with argatroban. She received four sessions of plasmapharesis and high-dose steroids, but despite the aggressive treatment, she died from multiorgan failure within one week of acute deterioration.

**Discussion:** In our case, multi-focal ischemic stroke with development of aseptic valvular vegetations, worsening thrombocytopenia, raised INR, and low complement levels on a background of rheumatic disease suggested an autoimmune thrombotic disorder. The presence of high levels of aCL and aPL antibodies allows an individual diagnosis of APS. The rapid multiorgan involvement (neurological, renal, cardiovascular and coetaneous), in less then one week, strengthens a diagnosis of CAPS. This rare condition has been reported in a few hundred cases worldwide. Furthermore, only one case of RA and CAPS has been described.

**Poster Presentation**
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Cramping With Crohn’s: New Diagnosis Of Crohn’s In A 88 Year Old Man

S. Hussain, MD, S. Wartak, MD, A. Rosales, MD, A. Deray, MD

**Introduction:** Crohn’s disease (CD) usually presents at a younger age, but a second peak is described in the later decades. Atypical symptoms in the elderly and limited treatment make it a management dilemma.

**Case:** 88 year old man complaining of intermittent right sided abdominal pain shortly after his right inguinal hernia surgery. His general practitioner ruled out hernia recurrence, is treated for postoperative pain. He has a background history of: hypertension, parathyroidectomy, past alcohol abuse, and osteoporosis for which he takes relevant medications.

After two weeks, patient is admitted for a five day history of worsening right sided abdominal pain with nausea and vomiting. The patient is dehydrated with leucocytosis, and CT abdomen shows thickened terminal ileum and colon. Colonoscopy demonstrates diverticulosis and biopsy confirms CD. Patient is treated with steroids and mesalamine and discharged on tapering steroids.

Patient returns two weeks later with a CD flare-up and is treated again with intravenous steroids. After discharge, he is symptom free, but non-compliant with his medications. He cannot tolerate his pills and is fully aware of possible adverse outcome. He is deemed capable of making informed decisions and prefers taking less number of medications.

**Discussion:** CD is known to have a peak in later life. Use of immunosuppressants presents a challenge for treating the disease in this age group since there is limited data looking at the overall outcome in this population. Furthermore, co-morbid conditions potentially complicate the treatment for exacerbations. We present a unique management dilemma in the context of geriatric care. Our patient has CD diagnosed late in life has already experienced a flare up shortly after diagnosis. He has good social support and is capable of making decisions. He is also aware of the importance of his medications. However, he chooses not to be compliant due to self-reported intolerance to the treatment reports feeling better without them. He is a frail but independent man who would rather have a life free of medications. After discussing the importance of drug compliance, patient opted to keep taking the medications he was comfortable taking. As physicians, we need to be compassionate to the needs and concerns of an ageing population. Our case exhibits the challenges faced when treating the elderly with a remitting-relapsing condition.

**Poster Presentation**
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Methotrexate Monotherapy in Autoimmune Hepatitis

Syed Hussain, MD, Jeanne McCarthy, PA-C, Siddharth Wartak, MD, David Desilets, MD

Introduction: Autoimmune hepatitis (AIH) is an important cause of chronic hepatitis. Diagnosis is based on clinical, laboratory, and histological findings. Few new advances have been made in treating this condition, with the mainstay of therapy comprising corticosteroids (CS) and other immunosuppressants such as azathioprine. There is, however, a subset of patients who are difficult to manage on standard therapy, mainly due to resistance to or side effects of therapy.

Case: A 66 year old female with type 1 diabetes presented with elevated transaminases (AST, ALT). She was asymptomatic, and all other liver chemistries were within normal limits. A hepatitis laboratory work-up ruled out viral hepatitis and metabolic diseases, but ANA titer was elevated at 1:800. Subsequent liver biopsy was diagnostic of primary biliary cirrhosis, autoimmune hepatitis, or overlap between both. Given the fact she had type 1 diabetes, negative antimitochondrial antibody titer, and normal bilirubin and alkaline phosphatase levels, autoimmune hepatitis (AIH) was diagnosed. The patient was treated initially with CS but this worsened her glycemic control despite use of an insulin pump. Subsequent treatment with azathioprine caused profound neutropenia, gastrointestinal side effects, and weight loss resulting in hospitalization. All medications were stopped, but her transaminases remained higher than pre-treatment levels. Methotrexate (MTX) at a dose of 7.5 mg orally once a week, was begun with excellent clinical and laboratory response. The patient responded well to this therapy and showed clinical improvement, as well as normalization of her liver chemistry. The dose of methotrexate was gradually tapered and the patient remains well on 2.5 mg once weekly for the past two years.

Discussion/Conclusion: Corticosteroids remain an important part of first-line therapy for most patients with autoimmune hepatitis. Patients with severe side effects or incompatibility due to other comorbidities, such as diabetes mellitus in this case, will need alternative treatments. For AIH, azathioprine is the main steroid-sparing agent. Other options include cyclosporine, 6-mercaptopurine, mycophenolate mofetil, and ursodiol. Three other reports using MTX for AIH exist in the literature, but those cases were treated with combination of MTX and prednisone. Our case is the first known report of a patient intolerant to corticosteroid and azathioprine who achieved complete remission with MTX monotherapy.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Background: The prevalence of antiretroviral therapy (ART) drug resistance among treatment naïve HIV-infected individuals (primary resistance) in the United States ranges from 8% to 25%, depending on the region. Current guidelines, which recommend resistance testing for all patients prior to treatment, are based on an expected prevalence of resistance of more than 5%.

Methods: To determine the prevalence of drug resistance in antiretroviral naïve HIV-positive patients, we conducted a retrospective study of all patients from the major HIV clinics in the Springfield, MA. HIV resistance was determined by genotypic resistance tests performed from 2/5/2004 through 1/3/2008. Genotypic mutations were classified as associated with resistance based on International AIDS Society -USA drug resistance mutations list.

Results: HIV resistance was determined in 93 treatment naïve HIV-infected patients. The group included 63 men and 30 women. Mean age was 41 years, range (18-71 years). Thirty seven patients (40%) were Hispanic, 28 (30%) Caucasian, 27 African (29%), and 1 (1%) Asian. HIV risk factors included heterosexual sex in 49 patients, male-to-male sex in 24 patients, intravenous drug use (IDU) in 19 patients, and occupational exposure in one patient. Seventeen patients were coinfected with hepatitis C. Median time between HIV diagnosis and resistance assay was 2 months, range (3 days to 19 years). Forty (43%) patients had a CD4 count < 200 cells/mm3, 15 (16%) had CD4 count 200-350 cells/mm3 and 38 (41%) patients had CD4 count > 350 cells/mm3. Five of 93 (5.4%) patients had primary resistance mutations. Mutations to non-nucleoside reverse transcriptase inhibitors (NNRTI) were found in four patients; two 103N mutations, one 181C mutation, and two 190A mutations. Mutations to nucleoside reverse transcriptase inhibitors (NRTI) were found in one patient: 41L and 210W. Mutations to protease inhibitors (PI) were found in two patients: both of them were the 90M. Four out of five patients with mutations had resistance to a single class of antiretrovirals - three to NNRTIs and one to PIs. One patient had mutations to all three classes of antiretroviral medications. His resistance test demonstrated the presence of PIs mutation: 90M, NNRTIs mutations: 181C and 90A, and NRTIs mutations: the 41L and 210W.

Conclusion: We found a lower prevalence of primary HIV resistance in Springfield, MA, compared to other studies. This may reflect the recently reported trend of decreased primary resistance in HIV-infected patient in the United-States and Europe or may be related to specific characteristics of our population. Compared to other studies Springfield has a higher prevalence of Hispanics, a higher prevalence of IDU and a lower prevalence of male-to-male sex as HIV risk factors. Universal resistance testing of treatment naïve patients may be less cost effective in regions with a lower prevalence of resistance. Knowledge of local epidemiological trends in resistance may aid HIV clinicians in choosing an appropriate initial ART regimen.

Abstract Submission
Infectious Diseases Society of America Meeting Annual Meeting
October 25-28, 2008; Washington, DC
Prevalence Of Drug Resistance To Antiretroviral Therapy
In Treatment Experienced HIV Infected Patients

D. Iarikov, MD, M. Irizarry-Acosta, MD, C. Martorell, MD, D. Skiest, MD

Background: Patients frequently interrupt antiretroviral therapy (ART) in practice. The utility of resistance testing prior to restarting therapy in patients off ART has not been studied.

Methods: To determine the prevalence of drug resistance in antiretroviral experienced HIV-positive patients who were not on ART at the time of resistance testing we conducted a retrospective study of patients from the major HIV clinics in the Springfield area. Patients were included in the study if they were ART experienced and the time between ART interruption and resistance testing was \( \geq 2 \) months. HIV resistance was determined by genotyping resistance tests. Genotypic mutations were classified as associated with clinical resistance based on the International AIDS Society -USA drug resistance mutations list.

Results: Fifty five treatment experienced patients underwent resistance testing between November 2003 and February 2008. There were 31 women and 24 men. The mean (range) age was 39 (15-65) years. HIV risk factors included heterosexual contact in 25 patients, intravenous drug use (IDU) in 15 patients, male-male sex in nine patients, both IDU and heterosexual contact in three patients, perinatal transmission in two patients and blood transfusion in one patient. Time between ART interruption and resistance testing ranged from 2.5 months to 8.5 years (median time 14 months). Thirteen patients (24 \%) were found to have resistance mutations. Median time between the last ART and resistance testing for patients with persistent mutations was 18 months and for patients without mutations was 14 months.

Eight non-nucleoside reverse transcriptase inhibitor (NNRTI) mutations were present in seven patients: 100I (one patient), 108I (two patients), 103N (four patients), and 188H (one patient). Four patients had mutations to nucleoside reverse transcriptase inhibitors (NRTIs): 41L (2 patients), 184V, and 215Y one each. Mutations to protease inhibitors were found in 2 patients: both had the 46L mutation. Median and mean time after ART interruption to resistance testing in those with NNRTI mutations was 10.5 and 23 months respectively. For NRTIs and PIs the median time was 28 and 36, respectively, and the mean time was 29 months and 36 months, respectively.

Conclusion: Resistance testing for patients who stopped ART for more than one month is not currently recommended. It has been implied that in the absence of selective drug pressure viruses with drug resistance mutations might become undetectable by current assays. Our data shows that drug resistance is present in a significant proportion of treatment experienced patients (24\%) who are beyond the proposed one month cut-off. In case of treatment naïve patients the resistance test is considered to be cost effective if the resistance prevalence is greater than 5\%. Extrapolation of this data to a treatment experienced population suggests the potential utility of resistance testing in treatment experienced patients who are not currently on ART.

Abstract Submission
15th Conference on Retroviruses and Opportunistic Infections
February 3-6, 2008; Boston, MA
The Efficacy Of Intravenous Immunoglobulin In The Treatment Of Refractory Clostridium Difficile Diarrhea

M. Irizarry-Acosta, MD, M. S. Wall, MD, R. Michael MD, S. Haessler, MD

Introduction: Clostridium difficile (CD) is a causative agent of antibiotic-associated colitis. Pathogenesis involves colonization of the intestinal tract after antibiotic therapy alters normal flora. Oral metronidazole or vancomycin are the primary therapies. However, there have been many reported cases of severe, persistent, or relapsing diarrhea where passive immunization with intravenous immunoglobulin (IVIG) has been found to be effective. We present a case series of patients who received IVIG therapy for refractory CD diarrhea (CDD).

Case Series: Records were obtained for all recipients of IVIG at Baystate Medical Center in Springfield, MA from the past two years. 6 patients were identified as receiving IVIG for the treatment of CCD. Median age was 69. Diagnosis was made by colonoscopy and/or toxin assay. Five patients had been in long-term care facilities. 4 developed CD after pneumonia therapy; the remainder after UTI therapy. 2 patients developed toxic megacolon and one had bowel perforation. All patients continued their oral antibiotic regimen and received a single dose of IVIG (30 to 40 Gm), with resolution of diarrhea 48-120 hours after administration.

Discussion: CD is a common nosocomial infection and a frequent cause of morbidity and mortality among the elderly population. Oral antimicrobial treatment remains the gold standard. Symptoms recur in 37-50% of patients treated exclusively with oral antibiotics. A number of case reports document the successful use of IVIG in the treatment of CDD, none of which share a standard dosing or frequency regimen. Elderly patients, especially nursing home residents, are at increased risk for infections needing antibiotics, and therefore more susceptible to CDD. However, risk factors for refractory CDD, such as antibiotic regimen, living situation and other co-morbidities have not been well documented in the literature.

Conclusion: IVIG is an efficacious treatment for severe CDD in elderly patients who have failed conventional therapy. There is no standardized dose of IVIG, and no studies describe risk factors for the development of refractory CDD. Additional research protocols to substantiate the impact of IVIG as an alternative and cost-effective treatment and identification of risk factors for refractory CDD could improve treatment strategies and prevent harmful sequelae.

Poster Presentation
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Case Study Of Bacteroides Splanchnicus Endocarditis

Jeyavarna Karthikeyan, MD, Lauren Meade, MD, Sarah Haessler, MD

Case: A 60 year old Caucasian man with a history of bladder adenocarcinoma, recent Enterococcus faecalis endocarditis requiring mitral and aortic valve replacement, pancreatic mass and chronic renal insufficiency presented with fever and chills for 2 days. The patient had completed 6 weeks of Ampicillin and Gentamycin 7 days prior to admission and was back to his usual state of health until sudden onset of fevers, chills, myalgias and a T=101. On physical exam his T=101, P-90, BP-80/40, R-20, and SpO2=100% on 2 L NC. In general patient was confused. He had poor dentition but no splinter hemorrhages, Osler nodes or janeway lesions. He had a 3/6 systolic ejection murmur at the apex with radiation to the axilla and clear lungs. His sternal wound was healing well with no drainage and no fluctuance. Laboratory values were notable for WBC=7.6, HCT 28.7 and creatinine=1.5. He was hydrated and started on piperacillin/tazobactam, vancomycin, gentamycin and ampicillin with return of normotensive BP and mental status. On hospital day #2, urine culture negative, C. diff negative, and 1/2 blood cultures positive for gram negative rods. Blood culture grew out Staphylococcus species non aureus from hospital day 2 after antibiotics administration. It took 10 days to identify the specie as Bacteroides splanchnicus. A transesophageal echocardiogram showed a 13 mm mobile mitral valve vegetation attached to the posterior mitral valve annulus. The patients antibiotics were narrowed to IV gentamycin, rifampin and metronidazole and he successfully completed a 6 week course.

Discussion: Early PVE (prosthetic valve endocarditis) is commonly due to gram positive organism, including Staphylococcus. aureus, coagulase negative staphylococcus, and dipheroids, while gram negative organisms account for only 8% of cases. Our patient presents with PVE vegetations in the setting of sepsis with the first blood culture growing B. splanchnicus most suggestive of the source of his endocarditis. The presentation is limited by only 1/2 blood cultures positive for B. splanchnicus and only 2 blood cultures being obtained prior to antibiotic administration. A definite diagnosis of PVE due to B. splanchnicus would require Gram stain, culture, or histologic evidence from the prosthetic valve material which was not obtained. Eventhough coagulase negative staphylococcus is one of the most common cause of PVE, a single blood culture bottle out of six is usually considered a contaminant. Gram negative rods including B. splanchnicus are never considered a blood culture contaminant. To our knowledge, this is the first case report of possible Bacteroides splanchnicus prosthetic valve endocarditis.

Abstract Submission
American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
Usefulness Of Serum Creatinine For Detecting Renal Insufficiency In Elderly Outpatients

Eileen Kehoe, MD, Michael Rothberg, MD, Thabo Kenosi, MD, Penny Pekow, PhD, Maura Brennan, MD, Ricky Wang, Jeffrey Mulhern, MD, Gregory Braden, MD, Abbie Courtemanche, MD

Purpose: Chronic renal insufficiency (CRI) is a growing problem among the elderly. Early detection is essential to ensure proper treatment and to avoid drug toxicity. National guidelines recommend screening for kidney disease by calculating estimated creatinine clearance, but most physicians still rely on serum creatinine concentrations. We hypothesized that most cases of renal insufficiency in the elderly would go undetected because patients had normal serum creatinine. As a result, patients would be prescribed potentially dangerous medications while not receiving treatment for renal failure.

Methods: Retrospective chart review of all patients over 65 year of age at High Street Health Center, an academic medical clinic associated with Baystate Medical Center in Springfield, MA. All patients with a serum creatinine measured in the past 3 years were included. Normal serum creatinine cutoffs (>1.1 for women and >1.2 for men) were compared with a calculated glomerular filtration rate (GFR) of 60 ml/min to determine the sensitivity of serum creatinine in diagnosing renal insufficiency. CRI was defined by an estimated GFR <60 ml/min. Charts of patients with a GFR <60 were further examined to see whether renal insufficiency was noted as a diagnosis or problem and whether appropriate or contraindicated medications were prescribed. Results Of 399 patients with sufficient information to compute creatinine clearance, 196 (49%) had a GFR < 60. Increasing age directlycorrelated with increasing prevalence of CRI, and inversely correlated with the likelihood that the primary care physician (PCP) was to identify it. The sensitivity of an elevated serum creatinine was only 60%. Providers failed to identify renal insufficiency in 71% of cases. Those patients who were identified to have CRI, were also found to have multiple comorbidities with hypertension (89%), diabetes (46%), and congestive heart failure (20%) being the most common. Patients with hypertension and diabetes were more likely to have their CRI identified by their PCP, than those without. Patients with unrecognized renal failure were less likely to recieve an ACE inhibitor (ACE) or angiotensin receptor blocker (ARB) (85% vs 62%, p= 0.0025) and more likely to recieve a potentially inappropriate medication, the most common being an non-steroidal anti-inflammatory drugs (NSAID) (28% vs 19% p=0.22).

Conclusions: Using serum creatinine, physicians frequently fail to diagnose renal insufficiency in the elderly, leading to inappropriate treatment. Efforts should focus on helping physicians better identify patients with low GFR.

Award
1st place in Research Competition at Resident's Poster Session
American Geriatrics Society Annual Scientific Meeting (AGS), May 2-6, 2007; Seattle WA

Poster Presentation
American Geriatrics Society Annual Scientific Meeting (AGS), May 2-6, 2007; Seattle WA
American Society of Nephrology Annual Meeting (ASN) October 31- November 5, 2007; San Francisco, CA
Hepatocellular Carcinoma With Intracardiac Metastases

Cyrus Khan, MD, Abdullah Shaikh, MD, Michael Rosenblum, MD

Introduction: Patients presenting with HCC often have a common set of symptoms and signs consistent with chronic liver disease and have frequently received medical care for related issues and complications. We describe a patient presenting with dyspnea of a few months duration from intra-cardiac metastases of HCC.

Case History: 78y/old male with history of COPD presented to another facility with worsening dyspnea on exertion and chest pain. Diagnostic tests showed elevated bilirubin and transaminases with an abdominal CT suggestive of a hepatic mass. For the last three months he had been feeling more fatigued, had noticed worsening dyspnea on exertion, orthopnea, lower extremity edema and had been on treatment with diuretics and multiple medications for COPD including steroids. His exam was consistent with right sided heart failure. Lab work revealed thrombocytopenia, negative hepatitis serology, raised serum alpha fetoprotein and increased ANA and anti-smooth muscle antibodies consistent with auto-immune hepatitis. CXR revealed a pattern consistent with interstitial lung disease and pulmonary fibrosis rather than COPD and was consistent with the patient's history of asbestos exposure. An echo showed right atrial dilatation with a large, multilobulated right atrial mass. Cardiac and Abdominal MRI showed a complex liver lesion with mass extending from the right hepatic vein into the right atrium and then right ventricle consistent with tumor extension. Other lesions within the liver suggested HCC. It also revealed a thrombus in the infrahepatic IVC and intrahepatic IVC. Unfortunately at this point, little could be done for the patient in terms of curative treatment for HCC with extensive metastases.

Discussion: This case demonstrates how advanced HCC can be present without the symptoms often related to advanced hepatic disease. Using prudent clinical judgment and goal directed investigations it was possible to arrive at a unifying diagnosis that explained the patient's initial symptoms.

Conclusion: This case illustrates a very rare complication of HCC. It is an important and unusual cause for symptoms consistent with right sided heart failure.

Poster Presentation

American College of Physicians (ACP) MA Chapter

October 13, 2007; Waltham, MA
Spontaneous Tumor Lysis Syndrome In The Setting Of A Solid Tumor

Cyrus Khan, MD, Chunbai Zhang, MD, Stephen Ryzewicz, MD, FACP

Introduction: Tumor Lysis Syndrome is a constellation of metabolic abnormalities resulting from spontaneous or treatment-related tumor necrosis or fulminant apoptosis. The metabolic abnormalities observed in patients with tumor lysis syndrome include hyperkalemia, hyperuricemia, and hyperphosphatemia with secondary hypocalcemia. These can lead to acute renal failure (ARF). While it is common to come across tumor lysis syndrome following initiation of chemotherapy for hematologic malignancies, it is rare to come across this with chemotherapy for solid tumors and extremely rare to see spontaneous tumor lysis without chemotherapy in patients with solid tumors.

Case History: 81 y/old Caucasian female with history of Evans Syndrome (ITP + Hemolytic anemia), Chronic Kidney Disease and recently diagnosed Diffuse B-Cell Lymphoma with multi-organ involvement presented with ARF. Her initial metabolic profile on presentation was deranged with a Potassium of 5.4, Calcium of 7.0, Phosphorus of 8.8, Uric Acid of 19.7, BUN of 150 and Creatinine of 5.0. This was compatible with the diagnosis of Tumor Lysis Syndrome although the patient had not received any forms of chemotherapy. Recognizing the rarity of such conditions, a multi-specialty team of physicians including medicine, heme/onc. and nephrology undertook further management of this patient. In addition to dialysis, the patient was also started on Rasburicase, a recombinant urate oxidase enzyme that converts existing uric acid to allantoin, which is 5 to 10 times more soluble in urine than uric acid. Within 48 hours of starting treatment, the patient’s uric acid levels were down to 0.3 with a gradual resolution of her metabolic abnormalities and renal failure. The patient was then treated with Cytoxan to reduce tumor burden and decrease chances of recurrence. In retrospect, it was also thought that the patient’s ITP and hemolytic anemia was secondary to her undiagnosed Lymphoma. The patient did well to recover from this acute episode although her prognosis remains grave due to the advanced stage of her malignancy.

Discussion: This case shows how important it is to take into consideration all aspects of a patient’s initial presentation, have a broad differential including rare entities and try to arrive at a unifying diagnosis. Considering and then correctly diagnosing spontaneous Tumor Lysis Syndrome as the cause of ARF in this patient made a considerable impact on further management and outcome.

Conclusion: STLS, although extremely rare, especially in setting of a solid tumor, is still an important entity to look out for in patients presenting with ARF. Recognition leading to correct management can make a huge difference in outcomes.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Splenic Arterial Embolization: A Treatment Option For Hypersplenism

Basil Lau, MD, Mihaela Stefan, MD, Armen Asik, MD

Background: Splenic arterial embolization is a minimally invasive procedure, used to treat portal hypertension, hypersplenism, splenic neoplasm, splenic artery steal syndrome after liver transplant, splenic trauma and splenic artery aneurysm. When clinically appropriate, it may provide an alternative to open surgery. An embolic agent is injected through a catheter into the splenic artery guided by splenic arteriogram causing infarction of the splenic mass.

Case Report: A 64-year-old man with history of alcoholic liver cirrhosis, portal hypertension and thrombocytopenia was admitted to the hospital with a significant lower gastrointestinal bleeding. He was still actively drinking alcohol. Patient was hemodynamically stable on admission. He was found to have pancytopenia with WBC 1.3 k/mm3, Hb 9.9 gm/dL, Hct 27.9% and platelet 25 k/mm3 (baseline 30-40 k/mm3). Other laboratory evaluation revealed alcohol serum level 348 mg/dL, ammonia 129 _mole/L, INR 1.9, alkaline phosphatase 135 units/L, AST 123 units/L, total bilirubin 3.3 mg/dL. His pancytopenia was thought to be due to combination of bone marrow suppression from alcohol use and splenic sequestration. He continued to bleed despite receiving multiple transfusions of fresh frozen plasma, platelet and subcutaneous vitamin K. He also required multiple packed red blood cell transfusions. On day three of hospitalization, sigmoidoscopy revealed an ulcerated irregular rectal mass with stigmata of recent bleeding and malignant appearance. However, tissue biopsy was not attempted due to high risk of bleeding secondary to the low platelet count. Thrombocytopenia persists with repeated platelet transfusion. It was decided that thrombocytopenia was secondary to hypersplenism and splenectomy was recommended, but he was not a surgical candidate. On the fifth day of hospitalization, he underwent selective splenic arterial embolization by interventional radiologist because he was thought not a candidate for surgical splenectomy. He tolerated procedure well apart from had some mild left upper quadrant abdominal pain. Post-procedure abdominal CT showed about 80% infarction of the splenic mass. His blood counts started to show improvement the next day of the procedure and within one week his WBC increased to 11.3 k/mm3, Hb 11.2 gm/dL, Hct 33% and platelets to 228 k/mm3. The patient subsequently underwent tissue biopsy of the rectal mass, which showed invasive adenocarcinoma.

Conclusion: This case has illustrated that splenic arterial embolization is a valuable and relatively safe alternative option for the treatment of thrombocytopenia secondary to hypersplenism in patients with comorbid conditions. The improvement of the platelet count in this patient has allowed further investigation of the rectal mass by tissue biopsy and reduced his overall risk of bleeding. Complications of splenic arterial embolization include: postembolization syndrome (fever, leukocytosis, abdominal pain), splenic rupture, splenic abscess, septicemia, paralytic ileus, splenic vein thrombosis and pancreatitis.


Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Necrotizing Fasciitis is a soft tissue infection characterized by vascular occlusion, ischemia, and necrosis, with a mortality rate of 25%. The most common causes are group A beta hemolytic Streptococcus and S. aureus. While half of all cases occur in previously healthy younger individuals, the incidence appears to be rising with an increase in DM and immunosuppression.

Necrotizing Fasciitis is a complication of a severe Group A Streptococcus pyogenes (GAS) infection involving superficial fascia and spreading to the surrounding tissues. Klebsiella pneumonia and Clostridium perfringens have also been implicated in the disease. If left untreated, the disease is fatal; a delay in diagnosis can lead to substantially increased morbidity and mortality. Mortality rates range from 25 - 73% depending on the literature, despite modern advances. According to the CDC, rates of Necrotizing Fasciitis have increased from the mid 1980's to the early 1990's due to increasing prevalence of toxin-producing strains of S. pyogenes. Portal of entry is usually through a break in the epidermis, but it can also occur as a result of an occult infection. It is hypothesized that production of proteases by some GAS may increase the risk of developing necrotizing fasciitis. Certain groups such as diabetics, immunocompromised, and malnourished are more at risk, and thus the elderly accordingly are more at risk. Management of Necrotizing Fasciitis involves a combination of surgical debridement, broad spectrum antibiotics, and oxygenation of tissues through hyperbaric oxygen therapy. Although there is limited evidence, current recommendations are that very close and frequent contacts of individuals with necrotizing fasciitis or severe invasive GAS disease (including Streptococcal Toxic Shock Syndrome) should have throat cultures checked and receive prophylactic treatment if cultures are positive.

A 67 year old female presented from a nursing home with worsening symptoms of lethargy, delirium, hypoglycemia, hypotension, and a UTI. The patient had a past medical history of a chronic left heel ulcer, DM type 2, PVD, and C5-C6 spinal cord syndrome. Physical exam revealed poor lower extremity pulses and a painful left foot cellulitis with a dry, brown left heel ulcer. An x-ray of the LLE showed no acute pathology. The patient was placed on broad-spectrum antibiotics which were narrowed on the second hospital day as blood cultures grew MSSA.

Given the patient's deteriorating mental status, serial physical exams were employed by the nurses and doctors. On the third hospital day the left heel ulcer was black; the surrounding skin around the ulcer and on the lateral side of the left foot was grayish-purple and cold. There was a new wound on the lateral side of the left shin with skin sloughing off necrotic muscle. There were no pulses in the left foot by Doppler and the leg below the knee was erythematous.

Vascular Surgery and ID consultations were placed. A repeat x-ray of the LLE revealed soft tissue gas at the lateral malleolus. An MRI showed a band of marrow edema in the calcaneus and edema with enhancement in the soft tissues of the lateral hind-foot. Given the clinical presentation, it was determined that the patient had necrotizing fasciitis and a LLE AKA was performed. Following surgery, the patient improved without signs of further spread of infection.

This case demonstrates the importance of serial physical exams in diagnosis, especially in the setting of acute delirium or dementia when a patient is unable to give a good history. We
postulate that a chronic foot ulcer lead to an infection with MSSA resulting in necrotizing fasciitis of the left lower extremity. It is estimated that morbidity and mortality from necrotizing fasciitis is 70 - 80%; thus it is crucial that the disease is recognized and treated early. Vigilance in noticing new changes resulted in a rapid response and a full recovery.

References:
http://dhfs.wisconsin.gov/Communicable/FactSheets/NecroFas.htm
http://www.microorganisms.com/Flesh_Eating_Bacteria.htm
http://www.emedicine.com/orthoped/topic601.htm

Poster Presentation
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Alkalotic Diabetic Ketoacidosis

Gina Luciano, MD, David Rose, MD, FACP, Michael Germain, MD, FACP

Diabetic ketoacidosis is an acute illness with a primary high anion gap metabolic acidosis. However, there are rare instances reported when diabetic ketoacidosis instead presents as a primary metabolic alkalosis. This vignette illustrates a case of diabetic ketoacidosis with a predominant metabolic alkalosis.

A 54-year-old man with a history of peripheral vascular disease, hypertension, and diabetes mellitus type 2 presented in extremis with generalized weakness, nausea, vomiting, and abdominal pain. The patient was afebrile, tachycardic and hypotensive with an altered sensorium, dry mucous membranes, mild abdominal tenderness and a pulseless, gangrenous distal right leg. Laboratory studies revealed glucose of 1096 mg/dL, sodium of 128 mmol/L, chloride of 51 mmol/L, lactate of 7.2 mmol/L, BUN of 70 mg/dL, creatinine of 5.5 mg/dL, beta-hydroxybutyrate of 2.00 mmol/L, anion gap of >25 and arterial blood gas of pH 7.56, pCO2 55 mm Hg, pO2 114 mm Hg and HCO3 49 mmol/L.

The initial hospital course was predominated by aggressive fluid resuscitation and intravenous insulin by drip in preparation for amputation of the ischemic limb. Sensorium and vital signs improved prior to surgery. The profound metabolic alkalosis was thought to be secondary to volume depletion caused by gastrointestinal losses and hyperglycemic osmotic diuresis. Acetazolamide was started to decrease bicarbonate levels and prevent hypopnea secondary to a potential compensatory respiratory acidosis. The anion gap acidosis was likely multifactorial secondary to diabetic ketoacidosis, ischemia causing lactic acidosis, and uremia. A below the knee amputation for the ischemic lower limb was performed on day three when the patient had stabilized. The patient's electrolyte abnormalities, renal failure and complex acid-base disturbance normalized on day four.

This case exemplifies the uncommon condition of "masked acidosis": ketoacidosis presenting with a predominantly alkalotic acid-base disturbance. These rare cases are characterized by an arterial pH in the 7.5 to 7.7 range and an elevated plasma beta-hydroxybutyrate level, which is far lower than in patients with typical ketoacidosis (1). Associated causes of the alkalemia can include volume contraction, vomiting, alkali ingestion, diuretic therapy, hypercortisolism, or hyperaldosteronism (1). Although this patient had a primary alkalosis based on the initial arterial blood gas, the presence of a high anion gap and an elevated beta-hydroxybutyrate level indicated that a metabolic acidosis was present as well. The alkalemia in this case was likely secondary to the patient's severe dehydration. This case emphasizes the importance of measuring serum ketone levels in patients with acute deterioration of diabetes mellitus in the setting of alkalemia.

References:

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
The Risks Of Lunch—Postprandial Hypotension

Gina Luciano, MD, Maura Brennan, MD

Introduction: Postprandial hypotension is an important cause of syncope in elders. It is defined as a decline in systolic blood pressure of > 20 mm or below 90 mm from a pressure of > 100 mm within 2 hours of a meal (1). It may result in falls, fractures, angina and stroke (1,2,3). The authors report a case involving delayed diagnosis of postprandial hypotension.

Case: A 78-year-old nursing home resident with hypertension, diabetes, hypercholesterolemia and dementia became diaphoretic during lunch and passed out. Several similar previous episodes remained unexplained. On presentation, he was in no distress, was not orthostatic and had an unimpressive exam. He had mild anemia, and normal troponins and TFTs. An EKG documented normal sinus rhythm. CT head, neck MRA, carotid Dopplers and echocardiogram were all unrevealing. A normal barium swallow study ruled out deglutition syncope. Then while eating lunch, he again became diaphoretic, minimally responsive with mild facial twitching and dropped his systolic pressure into the 70s. Rhythm strips were normal. His blood pressure quickly normalized and no neurological deficits remained. An EEG was unremarkable; the diagnosis of postprandial hypotension was made.

Discussion: Postprandial hypotension affects over 30% of those > 75 yrs old (2). It is thought to be due to an inability to compensate for splanchnic blood pooling due to altered vascular resistance, decreased intravascular volume (especially in those on diuretics), and possibly vasoactive peptides (1,2). Treatment consists of frequent, smaller, low carbohydrate meals, adequate hydration and scheduling of anti-hypertensives to avoid peak effect during mealtimes (1,2,3).

Conclusions: Orthostatic hypotension is common but under recognized. For this patient, pre and postprandial blood pressure measurements during previous episodes would have reassured the patient's family and avoided recurrent syncope, prolonged hospitalization, and unnecessary testing. The diagnosis in this case was not considered until a geriatrician was consulted. Geriatricians must raise awareness among internists, nursing home staff and cardiologists of this common geriatric problem.

References:

Poster Presentation

American Geriatrics Society (AGS)
April 30-May 4, 2008: Washington, DC
Urticaria After Varicella Vaccine: The Need For A Graded Challenge

Mario Rodenas, MD, Jonathan Bayuk, DO, Jacqueline M. Cook

Hypersensitivity to gelatin, a stabilizing vaccine constituent, is associated with anaphylaxis to measles, mumps, and rubella (MMR) and varicella vaccines.\(^2,3,4\) Adverse reactions to these vaccines are commonly related to gelatin allergy.\(^3\) Individuals with prior hypersensitivity to gelatin-containing vaccines are more likely to experience future adverse reactions to vaccines, and therefore may benefit from a safe and rapid approach, such as a graded-dose protocol.\(^3\) A 15-month old adopted African-American male with a history of eczema, asthma, and a prior adverse reaction to varicella vaccine (Varivax(r)), was referred for further allergic evaluation. His mother described the previous allergic reaction to the vaccine as a rash suggestive of generalized urticaria, for which the patient was prescribed oral prednisone for two days. Upon initial allergic evaluation, the infant was able to tolerate eggs, milk, wheat, fish, and pork. No medication allergy was documented. His medications included fluticasone 44 mcg 2 puffs daily in the morning for asthma maintenance, and multivitamins. Skin prick testing was positive for Varivax(r) and histamine, and negative for egg, MMR vaccine, gelatin, and normal saline solution. Intradermal testing revealed a positive reaction to the MMR vaccine as well as histamine but not to saline (Figure 1). Subsequently, the patient received diphenhydramine topical cream to control the itching. When the patient became 18 months old, he was admitted to the pediatric intensive care unit for an MMR graded challenge (Table 1). The patient tolerated the procedure without any adverse reaction, and has since tolerated subsequent vaccinations well. Research suggests that immediate and some non-immediate type reactions to varicella vaccine are caused by anti-gelatin IgE or IgG immune reactions.\(^5,6\) Most individuals with IgE antibodies to gelatin and type I hypersensitivity to gelatin-containing vaccines have not reported allergic reactions to gelatin prior to vaccination.\(^1\) Sensitization to gelatin during infancy may be attributed to prior ingestion of precooked infant food or administration of gelatin-containing vaccines.\(^9\) Our patient’s history suggests the presence of serum IgE antibodies to gelatin. Hypersensitivity after vaccination warrants consideration of gelatin allergy as a potential cause.

Table #1: MMR graded-dose protocol

<table>
<thead>
<tr>
<th>Time (mins)</th>
<th>MMR dose</th>
<th>Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.05 ml</td>
<td>1:100</td>
</tr>
<tr>
<td>15</td>
<td>0.05 ml</td>
<td>1:10</td>
</tr>
<tr>
<td>30</td>
<td>0.05 ml</td>
<td>full strength</td>
</tr>
<tr>
<td>45</td>
<td>0.10 ml</td>
<td>full strength</td>
</tr>
<tr>
<td>60</td>
<td>0.15 ml</td>
<td>full strength</td>
</tr>
<tr>
<td>75</td>
<td>0.20 ml</td>
<td>full strength</td>
</tr>
</tbody>
</table>
Figure #1: Skin reaction to intradermal injection to MMR vaccine

References:


Abstract Submission
American College of Allergy, Asthma & Immunology (ACAAI)
November 8-14, 2007; Dallas, TX
Is This A Vascular Event?
A. E. Rosales, MD, R. C. Schutt, A. Arora, MD, S. Bellantonio, MD

**Background:** The incidence of ischemic stroke in geriatric patients is expected to increase as the population grows older. It is well known that the clinical presentation of stroke is highly variable and often atypical in geriatric patients. We present the case of a rare midbrain stroke with an atypical presentation that included no post-infarct imaging changes. This case is important for geriatricians because all reported cases of stroke with no MRI changes have occurred in patients over the age of 55.

**Case Report:** Patient was a 56 y o male, presented to the ED five hours after onset of left facial spasm and right hemiparesis. Past medical history included a right lacunar stroke, hypertension, hypercholesterolemia, tobacco and cocaine use until two years ago and back pain. Medication included aspirin, lisinopril, metoprolol, and oxycodone. Laboratory data was normal and drug screen negative. Head CT and MRI showed no evidence of lesion except for the old right lacunar stroke, even at 36 hours after admission. Symptoms resolved 36 hours after onset and patient remained asymptomatic 3 months after admission.

**Discussion:** Stroke is a clinical diagnosis and laboratory and imaging studies should be used only to corroborate clinical findings. Midbrain strokes are low in incidence and midbrain strokes with no MRI findings are even rarer. In a recent case series there were only three midbrain strokes with negative brain imaging reported. Among midbrain lesions, crossed midbrain strokes are very rare. This patient presented with symptoms consistent with Brissaud-Sicard syndrome (BSS). This syndrome was described early in the 20th century and no cases of BSS are reported in the literature in the last 30 years. BSS is an unusual crossed midbrain syndrome that presents with hemifacial spasm and contralateral hemiparesis.

**Conclusion:** This patient presented with a symptoms consistent with ischemic stroke and no changes on brain imaging. This case illustrates that ischemic stroke without identifiable lesion on MRI, although rare, must be considered in the geriatric patient when symptoms are present that are consistent with midbrain infarct.

**Poster Presentation**
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Introduction: More than half of the geriatric population has hearing impairment and one out of every 12 elderly patients suffers from vision impairment. When those two deficits present together, the effect on the patient's life can be devastating and the delivery of medical care is challenged due to communication difficulties. Case: A 74 years old blind and severely deaf female, with pmh: including remote hx. of neurosyphilis paranoia, a. fib, colon ca, hx. of DVT, type 2 DM, HTN, and obesity, is part of a primary care home visit program. Most of the history is obtained by collateral information from her son, so the challenge is performing the physical exam. There is need to explain to her what is being done to avoid anxiety and enhance cooperation and minimize suspicion. The only way this patient collects information from her surroundings is through graphesthesia on the palm by her son. Using that form of communication, the physical exam is completed and additional information is obtained regarding level of comfort, pain, quality of sleep and the presence of auditory hallucinations. It also allows the patient to participate in decisions concerning her medical care. This form of communication is very time consuming and each visit with this patient takes an average of 2 hours. However, the information obtained allows the best care to be provided to a patient who otherwise may suffer unnecessarily.

Discussion: The loss of any one of the five senses has a profound effect on a older patient's quality of life. This effect is exacerbated when the patient lacks the motivation or support to learn skills to overcome that disability. When two senses are lost, as in this case, difficulties with communication, loss of independence, and limited medical care may ultimately lead to isolation. This situation in a blind and deaf patient is exaggerated because there are few readily available interpreters, and social networks primarily target pediatric and younger deaf or blind patients.

Conclusions: While communicating with elderly patients who are both blind and deaf presents unique challenges and is time consuming, perseverance will lead to more efficient medical care delivery. The patient will communicate, to some extent, his or her own desires and participate in the decisions about his or her own medical care options.
**Introduction:** Diffuse Lewy body disease (DLBD) is a progressive neurological disorder and is a diagnostic challenge for physicians.

**Case History:** A 75 y/o female presented to her PCP with weight loss, lack of appetite, & fatigue. She had flat affect, mild bilateral postural tremors & a monotonous voice. She did not report cognitive decline & her MMSE was 29/30. After initial workup she was started on anti-depressants. However over the next year, she developed bradykinesia & rigidity & had repeated falls. She was then diagnosed with Parkinsons disease & was started on low dose carbi/levodopa. She could not tolerate medication because of severe GI side effects. Over the next year, her bradykinesia worsened & she developed saccadic movements of eyes. She was referred to a movement disorder clinic where she was diagnosed with Parkinsonism with possible Progressive supranuclear palsy or Muti system atrophy. She was started on a very small dose of ropinarole but she developed formed visual hallucinations & the medication had to be stopped. At this point, she was thought to have parkinsonism with a possible Lewy body dementia. She continued to score 29/30 on MMSE but a detailed neuropsych evaluation revealed deficits in attention, mental flexibility & visuospatial functions with a significant decline in IQ. Over next two years, she continued to have functional decline & failed multiple medications. She was admitted to the hospital with failure to thrive and died within 4 years of onset of symptoms. Her brain autopsy revealed features of diffuse lewy body disease (DLBD).

**Discussion:** DLBD is a neurogenerative disorder sharing multiple clinical features with parkinsons disease & Alzheimer's dementia. The central feature of this disease is progressive cognitive decline. Additional core features are fluctuating cognition, recurrent visual hallucinations & parkinsonian motor symptoms. Two of these core features are essential for the diagnosis of probable DLBD & one is essential for possible DLBD. Features supportive of the diagnosis are falls, syncope, neuroleptic sensitivity, REM behavior disorder, & depression. DLBD is suspected if the dementia occurs within 12 months of onset of Parkinson symptoms.

**Conclusion:** This case depicts an unusual presentation of DLBD and warrants suspicion of this disease in elderly patients with depression, abnormalities of movements & sensitivity to dopaminergic medications.

**Poster Presentation**
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Early Closure May Be Detrimental In The Elderly

Reham Shaaban, DO, Sandra Bellantonio, MD

Introduction: Gallbladder cancer (GBC) is an uncommon highly fatal disease in the US, with < 5000 cases/yr. Gallstones are present in 70 to 90% of cases and a hx of gallstones appears to be one of the strongest risk factors for GBC. In contrast to the US, it is the most common cause of GI malignancy in both SW Native Americans and Mexican Americans. These populations all share a high prevalence of gallstones and/or salmonella infection, both recognized risk factors for GBC. The authors present a case of GBC in a Hispanic octogenarian with N/V and wt. loss. As the sx are often vague and it is typically detected late after invasion to adjacent organs, GBC is an important consideration and must be kept in the differential.

Case: An 80 year old female visiting her family from Puerto Rico, presented with N/V, anorexia, and a 30 lb wt. loss over the past 3-4 mos. Two weeks prior to presentation, she began having intermittent RUQ abdominal pain. On presentation her exam was normal. Workup revealed total bilirubin of 3.1-5.1, AST 222, ALT 326, Alk phos 296-525, RUQ Ultrasound showed cholelithiasis with irregular nodular thickening of the gallbladder (GB) wall measuring up to 6mm consistent with inflammation related to acute or chronic cholecystitis. She was admitted to the hospital for medical treatment of cholelithiasis. She continued to have decreased appetite and RUQ pain despite narcotics. An abdominal CT was consistent with GBC with extension into biliary tree and liver. Liver and GB biopsies were confirmed adenocarcinoma of the GB with liver and biliary tree metastasis. Surgery, GI and Oncology were consulted and deemed her cancer unresectable. The patient was referred to home hospice care.

Discussion: A case-control study conducted in Canada, the Netherlands, Australia, and Poland included 196 patients with GBC and 1515 controls. Individuals with symptomatic GB disease were 4.4-fold more likely to develop GBC. It is 3x more likely in women and typically occurs in elderly patients; average age of diagnosis is 72. Our patient was an elderly female, Hispanic and had cholelithiasis that may not have had access to medical care. In retrospect, she had many of the known risk factors for GBC. However, the vague sx and the presence of GB calculi could have led to premature closure with a dx of cholelithias. The poor prognosis with GBC is thought to be related to the advanced stage at diagnosis, which is due both to the anatomic position of the gallbladder, the vagueness of sx and perhaps a limited differential dx.

Conclusion: This case highlights the importance of not coming to a premature closure when making a diagnosis in an older patient with sx shared by many different conditions and to consider GBC in a patient who is elderly and presents with non-specific symptoms and RUQ pain, even in the presence of GB calculi.

Poster Presentation
American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Young Female With Facial Eschar: Suspected Cervicofacial Actinomycosis

Reham Shaaban, DO, Aalya Ramadhan, MD, Michael Grey, MD, MPH, FACP

Introduction: Actinomyces israelii is a gram positive, anaerobic, non acid-fast bacteria that is a part of the human commensal oral flora. The infection is usually confined to the oral soft tissues due to oral trauma or dental caries. The infection is rare; incidence rate of 1:63,000 with male predominance (3:1) and diagnosis in 4th to 6th decade of life. There are no known predisposing factors. 50% of patients present with cervicofacial disease.

Case: A 24 year old female presented to our clinic complaining of a slowly enlarging facial mass/eschar on her left lower cheek, accompanied by purulent discharge, pain, swelling, fevers, chills and anorexia. She was afebrile and appeared well; she had a 2 cm2 tender violaceous fluctuant eschar at the anterior angle of the left mandible. Intra-oral palpation demonstrated a tender woody "tail" that tracked to the external lesion. Exam was otherwise unremarkable. PMHx was significant for the excision of a facial cyst in the same area in 2005. Pathologic examination found suppurative lymphohistiocytic dermal infiltrates and a repeat biopsy six months later found inflamed granulation tissue with central abscess formation. Dental xrays identified dental abscesses on her lower molars and cultures of suppurative material showed normal skin flora. Based on her history and exam, a presumptive diagnosis of actinomycosis was made, oral TMP/SMX for 10 days followed by amoxicillin for 6 months was begun. The residual facial lesion was excised. 6 months later, she remains asymptomatic with almost complete resolution of her facial lesion and no palpable intraoral abnormalities.

Discussion: Cervicofacial actinomycosis is part of the differential diagnosis for indolent infectious processes involving the jaw or oral cavity, particularly in the setting of previous oral surgery. Biopsy proven actinomycosis occurs in about 10% of all cases. The classic "sulfur granule", while pathognomonic for actinomycosis, is not required for the diagnosis and is found in only 40 % of casesIn this case, the diagnosis was not proven by culture or biopsy results. Longterm antibiotic treatment and surgical excision are standard treatment to prevent complications such as osteomyelitis of the jaw, fistulae and/or abscess formation.

References:

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Predictive Value Of CT Scanning For Common Bile Duct Stones

Abdullah Shaikh, MD, David Desilets, MD, PhD

There are no studies reporting the incidence of stones at ERCP after a pre-procedure abdominal computed tomography (CT) scan. The ability of CT to detect or exclude common bile duct (CBD) stones is felt to be poor, but the sensitivity and specificity have not been reported. Similarly, among patients who have pre-procedure CT findings that do suggest a CBD stone, the actual incidence of stone retrieval is unknown. We report the incidence of CBD stones in patients undergoing ERCP who have had a prior abdominal CT scan, and we derive the sensitivity, specificity, and positive predictive value (PPV) using ERCP as the gold standard.

Methods: We prospectively collected results of 2153 ERCPs by a single operator. There were 902 patients with an abdominal CT scan prior to ERCP (41.9%). Of the 902 patients, 32 (3.5%) had a failed ERCP and were excluded, leaving 870 patients for analysis. "Stones" are defined as significant solid or amorphous material that could be extracted with a balloon or basket. The data were analyzed using Microsoft Access, and p values were calculated using a 2x2 table in Microsoft Excel.

Results: Of 870 patients with a completed ERCP referred with a prior CT scan, 27 had a CT suggesting a CBD stone, and 843 patients had a CT that did not suggest a CBD stone. In the latter group, ductal stones were actually found at ERCP in 141 (16.7%). Of the 27 patients referred for "CBD stone on CT scan," all had sphincterotomy and balloon or basket sweeps of the CBD. One or more stones were found in 23 (85.2%), and 4 did not have stones (14.8%). The sensitivity of CT scanning for CBD stones was 16.2%, the specificity was 99.5%, and the PPV was 85.2%. The CBD diameter was > 10 mm in 20 patients, and 19 of these had stones (95%). CBD diameter >10 mm was the only statistically significant predictor of a "true positive CT scan" (p = 0.0152). Of 7 patients with a CBD diameter of < 10 mm, only 4 had stones (57%). Two patients had a CBD diameter of <6mm, and neither had stones. Liver enzymes, gender, symptoms, and age did not predict the presence of stones in patients referred for "CBD stone on CT."

Conclusions: Abdominal CT scanning has a poor sensitivity for CBD stones, only 16.2%. However, when CBD stones are suspected on a pre-procedure abdominal CT scan, there is a high likelihood of finding them at ERCP (PPV = 85.2%), and this should be considered a strong indication for ERCP. CBD diameter > 10 mm predicts a higher likelihood of CBD stones (95%), and a CBD diameter <= 10 mm predicts a lower likelihood (57%). This suggests that for small-diameter bile ducts it may be safe to delay or avoid ERCP in this setting.

Abstract Submission

American Society for Gastrointestinal Endoscopy- Digestive Disease Week
May 18-23, 2008; San Diego, CA
True Incidence Of CBD Stones At ERCP After Referral For "CBD Stone On Ultrasound"

Abdullah A. Shaikh, MD, Aixa Caraballo, MD, David J. Desilets, MD, PhD

There are few studies addressing the findings on direct cholangiography after a common bile duct (CBD) stone is reported on transabdominal ultrasound. The true frequency of choledocholithiasis in this patient population is not well documented.

**Methods:** We prospectively entered information into a database for 1825 ERCPs by a single operator at a tertiary referral center. Seventy-six patients were referred for an abnormal transabdominal ultrasound suggesting a CBD stone, and these were retrospectively selected for analysis. In two patients we failed to reach the major papilla, one because of Roux-en-Y gastric bypass and the other secondary to an infiltrating mass in the post-bulbar duodenum. These were excluded from data analysis. The remaining 74 patients (ages 13 to 99, with 18 males) were retrospectively evaluated. All 74 patients referred for suspected stones in whom the papilla was reached had successful biliary cannulation, biliary sphincterotomy, and balloon or basket sweep of the CBD. Ten patients (10 / 74 = 13.5%) required precut papillotomy. In one of these, although a cholangiogram was obtained showing CBD stones, free cannulation could not be achieved initially, and stones were cleared at a second ERCP. The initial free cannulation rate, in an intention-to-treat analysis, was therefore 73 / 76 = 96%. Three of the 74 successfully cannulated patients had a prior sphincterotomy. The remaining 71 patients with an intact papilla all had successful cannulation, biliary sphincterotomy, and balloon or basket sweeps, although one required two procedures as noted above.

**Results:** Only 56 of these 74 patients had CBD stones (76%). Of those with stones, CBD diameter $\geq 10$ mm was the only statistically significant predictor of a "true positive ultrasound." In patients with a CBD diameter $> 10$ mm, 32 of 37 patients (84%) actually had stones. Only 24 of 37 patients (65%) with a CBD diameter of $\leq 10$ mm had CBD stones ($p=0.030$). Two patients had a bile duct diameter of $< 6$mm, and neither one had choledocholithiasis. Liver-associated enzymes, gender, symptoms, and age were not predictive of the presence of CBD stones in patients referred for this reason.

**Conclusion:** The incidence of common bile duct stones after referral for "common bile duct stone on transabdominal ultrasound" is only 76%. CBD diameter $> 10$ mm predicts a higher likelihood of CBD stones (84%), and a CBD diameter $\leq 10$ mm predicts a lower likelihood that stones will be found at ERCP (65%).

**Poster Presentation**

American Geriatrics Society (AGS)
April 30-May 4, 2008; Washington, DC
Unusual Initial Presentation Of Lupus As Renal Infarcts And Pulmonary Embolism In Setting Of Nephrosis In Young Hispanic Male

Senthil K Sivalingam, MBBS, Barbara Greco, MD

Introduction: We report an unusual initial presentation of lupus as multiple renal infarcts, pulmonary embolism and nephrosis in a young Hispanic male associated with lupus anticoagulant with no systemic features.

Case Presentation: 20 year old male presented with three week history of increasing lower limb edema, right flank pain and shortness of breath with left pleuritic chest pain. Review of systems was otherwise negative. His past medical history was non-significant. Family history includes an older sister with lupus and a cerebrovascular accident. Examination showed normal blood pressure, no fever, lungs clear on auscultation, mild right lower quadrant tenderness without costovertebral angle tenderness and bilateral pedal edema. The patient was hypoalbuminemic with serum albumin 1.5 and found to have a urine protein/creatinine ratio of 12.3. Renal function was normal with serum creatinine 1.0 mg/dl. Urinalysis revealed oval fat bodies and lipid casts. ESR was 109 and serology was positive for ANA 1:1600 and anti-native DNA 1:320. C3 and C4 complement levels were normal at 153 and 28 respectively. PTT was elevated at 41.2 seconds and antiphospholipid antibody screen was positive, with confirmation of anticardiolipin antibody IgM 40 MPLU/ml, and IgA 13U/ml. Protein S, C and antithrombin III levels were normal. Ultrasound duplex evaluation was negative for renal vein thrombus. CT imaging of his chest and abdomen with contrast showed left sub-segmental pulmonary embolism and multiple wedge shaped renal cortical defects consistent with right renal infarcts. Bubble echocardiogram showed no evidence of right to left cardiac shunt. Renal biopsy demonstrated Class V lupus nephritis with no histologic evidence of microangiopathy. The patient was started on immunosuppressant therapy with prednisone and mycophenolate mofetil and also was anticoagulated.

Discussion: Although a few previous case reports of renal infarcts in the setting of antiphospholipid syndrome have been described in patients with pre-existing SLE, we report the first case of multi-system thromboembolic phenomena as initial presentation of Class V lupus nephritis associated with antiphospholipid antibody and nephrotic syndrome in a young male in the absence of other systemic features. Although renal vein thrombosis is a more common thromboembolic event in nephrotic syndrome, renal infarcts should be ruled out especially in association with antiphospholipid antibodies. Venous phase imaging at the time of CTA to rule in pulmonary embolism confirmed the presence of renal infarcts and definitively ruled out renal vein thrombosis in our case, and LDH elevations were later documented. Renal manifestations of antiphospholipid syndrome, whether primary or secondary as in our case, include thrombosis at any level of the renal vasculature from the main renal artery to the level of the arterioles and capillaries and renal veins.

Poster Presentation
American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
An Unusual Cardiac Cause Of Delirium

Senthil Sivalingam, MD, Arnulfo Deray, MD

Introduction: Delirium is a medical emergency and the most common neuropsychiatric problem of hospitalized elders. We report a case of delirium due to emboli from cardiac vegetation.

Case: An 86 year old lady was high functioning and lived independently despite a recent CVA which had left her with some residual slurring of speech. Her past medical history included hypertension, aortic stenosis, paroxysmal atrial fibrillation and SLE. She presented to the ED with a complaint of dizziness. An initial evaluation was significant only for anisocoria from the previous CVA and a systolic murmur consistent with aortic stenosis. She was mildly anemic (Hemoglobin=11.4) and hyponatremic (sodium=128) which resolved third day (Na -134) after admission. An initial CT Head documented only the known infarct. However, subsequent days following admission she became progressively confused and an MRI revealed multiple small bilateral acute infarcts involving the frontal, parietal and occipital lobes as well as the capsules and diencephalon. An ECHO documented a new large mobile mass on the posterior leaflet of the mitral valve. Rheumatology was consulted in light of her history of SLE but felt she did not have Libmann-sacks endocarditis (her SLE was inactive and serological markers were unimpressive.) Infectious Disease consultants were involved as well. Despite negative blood cultures, her new vegetation and intermittent fevers resulted in a diagnosis of infective endocarditis and she was put on antibiotic therapy. Subsequently her mental status cleared and she was transferred to a skilled nursing facility for post-acute care.

Conclusions: Nearly 30% of older hospitalized patients become delirious. They are at significant risk of death, institutionalization, morbidity and functional decline. The burden of suffering is enormous for patients and families and the financial costs to the health care system are great. Delirium is frequently multifactorial and geriatricians must often perform a thorough evaluation of precipitating and underlying factors. We believe this is the first reported case of delirium due to cardiac vegetation as per our indexed medline search. Though common things are common, this case highlights the importance of remaining alert for unusual causes of delirium as well. Septic emboli must be considered in the differential of delirium in the appropriate clinical circumstances.

Poster Presentation

American Geriatrics Society (AGS)

April 30-May 4, 2008; Washington, DC
Near Fatal Foley

Senthil Sivalingam, MD, Maura Brennan, MD

**Introduction:** Many elderly hospitalized patients have Foley catheters inserted without a clear indication. We report a case in which a Foley catheter nearly caused a patient’s death.

**Case:** An 81 year old demented man was admitted with right leg pain following a fall. An x-ray revealed a displaced femoral neck fracture and he underwent a hemiarthroplasty. His post-operative course was complicated by aspiration pneumonia and multiple pulmonary emboli for which he was anticoagulated. He had two separate stays in the ICU. Throughout much of this period a Foley catheter was in place although it had been briefly removed after his first transfer out of the ICU. On day 20 while agitated the patient pulled out his Foley resulting in significant hematuria. As bladder irrigation failed to resolve the problem, an IVC filter was inserted and anticoagulation was discontinued. The patient required 12 units of packed red cells over 6 days. Finally, cystoscopy was performed and sites of bleeding cauterized. The patient was then transferred to a sub-acute rehab center.

**Discussion:** 1 in 4 catheter inserted in elderly hospitalized patient turn out to be unnecessary. Our patient had no prior urological problems and had tolerated Texas catheter well at one point. At a minimum, the Foley should have been discontinued as soon as the patient was transferred back to the general medical wards. This simple step would have avoided two procedures (cystoscopy and the IVC placement) and 12 unit transfusions. The Foley catheter complication extended his hospital stay by 10-12 days and contributed to ongoing functional decline. It also forced the medical team to engage in complex decision making regarding the risks of anticoagulation in the presence of both bleeding and recent pulmonary emboli.

**Conclusion:** Our case clearly demonstrates the need to educate medical and surgical house staff and nursing personnel about the risks of Foley catheters. Hospitalized older patients, especially those who are malnourished and demented are at very high risk for iatrogenic complications from Foley including functional decline, infection, delirium, urinary retention when removed and genitourinary trauma. They should be avoided in the absence of a compelling need and they must be removed as soon as feasible. System prompts to consider early removal should be devised and attending to minute details in the management of frail elders should be stressed. Small interventions may appear trivial but can prevent complications and death.

**Poster Presentation**

American Geriatrics Society (AGS)
April 30- May 4, 2008; Washington, DC
Permanent Pacemaker In A Patient With Lyme Carditis – A Rare Case Report

Senthil Sivalingam, MD, Javed Ashraf, MD, James Cook, MD

Background: Atrioventricular (AV) conduction abnormalities are common manifestation of Lyme carditis. Permanent pacemaker is not generally required as conduction abnormalities are transient. We report a case of a young male with recurrent symptomatic heart block secondary to Lyme carditis requiring insertion of permanent pacemaker.

Case: A 19 year old white male presented with sudden onset of dizziness, shortness of breath and near syncope. He had history of nasal discharge and non-itchy rash on the trunk for one week prior to admission. Review of systems was unremarkable otherwise. Patient also gave history of a tick bite approximately 8 weeks before admission during camping holidays. Past medical history was significant for at least two unspecified syncopal episodes between 11 and 15 years of age. One uncle had permanent pacemaker insertion at 24 years of age for syncopal episode of unclear etiology. Examination showed number of target lesion of varying sizes, the biggest being 4 inches in diameter on the trunk. The skin lesions were characteristics of erythema migrans. The systemic examination was within normal limits. Initial EKG showed Mobitz type I AV block. Echocardiogram was completely normal. Lyme serology (IgG and IgM antibodies) was positive and patient was managed with intravenous ceftriaxone for Lyme carditis. On day 3 of admission, patient developed frequent episodes of symptomatic sinus pauses up to 8 seconds requiring temporary pacemaker which was discontinued two days later as patient maintained his native regular sinus rhythm. Over the next 3 days while on intravenous antibiotics, patient once again developed symptomatic complete heart block and intermittent long pauses. On day 11 of antibiotics treatment, a permanent pacemaker was inserted for continued symptomatic conduction abnormalities.

Discussion: Conduction abnormalities in Lyme carditis range from asymptomatic first degree AV block to symptomatic complete heart block and bundle branch blocks. Heart block can occur at different levels within the conducting system. The conduction abnormalities are mostly transient and usually resolve within few days after commencement of antibiotics. Only a few cases of Lyme carditis requiring permanent pacemaker for persistent conduction abnormalities have been reported. Our patient continued to have symptomatic conduction abnormalities even after 10 days of ceftriaxone treatment. The cause of previous syncopal episodes in our patients remained unclear.

Conclusion: Transient conduction abnormalities are common in Lyme carditis. Although wait and watch policy is generally followed, as response to antibiotics treatment is excellent, the possibility of a permanent pacemaker however cannot be completely ruled out.

Abstract Submission
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Persistent Symptomatic Heart Block In A Patient With Lyme Carditis

Senthil K Sivalingam, MD, Javed Asharf, MD, James Cook, MD

Introduction: Atrioventricular (AV) conduction abnormalities may manifest during acute Lyme carditis, but permanent pacemaker implantation is not generally required as the conduction abnormalities are transient and respond to antibiotic therapy. We report a case of a young male with acute Lyme carditis and recurrent symptomatic heart block requiring insertion of permanent pacemaker.

Case Presentation: A 19 year old white male presented with sudden onset of dizziness, shortness of breath and near syncope. He had history of nasal discharge and painless truncal rash for one week prior to admission. Review of systems was unremarkable otherwise. Patient also gave history of a tick bite approximately 8 weeks before admission during a camping trip. Past medical history was also significant for two unspecified syncopal episodes between 11 and 15 years of age. One uncle had permanent pacemaker insertion at 24 years of age for syncopal episode of unclear etiology. Physical examination revealed numerous target lesion of varying sizes, the largest approximately 10 cm in diameter, characteristics of erythema migrans. The systemic examination was within normal limits. Initial EKG showed Mobitz type I AV block. Echocardiogram was normal. Lyme serology (IgG and IgM antibodies) was positive and diagnosis of Lyme disease was made. The patient was managed with intravenous ceftriaxone for Lyme carditis. On day 3 of admission, patient developed frequent episodes of symptomatic high degree AV block (RR interval > 8 s) with a narrow QRS complex requiring a temporary transvenous pacemaker (TTP). Over the next 3 days while on intravenous antibiotics the TTP removed but the patient once again developed symptomatic complete heart block and intermittent long pauses. On day 11 of antibiotics treatment, a permanent pacemaker was inserted for continued symptomatic conduction abnormalities.

Discussion: Conduction abnormalities in Lyme carditis range from asymptomatic first degree AV block to symptomatic complete heart block and intraventricular conduction defects. The conduction abnormalities tend to be transient and resolve within several days after antibiotic therapy. Only a few cases of Lyme carditis requiring permanent pacemaker for persistent conduction abnormalities have been reported. Our patient continued to have symptomatic conduction abnormalities even after 10 days of ceftriaxone treatment. The cause of previous syncopal episodes in our patients remained unclear. Transient conduction abnormalities are common in Lyme carditis. A "wait and watch" policy is generally advocated, as response to antibiotics treatment is excellent. However, a permanent pacemaker may be indicated on occasion.

Abstract Submission
American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
A Case Of Lithium Associated Thyrotoxicosis

Ashish Verma, MD, Mark Tidswell, MD

Introduction: Lithium has been used for treatment of bipolar disorder and depression because of it's mood stabilizing properties. It may induce goiter and hypothyroidism by inhibiting formation and secretion of T3 and T4. Hence, it can also be used for management of thyrotoxicosis and thyroid cancer. Here we report an unusual case of Lithium associated thyrotoxicosis.

Case: A 42 year old man was admitted to intensive care unit following a seizure and hypercarbic respiratory failure. He had increasing day time somnolence, hallucinations and difficulty lying supine for some months. Because of extreme tracheal deviation to the right, attempts at oral endotracheal intubation were unsuccessful and an emergency tracheostomy was performed. CT scan showed massive thyromegaly extending from base of tongue to just below the aortic arch. Thyroid measured 10x8cm in cross section at the thoracic inlet. The thyromegaly deviated and narrowed the trachea in the superior mediastinum above the carina. This patient had a history of moderate mental retardation, seizure disorder and a bleeding AVM at age 16. He had been in psychiatry follow up since youth for management of cognitive impairment, mood lability and tantrumming behaviors. In 1995, he was commenced on Lithium. Few years later, his mother noticed gradual deterioration of his behavioral problems. In 2001, patient was diagnosed with a thyrotoxic goiter. He was prescribed carbimazole. In 2002 patient underwent unilateral right thyroidectomy. He remained on anti-thyroid drugs till this admission and discovery of this massive thyromegaly. During this admission, this patient was also diagnosed with Nephrogenic Diabetes Insipidus- a known adverse effect of Lithium therapy.

Discussion: Lithium associated thyrotoxicosis is rare but has been described in several case reports in the medical literature. The estimated incidence is 2.7 per thousand patient year treated with Lithium. It is a protean condition. Silent thyroiditis is the commonest manifestation and toxic nodular goiter and Grave's Hyperthyroidism occur less frequently. The mechanism of toxicity may be that Lithium is concentrated in the thyroid and damages the follicular cells causing release of thyroglobulin into the circulation. Alternatively, Lithium may induce autoimmune thyroiditis. Treatment is the same as for other forms of thyrotoxicosis with withdrawal of offending drug, administration of antithyroid drugs and radio-iodine and/or surgery. In our patient, Lithium has been withdrawn and thyroidectomy has been planned for the near future.

Conclusion: Lithium associated thyrotoxicosis is a rare but important adverse effect of Lithium therapy which if actively sought in this patient group may reduce complications and misery.

Abstract Submission

American College of Physicians (ACP) Nationals
May 15-18, 2008; Washington, DC
Late Post-Partum Eclampsia And Posterior Reversible Leukoencephalopathy Syndrome

Ashish Verma, MD, Basil Lau, MD, Shaji Daniel, MD, Paul Jodka, MD

Introduction: Posterior Reversible Leukoencephalopathy Syndrome (P.R.E.S), a syndrome of reversible encephalopathy with radiological evidence of posterior white matter involvement can occur in several settings, including the peri-partum period. PRES was formally codified only in 1996. Here we present a patient with PRES in the setting of late post-partum eclampsia (LPPE). This is only the second case of LPPE with PRES reported this long post-partum.

Case: This 27 year old female with hypothyroidism had an uneventful pregnancy with term-delivery of a healthy baby. 8 Days post-partum, she presented to the local hospital with shortness of breath. She was newly hypertensive, and all investigations were normal except the CXR which showed pulmonary congestion. There was no overt evidence of cardiac dysfunction or pulmonary embolism by testing. After discharge she developed blurred vision and headaches, and ultimately was brought to our institution following a generalized tonic-clonic seizure on post-partum day 12. She was post-ictal and hypertensive with no focal neurological deficit on presentation. Laboratory investigations were all normal except for mild proteinuria. CT scan showed obliteration of the cortical sulci bilaterally with diffuse sub-cortical edema over bilateral frontal and posterior parietal lobes. A T2, FLAIR and DWI MRI was obtained and confirmed the findings on CT as well as showing more extensive changes involving the occipital lobes and bilateral cerebellar white matter. She was treated with magnesium sulfate infusion and anti-hypertensives. Her symptoms resolved completely within days. Repeat imaging after hospital discharge confirmed total resolution of the previous findings.

Discussion: This case highlights a rare condition with uncertain incidence and unproven pathogenesis. While LPPE has been extensively reported, LPPE with PRES has only more recently been described, our case being the second-latest presentation with respect to post-partum dates. The diagnosis of this condition rests largely on clinical grounds, but MRI is needed to best define the extent of brain pathology and to rule out potential alternate diagnoses (malignancy, cerebral sinus thrombosis, other). The pathogenesis of these conditions is presumed to be due to a disruption of cerebral auto-regulation and endothelial dysfunction. In severe cases, cerebral ischemia may develop and result in areas of infarction. Standard therapy includes use of anticonvulsants and antihypertensives, and patient outcome is usually good. Of note, the radiological abnormality is neither confined entirely to the posterior lobe nor to the white matter and the syndrome itself is not always reversible. Regular post natal follow up and a high index of suspicion could possibly prevent patients from permanent neurological sequelae.

Poster Presentation

American College of Physicians (ACP) MA Chapter, October 13, 2007; Waltham, MA
American College of Physicians (ACP) Nationals, May 15-18, 2008; Washington, DC
Atrial Stunning Following Cardioversion Resulting In Flash Pulmonary Edema

Michal S. Wall, MD, Sandra Bellantonio, MD

**Introduction:** The incidence of atrial arrhythmias (AA) doubles with each decade of life. Electrical conversion of AA to sinus rhythm may result in transient mechanical dysfunction of the atrium & atrial appendage, termed atrial stunning (AS). AS can occur immediately after cardioversion & could last several hrs to wks. Right AS is less marked & improves earlier then that of left atrium, resulting in differential AS, possibly explaining the rare occurrence of pulmonary edema after cardioversion. AS is particularly dangerous for older adults who are more dependent upon the atrial kick for left ventricular (LV) filling due age related LV stiffening.

**Case:** A 67 YO woman presents to the ED, requiring intubation secondary to flash pulmonary edema (FPE), twelve hrs following elective cardioversion of very long standing atrial fibrillation (AFIB). PMH included recent pulmonary vein isolation, HTN & DM. She is one year status post-elective cardioversion of AFIB without sequel. Physical exam revealed an anxious female in severe respiratory distress. Cardiac biomarkers were negative, pro-BNP was 880 and EKG showed NSR. Stat echo revealed an EF of 50-55% without wall or valve motion abnormalities. CT angio of the chest revealed cardiomegaly with bilateral pleural effusions compatible with CHF, but no PE. The patient was aggressively treated with diuretics & nitrates resulting in extubation within 24 hours. Immediately following extubation the rhythm reverted to AFIB. Nadolol & dofetilide was started resulting in conversion to NSR.

**Discussion:** AS has been reported in 21% of patients following conversion of AA using electrical means. Proposed mechanisms include acute calcium overloading, differential left AS & atrial scarring secondary to chronic duration of arrhythmia resulting in abnormal remodeling and diastolic dysfunction. Recently extensive left atrial ablation for treatment of AFIB has also been associated with AS.

**Conclusion:** The extent of AS is dependent on the duration of the AFIB, atrial size, & underlying structural heart disease. Our patient developed FPE within 12 hours of cardioversion, had many AS risk factors, including age & long standing AFIB. Verapamil, acetylstrophenathidine, isoproterenol & dofetilide has been shown in animal models to protect against developing AS. Our patient had not been on verapamil prior to cardioversion. If we avert AS we may be able to avoid the rare occurrence of pulmonary edema.

**Poster Presentation**

American Geriatrics Society (AGS)

April 30-May 4, 2008; Washington, DC
Atomoxetine *Straterra*: An Effective Treatment in Narcolepsy  
Siddharth Wartak, MD, Syed Hussain, MD, Asim Roy, MD

**Introduction:** Narcolepsy is an under diagnosed condition consisting of the tetrad of excessive daytime sleepiness, sleep paralysis, hypnogogic hallucinations and cataplexy. It affects 0.02%-0.18% population mainly presents typically in adolescence with an average delay in diagnosis about 10-15 years. Despite severe cognitive, educational, occupational and psychological impact on patients life there is no cure for this condition.

**Case:** A 48 year old Afro-Caribbean female was diagnosed with narcolepsy at age of 18 years, 10 years after the onset of symptoms. She had problems coping at school and was poorly understood by her peers and teachers. She was started on Methylphenidate (Ritalin) with partial control of her daytime somnolence, despite increased dosing to five times a day she remained symptomatic. Her married and family life was affected including frequent job changes. Adding Modafinil (Provigil) was of no benefit. At age 44 years a change in her treatment to atomoxetine as a single monotherapy was started with excellent relief of her symptoms and improved quality of life. She now works 13 hours shift with minimal somnolence and without any need for short naps. She has not had a cataplectic attack in the past four years.

**Discussion:** Of the many options for treating narcolepsy, CNS stimulants such as methylphenidate, dextroamphetamine, methamphetamine, and amphetamine are principally used for treating somnolence. Modafinil an alpha1 agonist can also be used as well and is often the first line agent. Atomoxetine a nonstimulant norepinephrine reuptake inhibitor which is an alternative medication and is used like other antidepressant medication for treating cataplexy, however in this patient the first line medication failed to treat her symptoms for 26 years and Atomoxetine was useful in treating all her symptoms of narcolepsy.

**Conclusion:** Narcolepsy is complex condition and treatment is challenging. Standard medications may not work in all patients and alternative or nonstandard treatment should be considered to improve symptoms and quality of life, particularly decreasing daytime somnolence. An effective treatment individualized to that person is the best option.

**Abstract Submission**
American College of Physicians (ACP) MA Chapter  
October 13, 2007; Waltham, MA
Isolated Left Ventricular Noncompaction; A Rare Cardiomyopathy

Siddharth Wartak, MD, Syed Hussain, MD, Javed Ashraf, MD

Introduction: Left ventricular noncompaction (LVNC) is an extremely rare primary genetic cardiomyopathy with an estimated incidence of 0.12 in 100,000. Possible causes include intrauterine arrest of myocardial development, specifically failure of compaction of the left ventricle. This results in a thick myocardium with trabeculae and results in heart failure, arrhythmia or thromboembolic events.

Case: A 43 year old man was admitted with three weeks history of progressive dyspnea and bilateral lower limb swelling. He had history of PND for several weeks before the admission, but no chest pain or cardiorespiratory symptoms. He was a non smoker and denied recreational drugs but consumed one pint of gin per day. Family history was negative. On examination his heart rate was 110 and blood pressure was 105/88, neck veins distended. On auscultation he had bilateral crackles, a gallop rhythm without added sounds or murmurs and bilateral lower extremity pitting edema. Chest X-ray showed increased cardiac size with pulmonary congestion and ECG revealed sinus tachycardia with left atrial enlargement and LAD. Cardiac enzymes were negative and BNP was 1980. Initial diagnosis was congestive heart failure, possibly due to alcohol-related cardiomyopathy. Echocardiography (ECHO) showed reduced ejection fraction of 10-15% with an increased ventricular trabeculae and the findings fulfilled the Echo criteria for diagnosing LVNC. A normal persantine perfusion scan ruled out an ischemic component. The patient was treated for congestive heart failure with diuretics, ACE inhibitor and _ Blocker to which he responded. He was discharged home after adequate diuresis on day 4 from admission.

Discussion: LVNC causes heart failure with both systolic and diastolic dysfunction. It presents with dyspnea, arrhythmia or thromboembolism. ECG shows RBBB, LBBB, atrial fibrillation or ventricular tachycardia. Diagnosis is made by ECHO which shows thin compacted epicardium and thick noncompacted endocardium with prominent trabecular and recesses. The ratio of noncompaction to compaction of more than 2:1 is diagnostic with high sensitivity and specificity. Cardiac MRI and ventriculogram are alternatives. Patients with LVNC have increased morbidity and mortality from recurrent heart failure needing hospitalization, CVA and ventricular tachycardia. Treatment involves pharmacological treatment of heart failure and annual holter monitoring for asymptomatic arrhythmias is recommended. Anticoagulation is required in those with atrial fibrillation; and AICD implantation is required for those fulfilling the standard criteria. Heart transplant is option for terminal refractory heart failure.

Conclusion: LVNC is extremely rare genetic cardiomyopathy with systolic and diastolic dysfunction, presenting with typical signs and symptoms of heart failure. Diagnosis is made by ECHO and treatment is consistent with that of other cardiomyopathies. At present genetic testing is not useful; however family screening with ECHO is recommended.

Poster Presentation

American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Sick Sinus Syndrome Secondary To Facial Injury

Siddharth Wartak, MD, Pradeep Sethi, MD, James Cook, MD, Syed Hussain, MD, Reshma Mehendale, MBBS, DNB

Introduction: Bradycardia has been reported during intraoperative settings of craniofacial, trigeminal ganglion surgery, repairing orbital and maxillary fractures, most commonly in children. We report an unusual case of post traumatic bradycardia and recurrent asystole in an adult patient not undergoing operative repair.

Case: A 56 year male was admitted with facial injury after a vehicular accident. On admission the patient was bradycardic with heart rate 50-60 and hypotensive (86/60 mm hg). His Glasgow coma scale was 15/15. He had a left temporal artery laceration which was sutured and pain was controlled with oxycodone. During auscultation of his carotids he developed transient sinus pauses which responded to atropine. ECG showed sinus bradycardia. All laboratory and toxicology results were normal. Maxillofacial CT showed undisplaced fracture of the left zygomatic arch with intact orbits. CT Head, cervical, chest and abdomen studies were normal. The patient remained in persistent bradycardia on telemetry. The following day, he developed spontaneous sinus pause lasting more than 16 seconds and became unresponsive but spontaneously regained his consciousness before the CPR could be initiated. The patient was transferred to CCU and observed with an external pacemaker in place. Over the next 24 hours he had another 3 episodes of asystole (Stokes Adams) lasting 3-6 seconds. A Transthoracic Echo to rule out any cardiac contusion injury was normal as well as cardiac enzymes. After 48 hours of observation he remained stable, his bradycardia resolved gradually and was discharged on day 4.

Discussion: We report a rare case of persistent bradycardia and asystole (Stokes-Adams) in a patient following facial injury. A possible explanation is the trigeminocardiac reflex which can cause a sudden onset of bradycardia and hypotension due to stimulating the reflex arc between trigeminal and vagus nerve. The afferent tract is one of the three divisions of trigeminal nerve which synapse with the visceral motor nucleus of the vagus nerve located in the brain stem. The efferent portion is carried by the vagus from the medulla to the heart, stimulation of which leads to negative chronotropic and ionotropic response including decreased sinus node output causing sinus bradycardia, sick sinus syndrome, AV block and asystole.

Conclusion: In the setting of facial trauma like undisplaced fractures of facial bones or soft tissue swelling, trigeminal nerve stimulation may cause Trigeminocardiac reflex and persistent symptomatic bradycardia and significant pauses. The mechanism is similar to bradycardia seen in intraoperative maxillary or orbital surgeries. Opiates, high vagal tone and pain can further predispose for bradyarrhythmias. Conservative treatment is sufficient for this rare self limiting traumatic complication.

Poster Presentation
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
Background: Allergic Rhinitis can be a severe limiting condition in as many as 25% of the US population. HIV infection has become a chronic managed disease for many people in the United States. Many people with HIV infection also have allergic rhinitis that does not respond to avoidance of allergens or pharmaceutical intervention. Allergen immunotherapy (IT) may be of great benefit to these patients, but as T-cell modification is known to occur during IT, the risk of HIV disease progression exists. Monitoring of HIV viral load and CD4 count is important during IT. We present one case of an HIV infected male on HAART during the first year of IT.

Objective: To report the clinical and serologic results of a 45 year old man with severe allergic rhinitis and recurrent sinus infections (3-6 a year) in a 20 year history of HIV as he begins and continues on immunotherapy.

Methods: As the patient had failed allergen avoidance measures and pharmacologic interventions, allergen immunotherapy (IT) was recommended. The risks and benefits were explained and after informed consent was obtained, IT was begun. Prior to the initiation of immunotherapy for alternaria, dust mite, dog and eastern tree mix, HIV viral load and B- and T-cells were measured.

Results: Prior to the initiation of immunotherapy, the patients HIV viral load was undetectable, his CD3+, specific CD3+CD4+ and CD3+CD8+ cells were normal. His immunoglobulins were also measured and were normal. His HIV viral load remained undetectable for the first year. In addition his CD3+, specific CD3+CD4+ and CD3+CD8+ cells remained normal and not significantly changed at 0, 6 and 12 months of IT. His symptoms completely resolved with IT alone after 2 months. The patient suffered one sinus infection during the first year of IT and no other infections.

Discussion: Allergen immunotherapy in the setting of prolonged HIV infection treated with HAART has not been well studied. Due to the T-cell modification that occurs during IT, the effects on viral load and subsequent CD4+ T-cell count is not known. In a previous case report, HIV viral load initially increased but then normalized after the initiation of IT. Our case illustrates no change in HIV status and excellent clinical results using allergen immunotherapy in one patient with prolonged HIV infection.

References:
Allergen Immunotherapy Practice Parameters, ACAAI 2007.

Abstract Submission
New England Society of Allergy
October 19-21, 2007
The Challenge Of Predicting And Treating Hypersensitivity To Radiographic Contrast Dye In An Atopic Patient With Suspected PE With CTA

John P. Wheeler, Jr., MD, Jonathan L. Bayuk, DO

Predicting hypersensitivity to radiographic contrast dye (RCM) in an atopic patient can be challenging, especially with confounders such as anxiety. We present such a case and make practical and evidence-based recommendations.

A 48 year-old female presented to a tertiary medical center with acute onset right-sided chest pain (CP) and shortness of breath (SOB), different from the asthma exacerbations she had in the past. The patient had a history of asthma, anxiety, and allergy to shellfish, penicillin, latex, biaxin, and codeine. The patient denied new exposures to allergens, and had not started new medications.

On presentation the patient received morphine for CP. Subsequently she had pruritis and SOB, resolved with diphenhydramine 25mgIV, methylprednisilone 125mgIV, and cimetidine 300IV. Pulmonary embolism was suspect, however due to her history of shellfish allergy, Radiology was hesitant to image the patient by CT angiography (CTA). Of note, with institution of new contrast media, no recommendation exists to alter the use of RCM. V/Q scan and D-dimer were indeterminate. Chest x-ray was without acute process. SOB and CP continued; empiric lovenox 70mg was given. The patient was premedicated with methylprednisone 32mgIV and diphenhydramine 50mgIV in preparation for CTA. The patient underwent CTA with contrast in 2005 without incident. The patient tolerated the imaging well, but immediately following, experienced SOB, lip swelling, and hives. The patient was anxious, tachypneic with grunting respirations, and tachycardic. The patient received epinephrine .3cc of 1:1000 concentration x2; five minutes later the patient began to experience worsening SOB and received diphenhydramine 50mgIV. The patient was stabilized and didn't require intubation. She was admitted to the ICU for observation due to risk of biphasic reaction. CP continued and were diagnosed as musculoskeletal.

This case is an example of anaphylactoid RCM reaction. Due to the urgency of her condition the patient wasn't given the standard pretreatment with corticosteroids at 13, 7, and 1 hours prior to the procedure. There currently are no evidence-based recommendations for urgent use of RCM for CTA; one should approach the atopic patient cautiously and use CTA only if other modalities are ineffective.

The patient was treated utilizing non-RCM diagnostics first, and then using premedication prior to CTA. One might argue for longer pre-treatment in cases where it is clinically possible. Secondary causes of anaphylaxis such as mastocytosis were investigated, but found negative. Documentation was placed in the patient's record for future treatment. In the future, the patient will be premedicated with 50mg prednisone 13, 7, and 1 hour prior.
A Clinical Vignette With Allergic Reaction To N-acetylcysteine While On Immunosuppressant

Chunbai Zhang, MD, Stephen Ryzewicz, MD, FACP

Purpose: To demonstrate the possibility of allergic drug reaction in patients chronically on immunosuppressants.

Case Report: A 65 yr-old Caucasian female with 30+ year history of systemic lupus erythematosus (SLE) chronically on prednisone and mycophenolate mofetil, lupus nephritis with baseline GRF of 30, s/p colostomy two years ago secondary to sigmoid diverticulitis, chronic anemia, panic and anxiety disorder, was initially admitted to the ICU with Legionella pneumonia diagnosed by positive urine antigen after a family trip to Maine 2 weeks prior to admission. Patient was urgently intubated for respiratory failure soon after admission and was started on multiple antibiotics with a prolonged ICU course. Mycophenolate mofetil was temporarily suspended to avoid immunosuppression during acute infection. Stress dose of steroid was initiated before titrating down to baseline prednisone. The patient was extubated and stable in the step-down unit for a week before developing new-onset frequent dyspnea and desaturation at rest.

While anxiety was high on the differential diagnosis, pulmonary embolism was also suspected due to patient's multiple risk factors. To prevent further damage to her lupus nephritis and decreased GFR by IV contrast, a course of N-acetylcysteine PO 1200 mg bid for 24 hours prior to and after her CT angiogram (CTA) were used, along with aggressive IV hydration. Within several hours of the initial dose of N-acetylcysteine, the patient developed a severe facial and neck pain with erythema, angioedema and soft tissue/uvula swelling. Patient's CTA was negative for PE, but the swelling and pain of head/neck region worsened over the next 48 hours despite being already on her baseline prednisone of 30 mg PO daily. After reviewing her medication regimen, no medications were found to be different other than N-acetylcysteine. The swelling and pain had occurred prior to CTA. Patient was urgently started on methyoprednisolone 60 mg IV daily instead of oral prednisone for presumed drug allergy. IV hydration was continued while N-acetylcysteine was suspended. Patient's edema and erythema gradually subsided within a week's treatment. Subsequent ultrasonography and CT of the head and neck revealed no evidence of obstruction or infection. The frequency of allergic reaction from N-acetylcysteine ranges from 2-8%. Given the above data and timing, patient's acute facial/neck erythema and angioedema were deduced to be caused by N-acetylcysteine.

Conclusion: Allergic reaction to N-acetylcysteine, though uncommon (3-8%), has been described in literature. This is, however, a very rare case of allergic reaction in the setting of patient already on her baseline dosage of prednisone. While the exact mechanism of the allergic reaction is unclear, we report that a drug allergic reaction can happen to patients on prednisone. Patients with SLE, like patients with asthma, may be prone to multiple drug reactions, particularly in the setting of acute illness, regardless if they are on immunosuppressants.

Abstract Submission
American College of Physicians (ACP) MA Chapter
October 13, 2007; Waltham, MA
A Time to Live, A Time to Die: End-of-Life Case Discussions

B. Babb, D. Plouffe, P. Jodka, MD, B. Stadnicki, N. Doubleday, P. Lusardi

**Purpose:** Prolonging the life-dying process with inappropriate measures is one of the most profoundly disturbing experiences nurses face (Redman & Fry, 2000). While research findings suggest that nurses have a limited role in end-of-life (EOL) care planning, expert nurses frequently question goals of care and the "technological imperative" (Miller et al, 2001; Callahan, 1995). Consequently, our multidisciplinary Palliative Care Committee (PCC) instituted End-of-Life Case Discussions to support staff decision-making in our Level I Trauma ICU. Description: Our EOL case discussions, a variation on the regional Schwartz Center Rounds, create a forum in which an EOL case creating unease for caregivers would be presented. Quarterly our PCC selects a moving EOL case that has created distress for families, patients, and/or staff in the unit. After posting the time/date of the forum and alerting involved staff, the patient's primary nurse and our intensivist co-present the case for discussion; notes are taken. At the following PCC meeting, we analyze emerging themes from this and previous cases. Through analysis, predominant themes have emerged, such as "How do we deal with families that want everything done despite the fact that the patient is dying? What are the cultural differences of grieving families? How do we deal with a colleague's death in the ICU?" These themes have "demanded" educational/support mechanisms for unit staff which we have instituted. Evaluation and Outcomes: We have had six well attended EOL case discussions. Attendance from both day and night staff has been enthusiastic. With the evolving themes, the PCC has instituted classes for nurses and house staff on end-of-life issues, techniques in communication in EOL situations, information-sharing on our "Comfort Guidelines on Withdrawal of Support." Most importantly, this forum has created a safe environment for staff to discuss EOL issues, express feelings, and know that their concerns are heard. Discussion of EOL issues is now an accepted part of our new nurse and the monthly house staff orientations.

**Poster Presentation**

National Teaching Institute, May 2008
Improving Patient Satisfaction Through Aggressive Surgical Pain Management

C. Gryglik, MD, C. Reilly, M. Davis

**Purpose:** In an effort to improve the postoperative experience for surgical intermediate care patients, we postulated that an intervention involving education of both nursing and medical resident staff and partnering with patients and families, would enhance patient satisfaction with their overall care.

**Background:** Statistically, it was known that pain management is a key driver influencing overall patient satisfaction on this 44-bed Surgical Intermediate Care Unit. Anecdotal evidence suggested that many of the registered nurses and physicians involved in the care of these thoracic, vascular, abdominal and general surgical patients were not current with respect to best practice in managing surgical pain. The leadership team focused on an intervention to improve overall patient satisfaction.

**Methods:** This was an interventional study that surveyed MD’s & RN’s using a tool developed by Betty Ferrell and Margo McCaffrey, the City of Hope Nurse Knowledge and Attitudes Regarding Pain, prior to an educational intervention. A banner & posters were hung throughout the unit enhancing visibility of our initiative for patients, families & staff. Patient satisfaction was compared before and after interventions, using telephone surveys conducted by a consultant on 50 random patients per month for a period of twelve months. Resulting data were analyzed using SPSS.

**Results:** Findings indicated that there were statistical significances in three distinct areas comparing before and after interventions: overall quality of care, quality of pain management and patient dignity. Prior to intervention, patient satisfaction scores were in the 40th to 60th percent of excellent consistently. Patient satisfaction scores for overall quality of care have remained consistently in the 75th to 90th percent of excellent for the past 18 months post intervention.

**Conclusions:** The educational intervention & visibility of banners, signs & brochures for patients, families & staff had a significant impact on patients’ perception of their overall quality of care, the management of pain and their dignity during their patient experience on this surgical intermediate care unit.

**Oral Presentation**

Nursing Grand Rounds at Baystate Medical Center
January 2008; Springfield, MA
Purpose: Traditionally, during orientation and for ongoing education of staff, clinical experiences could not consistently be coordinated with didactic sessions. One could not arrange for an experience with a code, or with titration of vasoactive medication if no patients required these interventions. During orientation, if a patient condition was quickly deteriorating (e.g. dropping blood pressure or oxygen saturation) a more experienced clinician would have to intervene to prevent the patient from experiencing a critical event. While this insures safe patient care, it often deprives the less experienced clinician with the opportunity to deal with a variety of critical situations. Simulation allows for experiential learning in a safe environment that can be repeated in a consistent manner based. The purpose of integrating simulation into critical care nursing education is to allow for standardization and repeatability of clinical experiences, to reinforce learning and to assess staff ability to operationalize didactic material.

Description: A session was designed to simulate a code blue on one of the nursing units. A room in the ICU approximating the size of a patient room on one of the nursing units was fitted with a simulation mannequin and an actual code cart with defibrillator. Other staff in the "patient room" played the roles of physician, respiratory therapist, floor nurse and at times, family members. Prior to beginning the simulation, all staff people involved were informed that the simulation was a confidential process in which staff were not to discuss the performance of participants to anyone outside the session. The critical care nurse was called into the room after being told that a patient was "coding". CPR was in process (performed by a nursing student posing as the floor nurse) and the critical care nurse was expected to follow protocols in place based on ACLS and on the code blue policy of the hospital (i.e. place the patient on the monitor, accurately identify the cardiac rhythms, locate and use various items including medications on the code cart etc.). After the entire session, participants were debriefed focusing on the positive aspects of their performance and areas that need improvement.

Evaluations and Outcomes: Participants were evaluated based on ease of use of emergency equipment, proper identification of cardiac rhythms. Upon repeating the sessions with the same nurses 1 week later, nurses demonstrated quicker application of defibrillator pads, quicker defibrillation procedure and quicker identification of items in the code cart as well. One participant stated that she attended an actual code after the session had felt much more comfortable with the situation. Anonymous evaluation forms completed by participants consistently described the sessions as a positive experience, stating that they felt more comfortable with emergency situations. Simulation of a clinical situation was successfully integrated in the education plan for experienced and novice critical care nurses in the intensive care unit and demonstrated improved performance after participation in the session.
Objective: To evaluate the clinical characteristics and uterine pathology of women undergoing hysterectomy after NovaSure, rollerball, and thermal balloon endometrial ablations.

Methods: A retrospective medical record review was performed for women who had a hysterectomy performed after any endometrial ablation. Incidence of subsequent hysterectomy was determined after 1, 2, and 3 years of follow-up. Findings on operative and pathology reports were reviewed.

Results: Fifty-three surgeons were identified for a total of 1200 endometrial ablations performed between 2000 and 2006. The average time elapsed between any endometrial ablation and hysterectomy was 13-17 months. Within 3 years, the overall probability of hysterectomy was 9% after NovaSure, 27% after rollerball, and 38% after thermal balloon endometrial ablation. Comparing ablation techniques, the odds ratio for hysterectomy within 3 years was 2.6 [95% C.I. 1.7-4.1] after rollerball and 5.79 [95% C.I. 3.7-9.1] after thermal balloon when compared with NovaSure ablation. When reviewing the rate of uterine survival over time, the probability of uterine survival after NovaSure was significantly improved over thermal balloon ablation at 1, 2, and 3 years of follow-up.

Review of pathology specimens from the 150 subjects undergoing hysterectomy after any endometrial ablation revealed no pathology in 22% of hysterectomies. Leiomyomas and adenomyosis were the leading pathologic findings, each noted in about 50% of hysterectomy specimens after endometrial ablation. Endometriosis was noted in 11% of specimens; primary endometrial or uterine cancer was noted in 3-5%.

Conclusions: In this study, subsequent hysterectomy was significantly more likely after rollerball or thermal balloon endometrial ablation compared with NovaSure endometrial ablation. In hysterectomies performed after an endometrial ablation, 4 out of 5 pathology specimens contained pathologic findings that may have been responsible for patient complaints.

Poster Presentation
American Society for Reproductive Medicine
October 13-17, 2007; Washington, DC
Objective: Pediatric endocrine patients with reproductive endocrine disorders may have difficulty identifying appropriate adult providers to care for them in adulthood. Many of these conditions have significant co-morbidities which require surveillance throughout adulthood. We report on a program of structured transition for young adults with reproductive endocrine disorders to adult care in an reproductive endocrinology setting.

Design: Descriptive study, chart review

Materials and Methods: Patients identified as requiring continued surveillance in adulthood were referred for formal transition. A transition summary document was created to identify pertinent aspects of the patients history and improve communication. A transition visit was arranged involving the patient, parents, and pediatric and adult providers. Charts of patients referred were then reviewed to assess adherence to follow up.

Results: A total of 63 patients referred for transition to adult care. The most common reasons for referral were Polycystic ovary syndrome (44%), Turners syndrome (35%) and ovarian failure (10%). Forty-eight (76%) of the patients initially referred have had continued follow up.

Conclusions: A formal, structured transition program can help young adults with reproductive endocrine disorders identify appropriate adult providers. Reproductive endocrinologists may be well suited to care for this subset of pediatric endocrine patients. Education regarding serious long-term health consequences of conditions such as Turners syndrome, polycystic ovary syndrome and premature ovarian failure may improve compliance with recommended surveillance for these co-morbidities.

Poster Presentation
American Society for Reproductive Medicine
October 13-17, 2007; Washington, DC
Recurrent Low Oocyte Maturity (RLOM) During ICSI Compared With Age-, Response Rate, And Stimulation Protocol-Matched Controls: A Retrospective Cohort Study

AK Moore, MD, DR Grow, MD, M Amy, PhD, K Lynch, MD, H Wiczyk, MD, MY Dawood, MD

Objective: We have recently demonstrated that patients with recurrent low oocyte maturity (RLOM) during ICSI are high follicular responders who have poor embryo development, implantation, and live birth rates. The aim of this study is to determine if the poor outcomes in RLOM patients are due mainly to their high follicular response rate or to intrinsic oocyte factors.

Study Design: retrospective cohort study.

Materials/Methods: All ICSI cycles from 2002-2007 were examined (n=680). The mean +/- SD percentage of mature oocytes was 80 +/- 15%. We define a low oocyte maturity (LOM) cycle as one with <50% (>2SD's below the mean) of oocytes having the first polar body at the time of ICSI. Prophase-I (GV) and Metaphase-I (M-I) oocytes were considered immature. Recurrent low oocyte maturity (RLOM) is defined as when more than one cycle in the same patient has LOM. We identified 8 patients with 20 ICSI cycles who had RLOM. We matched controls for age and factors known to affect oocyte maturity, including response rate, number of oocytes retrieved, and stimulation protocol.

Results: Together the RLOM group and control group were high follicular responders when compared to all other ICSI patients (21.6 v 14.8 oocytes retrieved per cycle, Mann-Whitney P<0.0001). At baseline, unexplained infertility was more common in the RLOM group than the control group (30% vs. 0%, p=0.02, Fisher's Exact). Otherwise, between groups there were no significant differences in other infertility diagnoses, response rate, oocytes retrieved, stimulation length, stimulation protocol, antral follicle count, or day 3 FSH. Patients with RLOM had a lower percentage of mature oocytes at retrieval, and lower cleavage and implantation rates, leading to a lower birth rate. (see table)

Conclusions: Patients with RLOM have poor live birth rates that can be explained by multi-stage failure of meiosis, embryo development, and implantation. The poor outcome is more likely due to intrinsic oocyte factors than to high follicular response rate, as the high-response control group had excellent live birth rates. Patients with RLOM are a previously undelineated group of patients with intrinsic oocyte factor infertility.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>RLOM</th>
<th>Controls</th>
<th>Relative Risk (95% Confidence Interval)</th>
<th>P-value (Fisher's Exact)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oocyte maturity at time of ICSI (%)</td>
<td>38% 171/452</td>
<td>82% 336/411</td>
<td>0.46 (0.4-0.5)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Fertilization rate (%)</td>
<td>56% 96/171</td>
<td>62% 208/336</td>
<td>0.91 (0.8-1.1)</td>
<td>0.21</td>
</tr>
<tr>
<td>Cleavage rate (%)</td>
<td>83% 79/96</td>
<td>98% 202/208</td>
<td>0.85 (0.8-0.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Implantation Rate (%)</td>
<td>11% 4/34</td>
<td>35% 15/43</td>
<td>0.33 (0.1-0.9)</td>
<td>0.03</td>
</tr>
<tr>
<td>Live birth rate (%)</td>
<td>10% 2/20</td>
<td>60% 12/20</td>
<td>0.16 (0.0-0.7)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

Society for Gynecologic Investigation
2008 55th Annual Scientific Meeting; March 26-29, 2008; San Diego, CA
Objective: To investigate the role of human papillomavirus (HPV) testing in the management of women with atypical glandular cells (AGC).

Methods: Following IRB approval, cases of AGC with concurrent HPV testing (High risk types, Digene HCII) were identified from the pathology database at Hartford Hospital from January 2000 to September 2006, inclusive. AGC-associated disease was defined as findings of cervical intraepithelial neoplasia 2 (CIN2) or anything of greater pathologic importance on histology. HPV-associated disease was defined as CIN2-3, glandular dysplasia, adenocarcinoma in situ (AIS), or any cervical malignancy.

Results: Two hundred fourteen cases of AGC with concurrent HPV testing were evaluated, including 27 cases of AGC with concurrent atypical squamous cells (ASC), low-grade squamous intraepithelial lesion (LSIL), or high-grade squamous intraepithelial lesions (HSIL). The rate of disease was 20.6% with a 7.0% rate of cancer. Among the 214 cases of AGC, 30.4% tested positive for HPV. The rate of HPV-associated disease among cases testing positive for HPV was 40.0% compared with 4.0% among HPV negative cases. The sensitivity of HPV testing for HPV-associated disease was 81%. HPV-positive women were less likely to have endometrial or extra-uterine disease (1.5%) than HPV-negative women (7.4%).

Conclusions: All women with AGC on cervical cytology require colposcopy and endocervical curettage (ECC) regardless of HPV status. HPV-positive women are at higher risk and should be counseled appropriately even if the colposcopic biopsies and/or ECC are negative. Women at risk for endometrial or extra-uterine malignancies should undergo appropriate evaluation regardless of HPV status.

American Society for Coloscopy and Cervical Pathology
March 17-21, 2008; Lake Buena Vista, FL
Diagnostic Utility Of Mammaglobin In Lesions Of The Uterine Cervix

M. Assaad, MD, C.N. Otis, MD, S. Marconi, MD, L. Pantanowitz, MD

Background: Mammaglobin (MAM), a glycosylated peptide found in human breast tissue, has been shown in limited cases to be expressed in endometrial but not endocervical adenocarcinoma. The aim of this study was to systematically determine the diagnostic utility of MAM immunohistochemistry to help differentiate in-situ, primary and secondary adenocarcinoma of the uterine cervix.

Methods: We selected 57 cases with formalin-fixed, paraffin-embedded routinely processed cervical tissue including (i) 18 cases with normal histology, (ii) 17 benign lesions (cervicitis, nabothian cysts, tubal metaplasia, tunnel clusters, microglandular hyperplasia, endosalpingiosis, mesonephric hyperplasia, Arias-Stella reaction, endometriosis, fallopian tube prolapse), (iii) 7 with endocervical adenocarcinoma in-situ (AIS), (iv) 8 endocervical adenocarcinomas (including 1 clear cell carcinoma), and (v) 7 endometrial adenocarcinomas (2 invading cervical stroma, i.e. pT2b). Immunohistochemistry was performed with mouse anti-human MAM (clone 304-1A5, 1:300 dilution, Dako). Immunoreactivity localization and intensity (graded 0-4) were recorded.

Results: MAM immunoreactivity was present in 20/35 (57%) normal/benign cases, 4/7 (57%) endometrial adenocarcinomas, and 1/8 (13%) endocervical adenocarcinomas. All cases of AIS were negative for MAM staining. MAM immunoreactivity in normal and benign cervical lesions such as endocervical cysts and tubal metaplasia was cytoplasmic, focal and ranged from low (1+) to high (4+) intensity. Immunoreactive endometrial adenocarcinomas were all strongly positive (3 and 4+). The single positive endocervical adenocarcinoma, with villoglandular features, was focal and only weakly (2+) immunoreactive for MAM. Conclusion: Mammaglobin is expressed in normal endocervical glands, including several benign endocervical lesions. However, MAM expression is focal, which needs to be taken into consideration when interpreting biopsy material. MAM expression in the cervix appears to be lost with malignant transformation to AIS or endocervical adenocarcinoma. By comparison, MAM is strongly positive in immunoreactive endometrial adenocarcinomas. Therefore, inclusion of MAM into an immunohistochemical panel is recommended to differentiate endocervical and endometrial adenocarcinoma.

United States and Canadian Academy of Pathology

March 2008; Denver, CO
Ligneous Inflammation Of The Female Genital Tract

G. Caponetti, MD, C. Otis, MD, I. Mert, S. Marconi, V. Schuster, M. Ziegler, K. Tefs, J. Hecht, M. Tug, L. Pantanowitz, MD

Background: Ligneous inflammation (LI) is characterized by pseudomembranes and inflammation. A possible autoimmune etiology similar to lichen sclerosus is proposed. There have been no series of LI involving the female genital tract (FGT). We aimed to characterize the morphology, genotype and immunophenotype of LI of the FGT.

Design: Tissue from 4 patients with LI (12 specimens), 10 of chronic cervicitis (CC), and 10 of vulvar lichen sclerosus (LS) were studied. Sections were stained with HE, PAS, PTAH, Congo Red, CD3, CD4, CD8 and CD20. The distribution and proportion (graded 0-4) of T B cells was recorded. DNA from LI patients was studied for mutations in the plasminogen gene (PLG) by PCR and direct sequencing.

Results: LI patients were of mean age 41 years, 2 with low plasminogen antigen and functional activity (12% 18% of normal). LI on biopsy showed abundant stromal deposits of eosinophilic, PAS+, PTAH+, Congo Red negative fibrin associated with chronic inflammation (Figures AB). Table 1 shows the inflammatory infiltrate of LI resembles CC more than LS. In LI cases with low plasminogen, there was a homozygous mutation in 1 patient and heterozygous mutation in another. No mutations were found in the other 2 women with LI. Multiple PLG polymorphisms were detected in all four LI patients.

Conclusions: LI of the FGT is related to plasminogen deficiency secondary to PLG genetic defects. Mutations in unidentified regulatory sequences of the PLG may explain the lack of demonstrable genetic mutations in some cases. Failure of plasminogen to remove fibrin results in tissue deposition. Given this molecular mechanism, and evidence that the inflammatory infiltrate resembles a reactive process, a role for autoimmunity in LI appears unlikely.

Table 1: Distribution and proportion of lymphocytes in tissue biopsies.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Lymphocyte distribution</th>
<th>Proportion of CD3+ Cells</th>
<th>Proportion of CD20+ Cells</th>
<th>Overall CD4:CD8</th>
</tr>
</thead>
<tbody>
<tr>
<td>LI</td>
<td>Intraepithelial and subepithelial</td>
<td>3</td>
<td>2</td>
<td>CD4 predominant</td>
</tr>
<tr>
<td>CC</td>
<td>Intraepithelial and subepithelial</td>
<td>3</td>
<td>2</td>
<td>Equal CD4 and CD8</td>
</tr>
<tr>
<td>LS</td>
<td>Subepithelial and subsclerosal</td>
<td>4</td>
<td>1</td>
<td>CD4 predominant</td>
</tr>
</tbody>
</table>

Poster Presentation

United States and Canadian Academy of Pathology

March 2, 2008; Denver, CO
Adequacy Of Lymph Node Retrieval In Colonic Adenocarcinoma Depends On Surgical And Anatomic Factors

C.N. Chapman, MD, W.H. Duke, MD, J.D. Mueller, MD

**Background:** Pathologic staging of colorectal specimens submitted for malignancy mandates thorough examination and submission of all lymph nodes identified. A consensus statement by the College of American Pathologists (CAP), published in 1999, recommended that when fewer than 12 lymph nodes were retrieved that enhancement techniques should be employed. Various studies have shown that complete processing and evaluation of at least 12 lymph nodes limits the phenomenon of stage migration. Despite adherence to these CAP recommendations, lymph node retrieval may still be less than the number 12. This may be due to one or more of the following variables: patient age, gender, race, site of tumor, surgical technique/length of specimen submitted, and training of the dissector (pathologist assistant (PA) versus pathology resident (MD)).

**Design:** Information on pathologic characteristics and patient demographics was obtained from institutional surgical reports and medical records of all patients with a resection for colonic malignancy between 1995 and 2006. From 457 cases identified, the following information was obtained: patient age, race, gender; dissector (PA vs. MD); specimen site, length, and number of nodes retrieved; and year of resection. Specimens were classified as adequate (12 nodes retrieved) or inadequate (<12 nodes retrieved). Multiple logistic regression was performed to identify factors which predicted adequate node retrieval.

**Results:** Of all cases analyzed, 278 (61%) had adequate node retrieval (12). Multiple logistic regression identified the following predictive factors: greater specimen length (p<0.001), more proximal tumor site (p<0.001), younger patient age (p<0.01), and more recent year of dissection (p<0.005). There was no statistically significant association with patient race or gender or dissector experience (PA vs. MD).

**Conclusions:** Younger patient age, proximal tumor site, longer specimen length, and more recent procedural date were found to be independent, positive predictive factors for adequate (12) lymph node retrieval in colon cancer resections. Resections less than 15 cm in length as well as resections from the sigmoid colon and rectum were associated with a less than 50% rate of adequate lymph node retrieval (<12). Based on these findings, the definition of adequate lymph node retrieval might be refined to consider surgical and anatomic factors.

**Poster Presentation**
United States and Canadian Academy of Pathology
March 2, 2008; Denver, CO
Thyroid Fine Needle Aspiration Biopsy: Diagnostic Categories and Surgical Correlation  
(Conventional Smears versus ThinPrep®)

R. Goulart, MD, C. Otis, MD, L. Pantowitz, MD

**Introduction:** Thyroid fine needle aspiration biopsy (T-FNAB) has proven to be an excellent diagnostic tool in the management of thyroid nodules. Given the high prevalence of thyroid nodules and readily available ultrasound imaging, this is currently the most common FNAB specimen in many cytopathology laboratories. Although various cytopreparations are available, two of the more prevalent techniques are conventional smears (CS) and ThinPrep (TP), both substantially used in our institution. The aim of this study is to compare the diagnostic categories and surgical correlation of T-FNAB in a large laboratory, CS versus TP.

**Materials and Methods:** The computer files at Baystate Medical Center (BMC) were searched from January 2000 until June 2006 to identify all T-FNAB. The subset of cases with surgical correlation was then selected, forming the database for the study. These cases were stratified by T-FNAB method (CS versus TP), with further comparison of patient age, T-FNAB diagnostic category, and surgical outcome. T-FNAB categories were: non-diagnostic (ND), negative for malignant cells (NMC), atypical (ATYP), suspicious for carcinoma (SUSP), and carcinoma (CA). Surgical specimens were collated as benign versus carcinoma, with the probability of finding carcinoma upon resection calculated for each T-FNAB diagnostic category.

**Results:** A total of 2,588 T-FNAB were evaluated during the 6.5-year period. 305/2,588 (12%) underwent subsequent surgery at BMC. Of these, 182 (60%) had CS-T-FNAB and 123 (40%) TP-T-FNAB. The patient ages in each group were similar: CS-T-FNAB mean age 47 (range 12-85); TP-T-FNAB mean age 52 (range 15-86). All malignancies identified at surgery were carcinomas (105 papillary; 6 Hurthle; 5 follicular; 1 insular; 1 metastatic). The following table contains the T-FNAB diagnostic categories and the probability of finding carcinoma upon surgical resection in each category, stratified CS versus TP. No statistically significant difference was found (Chi square test) with the exception of a lower rate of ND in CS-T-FNAB, (due to on-site adequacy assessment performed in T-FNAB clinics using CS.

<table>
<thead>
<tr>
<th></th>
<th>ND</th>
<th>NMC</th>
<th>ATYP</th>
<th>SUSP</th>
<th>CA</th>
</tr>
</thead>
<tbody>
<tr>
<td>All cases (n=305)</td>
<td>6%</td>
<td>18%</td>
<td>26%</td>
<td>3%</td>
<td>34%</td>
</tr>
<tr>
<td>CS (n=182)</td>
<td>3%*</td>
<td>0%</td>
<td>29%</td>
<td>3%</td>
<td>34%</td>
</tr>
<tr>
<td>TP (n=123)</td>
<td>9%</td>
<td>27%</td>
<td>23%</td>
<td>8%</td>
<td>35%</td>
</tr>
</tbody>
</table>

**Conclusions:** When comparing conventional smears versus ThinPrep, no statistically significant difference was identified in either the relative percentages of T-FNAB diagnostic categories (NMC, ATYP, SUSP and CA) or the probability of finding carcinoma in the surgical resection specimen. The probability of finding carcinoma on resection in each diagnostic category was comparable to that reported in the literature. As conventional smears and ThinPrep had similar diagnostic performance, other factors such as ease, cost, and personal experience could be considered in the preparation selection for a given laboratory.

**Poster Presentation**

55th Annual Scientific Meeting- American Society of Cytopathology, November, 2007; Houston, TX
Utility Of Fine Needle Aspiration Biopsy In The Diagnosis Of Thyroid Lymphoma
Rukmini Modem, MD, Robert Goulart, MD, Liron Pantanowitz, MD

Introduction: Thyroid lymphomas (TL) are rare and reported to be mainly of B-cell origin. With the opportunity to perform ancillary diagnostic studies on cytologic material, an adequate fine needle aspiration biopsy (FNA) should result in a clinically significant (allowing treatment) diagnosis, and thereby obviate the need for surgical intervention in the majority of cases. The aim of this study was to determine the diagnostic utility of FNA in a series of TL.

Methods: Our pathology computer records were searched for cases of TL over a 13-year time period (1994-2007), including cases diagnosed by FNA (n=16; 57%), by open biopsy/thyroidectomy (n=10) and at autopsy (n=2). Total FNA material consisted of 87 direct smears, 10 ThinPrep slides and 8 cell block preparations. For TL diagnosed by FNA, the patient demographics, lymphoma origin (primary to the thyroid gland or secondary involvement), lymphoma subtype (WHO classification), and the ancillary studies performed were recorded.

Results: Patients with TL diagnosed by FNA were of average age 68 years (range 28-88 years) and mainly female (M:F = 1:15). Lymphomas were primary to the thyroid gland in 12 (75%) of the cases, with secondary involvement in 4 (25%). Non-Hodgkin lymphoma (NHL) was diagnosed in 15 (94%) of these cases and classical Hodgkin lymphoma in one patient (28 year old female). Most (63%) of the NHL were aggressive lymphomas (8 diffuse large B-cell, 1 Burkitt, 1 T-cell). Indolent B-cell lymphomas included 2 cases each of MALT and follicular lymphoma. In one case, contaminating blood contained chronic lymphocytic lymphoma (CLL). Immunocytochemistry was performed in 8 (50%) of the cases, flow cytometry in 4 (25%), and FISH in 1 case for myc rearrangement that was identified in the case of Burkitt lymphoma. A concurrent surgical biopsy was performed in 2 cases.

Conclusions: Thyroid lymphoma can be readily diagnosed on FNA, particularly if adequate material can be aspirated in order to perform ancillary diagnostic studies, leading to a clinically significant diagnosis. Ancillary studies are especially helpful, as lymphomas involving the thyroid gland are heterogeneous and may include Hodgkin lymphoma, as well as aggressive and indolent NHL.

Poster Presentation
55th Annual Scientific Meeting-American Society of Pathology
November, 2007; Houston, TX
Outcome Of Clinically Based Large-Scale Screening For *Chlamydia trachomatis* Infection Using The ThinPrep Pap Test Collection Vial

Liron Pantanowitz, MD, Maryanne Hornish, CT, MBA, Robert Goulart, MD

**Introduction:** Chlamydia trachomatis is a common sexually transmitted agent which has been suggested to contribute to the development of cervical intraepithelial neoplasia (CIN) when coinfection occurs with Human Papilloma Virus (HPV). Screening for Chlamydia trachomatis and Neisseria gonorrhoea directly from the ThinPrep Pap test collection vial has been approved for sexually active women at risk for these infections. However, there have been no large studies to date reporting the findings of such screening. The aim of this study was to report our experience of clinically based screening for Chlamydia trachomatis using ThinPrep Pap test vials, with comparison to cytomorphology and HPV DNA test results.

**Methods:** ThinPrep Pap test samples collected in PreservCyt over an 11-month period (February 2006-December 2006) were retrospectively studied (n=57,760). When clinically ordered, C. trachomatis and N. gonorrhoea were tested using the APTIMA Combo 2 assay and high risk HPV DNA using the Digene Hybrid Capture II assay, from the same collection vial. These results were correlated with patient age, Pap test diagnosis, and when available HPV DNA test results.

**Results:** Chlamydia testing was performed in 14,601 (25%) of Pap tests, of which >99% were also tested for Neisseria and 16% for HPV. Patients tested for Chlamydia were on average 29 years of age compared to 45 years for women not screened. Table 1 stratifies these patients by their Chlamydia result. The higher rates of HPV positivity (p=0.01), Neisseria coinfection (p=0.001) and LSIL (p=0.001) in patients testing positive for Chlamydia were all statistically significant. In HPV positive women, a diagnosis on Pap test of atypical or greater was found in a higher percentage when coinfected with Chlamydia.

<table>
<thead>
<tr>
<th>Chlamydia</th>
<th>Average Age (range) years</th>
<th>HPV Positive/ Tested</th>
<th>Neisseria Positive/ Tested</th>
<th>Negative Pap Cytology</th>
<th>Atypical Pap Cytology</th>
<th>LSIL Pap Cytology</th>
<th>HSIL Pap Cytology</th>
<th>Carcinoma Pap Cytology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>23 (14-66)</td>
<td>47/86 (55%)</td>
<td>22/510 (4.5%)</td>
<td>353 (69%)</td>
<td>86 (17%)</td>
<td>59 (11%)</td>
<td>8 (2%)</td>
<td>0</td>
<td>514</td>
</tr>
<tr>
<td>Negative</td>
<td>29 (13-77)</td>
<td>828/2187 (38%)</td>
<td>41/13,999 (0.3%)</td>
<td>11,072 (79%)</td>
<td>1,546 (11%)</td>
<td>1,033 (7%)</td>
<td>222 (2%)</td>
<td>1 (&lt;1%)</td>
<td>14,087</td>
</tr>
</tbody>
</table>

Conclusion: Patients infected with Chlamydia trachomatis were more likely to be coinfected with both high risk HPV and Neisseria gonorrhoea. These women were also more likely to have higher rates of atypical and low-grade SIL Pap tests. These results suggest that coinfection with Chlamydia may possibly contribute to the development of CIN, and emphasize the need for controlled prospective epidemiologic studies to address this potential association.

**Poster Presentation**

55th Annual Scientific Meeting-American Society of Pathology

November, 2007; Houston, TX
Cytologic Findings Of Psammocarcinoma In Peritoneal Washings
Liron Pantanowitz, MD, Christopher N. Otis, MD, Robert A. Goulart, MD

Introduction: Psammocarcinoma is rare variant of serous carcinoma of the gynecologic tract and peritoneum with a favorable prognosis, characterized histologically by innumerable psammomatous calcifications (associated with ≥75% of epithelial nests) and low-grade cytologic features. Their cytologic features in peritoneal washings have not been fully characterized. Therefore, our aim was to describe the cytomorphology of a series of psammocarcinomas.

Methods: Our cytopathology computer files (1988-2007) were searched for cases of peritoneal washings in which psammomatous calcifications were reported. Patient demographics, cytologic diagnosis rendered, and any concomitant surgery (hysterectomy, salpingo-oophorectomy and omentectomy) were recorded. All cytospin, ThinPrep and cell block slides from peritoneal washings in patients with psammocarcinoma were reviewed.

Results: We identified 37 cases from patients of mean age 55 years (range 18-86 years) with peritoneal washings containing psammomatous calcifications diagnosed as negative for malignancy (43%), carcinoma (41%), atypical (8%) and involved with borderline (LMP) serous tumor (8%). Psammocarcinomas (n=4) occurred in patients of average age 52 years (range 39-68 years), were of either peritoneal (n=3) or ovarian (n=1) origin, and all diagnosed on peritoneal washings as positive for papillary serous tumor/carcinoma. In these psammocarcinomas, peritoneal washing specimens (5ml to 3500ml) were bloody, of moderate to high cellularity, and contained many papillary serous cell groups. Tumor cells had high N:C ratios, irregular nuclei, prominent nucleoli, and variable hyperchromasia. Mitoses and necrosis were absent. Laminated psammomatous calcifications were abundant in most (n=3) cases (>80 bodies/cytologic slide and cell block) and of variable size (up to 150 microns), occurring both alone and in clusters associated with atypical cell groups.

Conclusion: At our institution, psammocarcinoma accounted for 11% of peritoneal washings in which psammomatous calcifications were reported. Their characteristic cytologic finding of low-grade epithelial atypia in papillary cell groups often accompanied by numerous psammoma bodies is very distinctive and closely resembles the striking histopathologic findings seen in this rare subset of serous carcinomas.

Poster Presentation
55th Annual Scientific Meeting-American Society of Pathology
November, 2007; Houston, TX
Immunocytochemical Evaluation of p16<sub>INK4A</sub> in ThinPrep<sup>®</sup> Pap Tests Diagnosed as Atypical Squamous Cells, Cannot Exclude High-Grade Squamous Intraepithelial Lesion

Liron Pantanowitz, MD, Christopher N. Otis, MD, Robert A. Goulart, MD

**Introduction:** The p16 INK4A tumor suppressor gene product is over-expressed in squamous dysplasias and carcinomas of the cervico-vaginal area, and as such has potential utility in the evaluation of Pap tests. Although ASC-H as a morphologic category is reasonably predictive of biopsy-proven CIN, with CIN II/III identified in 40-50% of cases (intermediate between ASC-US and HSIL), the addition of p16 immunocytochemical (ICC) evaluation to liquid-based Pap tests may yield increased specificity, particularly in those cases with negative initial colposcopy.

**Materials and Methods:** We performed a 14-month retrospective study, in which 110 ASC-H ThinPrep Pap tests had additional slides prepared from residual vial material for p16 ICC. The patients were of average age 31 (range 15-83 years), with follow-up available in 93 cases, biopsy (87) or cytology only (6). Antigen retrieval was performed by EDTA HIER (microwave), with the primary purified mouse anti-human p16 antibody (clone G175-405; 1:40 dilution) and polymer based peroxidase DAB detection system performed (TekMate<sup>TM</sup> 1000). ICC slides were examined, blinded to follow-up result, with positivity defined at two levels for comparison purposes: 1) staining in any number of small metaplastic-type cells, and 2) staining in at least ten cells of this type. The stain findings were compared to follow-up data, with calculated sensitivity, specificity, predictive values, and overall accuracy. Causes of potential false positivity were also documented.

**Results:**

Table 1. ThinPrep Pap Test p16 Staining Results versus Follow-Up

<table>
<thead>
<tr>
<th>p16</th>
<th>Follow-Up</th>
<th>Follow-Up</th>
<th>If Restrict p16+</th>
<th>If Restrict p16+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HSIL</td>
<td>SIL</td>
<td>To 10 Cells Or &gt;</td>
<td>To 10 Cells Or &gt;</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>55%</td>
<td>53%</td>
<td>30%</td>
<td>29%</td>
</tr>
<tr>
<td>Specificity</td>
<td>74%</td>
<td>74%</td>
<td>82%</td>
<td>83%</td>
</tr>
<tr>
<td>Positive Predictive Value</td>
<td>72%</td>
<td>75%</td>
<td>67%</td>
<td>71%</td>
</tr>
<tr>
<td>Negative Predictive Value</td>
<td>58%</td>
<td>52%</td>
<td>49%</td>
<td>45%</td>
</tr>
<tr>
<td>Overall Accuracy</td>
<td>64%</td>
<td>62%</td>
<td>53%</td>
<td>51%</td>
</tr>
</tbody>
</table>

**Conclusions:** p16 testing of ASC-H cases lacks the sensitivity (and negative predictive value) of HPV DNA testing for SIL. However, p16 positivity is more specific, offering a higher positive predictive value for HSIL (CIN II/III). In ASC-H cases with a negative initial colposcopy, p16 testing (when positive) may further support a diagnostic surgical procedure (cervical LEEP). Potential false positive staining due to endometrial cells, in addition to Trichomonas and coccobacilli organisms, was also identified.
Impact Of Digital Image Manipulation In Cytopathology

Jeffrey Pinco, MD, Robert Goulart, MD, Christopher Otis, MD, Jane Garb, PhD, Liron Pantanowitz, MD

Introduction: Digital images are an important component of modern Cytopathology practice. They are critical in telecytology, automated screening, educational materials, internet websites, and potentially future proficiency testing. However, there has been no formal evaluation to determine if image manipulation (intentional or unintended) can affect the respective cytologic interpretation. Therefore, the aim of this study was to investigate whether alteration of digital cytology images could significantly affect diagnosis.

Materials and Methods: Digital images of ThinPrep (Pap stain) Pap test slides were acquired using a Spot Diagnostic (Insight 4) digital camera. Using Adobe Photoshop (version 7.0), 10 images were manipulated (rotated 90 degrees with brightness, contrast, RGB color and/or luminosity adjusted). A test comprised of these digital images (including the 10 altered images and their original images, in addition to 20 exact duplicate images) was administered to 22 cytologists (13 cytotechnologists, 8 cytopathologists, 1 cytopathology fellow). Images were rated as negative, atypical, low-grade SIL, high-grade SIL, or positive for cancer. Kappa statistics was used to measure agreement of ratings on image pairs (altered/unaltered and duplicates). The heterogeneity chi-square statistic was used to measure differences in the level of agreement between groups.

Results: The level of agreement for identical duplicate images was excellent (kappa 0.81), compared to the poor agreement for manipulated image pairs (kappa 0.21). This difference was statistically significant (p<0.0001). For all altered image types agreement was poor. There was no significant difference between cytotechnologists and cytopathologists on agreement between altered and unaltered image ratings.

Conclusion: Manipulation of a Pap test digital image significantly affects its morphologic interpretation by both cytotechnologists and cytopathologists. This suggests that care needs to be taken when digital cytology images are used, to specifically ensure that their alteration does not affect diagnosis. Standardization of image acquisition and display is clearly required.

Poster Presentation

55th Annual Scientific Meeting-American Society of Pathology

November, 2007; Houston, TX
Poor Iron Status Is Associated With Inflammation In Obese Children

Leybie Ang, MD, Matthew W Richardson, MD, Chrystal A Wittcopp, MD

Background: Obese children have been reported to have a higher incidence of low serum iron than non-obese children. Additionally, obesity results in chronic inflammation. Inflammation leads to abnormal iron homeostasis, thus providing a potential association of these two findings.

Objective: To determine if obese children with low serum iron have higher markers of inflammation than obese peers with normal iron.

Design/Methods: Children 2-19 yrs seen at Baystate Children's Hospital Pediatric Weight Management Program with BMI > 95% for age and no history/risk for iron deficiency or disease associated with inflammation were eligible. Low iron was defined as < 45 mcg/dL. Additional measures of iron status were ferritin, transferrin saturation, and free erythrocyte protoporphyrin (FEP). High sensitivity CRP (hsCRP) was used as a marker of inflammation. The study was IRB-approved.

Results: Data were available for 75 subjects: 44 girls, 31 boys, mean BMI 34.4 kg/cm2 (34.4-51), z-score 2.5 (1.6 -5.5), age 12.1 yr (3.3-18.4), hsCRP 0.4 mg/dL (0.2-4.7). Ten (13%) had low iron. Mean hsCRP was higher in the low iron group than in the normal iron group, 0.94 (+/-1.3) vs. 0.31 (+/-0.4) mg/dL (p=0.004). Gender, mean age, BMI, and z-score were similar between the two groups. Subjects with low serum iron had more additional labs consistent with a low iron state than those with normal serum iron (70% of low iron group had 2 or more additional labs consistent with a low iron state vs. 3% of those with normal iron, p<0.0001). One subject (1.4%) had low ferritin. Across all subjects, serum iron correlated negatively with hsCRP (r=-0.24, p=0.023) and ferritin positively (r=0.23, p<0.05).

Conclusions: Obese children with low iron have higher mean hsCRP than obese peers with normal iron. Serum iron is a better reflection of iron status than ferritin in pediatric obesity. Pediatricians may not be able to rely on ferritin alone to determine iron status in obese children, likely due to inflammation's effect of raising ferritin. Because inflammation results in increased sequestration of iron, we surmise that the chronic low-level inflammatory state of obesity leads to decreased iron availability which is reflected in abnormal measures of iron status. These results could provide a physiologic mechanism to explain findings of a high incidence of iron deficiency as diagnosed by lab criteria among obese children.

Poster Presentation
Pediatric Academic Society
May 5, 2008; Honolulu, HI
The Effect Of Open Access On Infant Well Child Care In A Resident Continuity Clinic

Astrid M. Chabert, MD, James Burns, MD, Kathleen Szegda, Cheryl D. Tierney, MD

**Background:** Open Access (OA) is an innovative scheduling system that is designed to improve access for patients needing care. In our system, parents initiate requests for well child care (WCC) within two weeks of the required visit and are not able to book further into the future. Little research has been conducted to evaluate what effects this method of scheduling has on a clinics performance in meeting the required number of infant WCC visits. Specific concerns have been raised that there may be negative consequences if future visits could not be scheduled at the current WCC before leaving clinic.

**Objective:** The purpose of this study is to determine whether the implementation of an OA scheduling system in a residency continuity clinic negatively impacted performance measures pertaining to the provision of the required number of infant WCC visits. The hypothesis for this analysis is that OA did not reduce performance despite the fact that parents must initiate the call for their WCC appointment in the limited window of two weeks prior to the visit. In addition to the number of visits there should be no difference in vaccination rates among cohort groups.

**Design/Methods:** We conducted a retrospective chart review of 70 infants born in April 2005, prior to OA, and compared them to 40 infants born in October 2006, after implementation. Each infants chart was reviewed for demographics, well child visit adherence at the newborn visit, 2, 4, 6, 9 and 12 month visits as well as vaccination status by one year of age.

**Results:** No statistical significant differences were found in demographic factors between the two cohort groups for gender, ethnicity, language spoken at home, insurance status and number of siblings. The majority of the patients were Hispanic (58%) and had the state health insurance (93.6%). 58% of the infants had no siblings. We found both cohorts (pre OA compared with post OA) to be equally likely to be up to date with well child care (0.72 vs. 0.71 p =0.87) and vaccinations. (70% vs. 78% p=0.40).

**Conclusions:** We found that implementing an OA scheduling system in our resident continuity clinic had little negative impact on our underserved populations ability to access well child care and obtain the recommended vaccinations for their children. The concern that if one does not offer an appointment to a family before they leave the office will lead to poor adherence with WCC guidelines and lower vaccination rates was not realized in our setting.

**Poster Presentation**

Pediatric Academic Society

May 5, 2008; Honolulu, HI
Infant Safe Sleeping In Homeless Family Shelters

Sonia Chaudhry, MD, Nancy Miller, MD

Background: The October 2005 AAP Policy Statement outlines recommendations for infant safe sleeping environments designed to decrease sudden unexpected infant death syndrome. State medical examiners increasingly report infant deaths due to unsafe sleeping environments. Community members including homeless shelter staff and resident families may be unaware of the AAP recommendations. Homeless shelter resident families may have unmet needs for infant safe sleeping environments.

Objective: Our purpose was to conduct a needs assessment for infant safe sleeping environments in homeless family shelters, to assess shelter staff knowledge, and to provide education about the AAP recommendations.

Design/Methods: An interactive presentation about the AAP recommendations for safe sleeping environments was conducted with the staff of 8 family shelters in Hampden County, Massachusetts. Fifty-nine staff members completed pre and post presentation quizzes designed to assess knowledge of the AAP recommendations. Parent brochures were created and distributed to shelters to be used by staff when teaching resident families about infant safe sleeping.

Results: All staff members completed a 13 question pre- and posttest. The mean pretest score was 70% correct, with the mean posttest score (92%) significantly higher (p<.001). On pretest, 88% answered the question about co-sleeping correctly, while only 27% answered the question about pacifier use correctly. Twenty-five percent of the shelters routinely had appropriate infant cribs available. Only 1 of 8 shelters allowed families to take the cribs upon finding permanent housing. Most shelters (80%) had no funding for cribs, sleepers, or pacifiers, all items included in the AAP recommendations. The majority of the shelters provide parenting classes, although none received staff education nor provided resident education about infant safe sleeping environments. Based on staff comments, the educational intervention was pertinent and beneficial to help families keep infants safe. The shelter staff intends to use the brochures for parent education for all resident families with infants.

Conclusions: The homeless family shelters of Hampden County do not receive staff education, do not provide parent education, or have the funding to provide safe infant sleep environments for resident families. Educational intervention for homeless shelter staff increased their knowledge about the AAP recommendations.

Oral Presentation
Eastern Society for Pediatric Research; March 30, 2008; Philadelphia, PA

Poster Presentation
Pediatric Academic Society; May 5, 2008; Honolulu, HI
An Education Program To Increase Knowledge Of And Immunization With Adult Pertussis Vaccination Among Parents Of Newborns

Pui-Ying Iroh Tam, MD, Benjamin Smith, Donna Fisher, MD, FAAP

**Background:** Pertussis is a cause of significant morbidity and mortality among children. The Advisory Committee on Immunization Practices (ACIP) recommends pertussis vaccine for adults having close contact with infants. Household members and parents are responsible for a large proportion of transmission to infants, thus vaccination of parents is of primary importance for the control of infant pertussis.

**Objective:** To increase awareness and knowledge of pertussis among parents of newborns, and to assess the effect of this program on parental acceptance and uptake of vaccination from their providers.

**Design/Methods:** Prospective study carried out in our Neonatal Intensive Care Unit (NICU)/Continuing Care Nursery (CCN) and newborn nursery (NN) units. From June - September 2007, parents and grandparents were invited to participate in our education program to learn about the risks and transmission of pertussis, as well as the benefits and side effects of pertussis vaccination. We evaluated their knowledge and feelings about vaccination before and after our intervention using chi-square testing. Callbacks were done at least 6 weeks later to document uptake.

**Results:** Of 195 people approached, 150 parents/grandparents (77%) were surveyed. 63 participants were from the NICU/CCN and 87 from the NN. Demographics between the 2 groups were similar. Only 25% of NICU/CCN parents and 40% of NN parents knew that pertussis immunization is subject to waning immunity (p=0.06). 52% knew pertussis is transmitted through air droplets and coughing. 85% of parents were not aware of ACIP recommendations. 78% felt the educational intervention was very helpful. Parental knowledge significantly increased after our education program (p<0.01). Parents of all newborns considered their baby significantly more at risk for infection, and were more willing to receive the vaccine after our education program (all p values<0.05). 21% were still unsure/unwilling to receive the vaccination afterwards. Of 138 parents who agreed to callbacks, 56% were successfully contacted and 8% were immunized.

**Conclusions:** Our educational program was effective in increasing parental knowledge of pertussis and willingness to receive the vaccine. Some parents were still unsure or unwilling to receive the vaccine even after our educational intervention, and immunization uptake was low. Further research needs to be done to identify and reduce barriers for parental vaccination.

**Oral Presentation**
Eastern Society for Pediatric Research; March 29, 2008; Philadelphia, PA

**Poster Presentation**
Society for Healthcare Epidemiology of America; April 5-8, 2008
Early Predictors Of Medication Use In Young Children With ADHD
Jack Fanton, MD, Elizabeth Harvey, PhD

Objective: Over the past two decades, there has been an increase in the use of stimulant medication among preschool age children; however, little is known about what factors distinguish children with ADHD who begin taking stimulant medication at a young age from those who do not. The present study examined a group of 3-year-old children who were later diagnosed with ADHD at age 6 to determine whether age 3 symptom severity, family psychopathology, socioeconomic status, gender, and preschool status predicted which children began taking stimulant medication by age 6. Age 6 symptom severity and co-morbid ODD were also examined as predictors.

Methods: Children at risk for ADHD at age 3 were followed for three years with annual re-evaluations in an NIMH funded naturalistic, longitudinal study. Age 3 and age 6 variables were selected to analyze amongst children who met criteria for ADHD at age 6 who were (n = 18) and were not on medication (n = 52). Chi-square and ANOVA analyses were performed to investigate if symptom severity, family psychopathology or attending preschool/daycare was associated with medication use.

Results: There were no significant associations found between medication use in children by age 6 and severity of symptoms at either age 3 or 6, maternal education level, family history of hyperactivity, family income, being in a daycare/preschool setting, or symptoms of maternal depression.

Conclusion: Children with ADHD who began stimulant medication by age 6 did not appear to differ in child or family functioning at age 3 compared to children with ADHD at age 6 who had not yet begun medication.

Presentations Presented previously as a poster at the October 2007 Annual Scientific Meeting for the American Academy of Child and Adolescent Psychiatry

Table 1. Continuous variables at ages 3 and 6 between children with ADHD who were on or off medication at age 6.

<table>
<thead>
<tr>
<th></th>
<th>On medication Mean (SD)</th>
<th>Not on medication Mean (SD)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age 3 variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISC Hyperactive (out of 9 symptoms)</td>
<td>6.17 (1.65) n = 18</td>
<td>6.30 (1.91) n = 54</td>
<td>.07</td>
</tr>
<tr>
<td>Maternal Education</td>
<td>12.72 (2.61) n = 18</td>
<td>13.44 (2.88) n = 54</td>
<td>.89</td>
</tr>
<tr>
<td>Family history of hyperactivity</td>
<td>.38 (.72) n = 17</td>
<td>.34 (.90) n = 53</td>
<td>.04</td>
</tr>
<tr>
<td>Average preschool or daycare hours per week</td>
<td>13.09 (15.38) n = 17</td>
<td>16.92 (15.72) n = 54</td>
<td>.77</td>
</tr>
<tr>
<td>Family income</td>
<td>3854.68 (23,097.75) n = 18</td>
<td>47584.40 (31838.12) n = 54</td>
<td>1.23</td>
</tr>
<tr>
<td>Symptoms of Maternal Depression</td>
<td>.32 (1.00) n = 17</td>
<td>.13 (.98) n = 50</td>
<td>.48</td>
</tr>
<tr>
<td><strong>Age 6 variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISC Hyperactive (out of 9 symptoms)</td>
<td>5.06 (2.28) n = 17</td>
<td>5.83 (2.09) n = 52</td>
<td>1.65</td>
</tr>
<tr>
<td>DISC inattention</td>
<td>3.88 (2.67) n = 17</td>
<td>4.94 (2.80) n = 52</td>
<td>1.89</td>
</tr>
</tbody>
</table>

DISC= Diagnostic Interview Schedule for Children
Table 2. Differences on age 3 categorical variables between children

<table>
<thead>
<tr>
<th></th>
<th>On Medication N=18 # (%)</th>
<th>Not on medication N= 54 #(%</th>
<th>$\chi^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-morbid ODD/Conduct</td>
<td>9 (50%)</td>
<td>31 (57%)</td>
<td>.30</td>
</tr>
<tr>
<td>Male Gender</td>
<td>14 (78%)</td>
<td>31 (57%)</td>
<td>2.39</td>
</tr>
<tr>
<td>Single Parent</td>
<td>9 (50%)</td>
<td>36 (67%)</td>
<td>1.60</td>
</tr>
<tr>
<td>Preschool/daycare</td>
<td>9 (50 %)</td>
<td>37 (71%)</td>
<td>1.38</td>
</tr>
</tbody>
</table>

Poster Presentation

Annual Scientific Meeting for the American Academy of Child and Adolescent Psychiatry

October 23-28, 2007; Boston, MA
Tumor-Targeted Delivery Of TRAIL Using *Salmonella typhimurium* Enhances Breast Cancer Survival

Sabha Ganai, MD, PhD, Richard B. Arenas, MD, FACS, Neil S. Forbes, PhD

**Background:** An ideal cancer therapeutic must selectively accumulate within tumor, have limited toxicity, and be easily eliminated from the host. Attenuated *Salmonella typhimurium*, a nonpathogenic facultative anaerobe, has been demonstrated as a novel anticancer agent because of its favored growth within tumors. In order to allow spatiotemporal control of cytotoxic protein delivery into tumors, a radiation-inducible gene expression system for secretion of TNF-related apoptosis-inducing ligand (TRAIL) was developed.

**Methods:** Prokaryotic expression plasmids for TRAIL and a green fluorescent protein using the RecA promoter were electroporated into the msbB- purI- strain, VNP20009. In a syngeneic murine model of mammary carcinoma using Balb/c mice, the effect of systemic infection of bacterial vectors induction by 2Gy gamma radiation at two days after colonization was assessed, examining outcomes of tumor growth and 30-day survival.

**Results:** In vitro confirmation of extracellular TRAIL secretion and caspase-3 and caspase-8 activity were confirmed, with a significant increase in cell death measured by flow cytometry (p<0.05). The expression vector for TRAIL induced by radiation led to a significant delay in tumor growth and improved 30-day survival in the mouse model, with a hazard ratio of 0.24 (95% confidence interval, 0.08 - 0.75; p<0.05) in comparison with an irradiated control. Repeated dosing and irradiation after one week limited tumor growth from baseline, with a significant survival benefit from 0% to 100% at one month after initial treatment (p<0.05).

**Conclusions:** By capitalizing on the intrinsic motility of bacteria and their preferential accumulation within tumors, the therapeutic utility of targeted therapy using attenuated *Salmonella typhimurium* as a TRAIL expression vector has been demonstrated as an effective method to reduce tumor growth and improve host survival.

Survival curves after PBS, or two doses of PBS+XRT or VNP pRA-TR (small arrow) + 2Gy XRT (large arrow). At one month, 100% of mice survived with two treatments of VNP pRA-TR + 2Gy, compared to 25% after repeated dosing with PBS + 2Gy, and no survival in the PBS control group (p<0.05).

**Poster Presentation**
Society of Surgical Oncology, 61st Annual Cancer Symposium
Clinical Assessment Of The Axillary Sentinel Lymph Node For Breast Cancer Metastasis By The Surgeon: A Study Of One Institution’s Voluntary Policy Change

Juliana Meyer, MD, Sabha Ganai, MD, PhD, Robert A. Goulart, MD, Holly Mason, MD, FACS

Introduction: Routine intraoperative touch preparation analysis (R-TPA) provides immediate pathologic examination of the axillary sentinel node but can negatively impact OR efficiency or risk a false positive or negative result. To minimize these effects, our institution developed a voluntary policy for selective use of TPA (S-TPA), thereby limiting TPA only to sentinel lymph nodes (SLN) found clinically suspicious by the surgeon for metastatic disease. The aim of our study was to examine the accuracy of this clinical assessment by the surgeon (CAS).

Methods: We retrospectively reviewed data from 330 patients who underwent axillary SLN biopsy with and without intra-operative TPA for a diagnosis of breast cancer from July 2002 until June 2005 at a single institution. Comparisons were made between routine (n=147) and selective (n=183) use of TPA before and after the policy change in January 2004 using Chi-square analysis. All surgeons at our institution, both breast-dedicated surgeons and community surgeons, were included. The method of sentinel node identification (blue dye vs. lymphoscintigraphy or both) was not recorded.

Results: There was a significant reduction in the frequency that TPA occurred due to the policy change from routine to selective TPA (100% vs. 33%; p<0.01). The rate that a patient was found to have a positive SLN improved from 18.4% to 38.3% when CAS was utilized (p<0.0001). The positive predictive value (PPV) improved from 92% to 100% without any effect upon the false negative rate for TPA.

Conclusion: This study documents the willingness of surgeons to participate in a voluntary policy change; in doing so, surgeons were correct in predicting a positive SLN more than one third of the time. Given the improved PPV and unaffected false negative rate, there was less risk of an unnecessary axillary dissection without any change in the possibility of that a needed axillary node dissection might be delayed by a false negative result. Clinical assessment of a SLN by the surgeon is shown here to be effective and safe. Selectively using TPA can help avoid operating room delays while awaiting TPA results, thereby allowing for improved operative efficiency without risk to the patient.

Poster Presentation
The American Society of Breast Surgeons, 9th Annual Meeting
April 30-May 4, 2008; New York, NY

J. Meyer, MD, H. Mason, MD, S. Ganai, MD, A. Hornish, MD, G.M. Crisi, MD, R.A. Goulart, MD

**Background:** Touch preparation evaluation (TPE) of axillary sentinel lymph nodes (SLN) is the preferred method of intraoperative SLN assessment for the presence of metastatic breast carcinoma. As the prevalence of positive SLN is relatively low, the percentage of all SLN patients who are spared the morbidity of an additional procedure (completion lymphadenectomy) is limited, with added risk for potential false positive interpretation. The aim of our study is to examine the outcome of surgical submission of selected suspicious SLN on the performance of intraoperative TPE (I-TPE).

**Design:** Prior to this study (pre-selective I-TPE), all axillary SLN were routinely examined by I-TPE at our institution. All surgeons performing SLN for breast cancer were requested to submit only suspicious SLN for I-TPE (selective I-TPE), based upon their clinical assessment. Selective I-TPE vs. final SLN pathology results over 18 months were retrospectively compared to the same time period pre-selective I-TPE. Final SLN positivity was defined as either micrometastatic or macrometastatic disease. Isolated tumor cells identified by IHC were considered negative. Statistical analysis was performed by Chi-square test.

**Results:** A total of 330 patients underwent SLN biopsy for breast cancer during the study period (pre-selective I-TPE=147; selective I-TPE=183), involving 15 surgeons. Mean patient age and range were similar (mean 57 years). Clinical SLN assessment reduced the percentage of patients with SLN submitted for I-TPE (32% vs. 100%; p<0.01) with an increase in the proportion of patients with positive SLN (37% vs. 21%; p<0.001). When performing pre-selective I-TPE, the positive predictive value (PPV) and specificity (as examined per patient) were 92% and 98%. With selective I-TPE, these increased to 100% each.

**Conclusion:** Surgical assessment for suspicious SLN led to a decrease in patient SLN cases submitted for intraoperative TPE (I-TPE) with an increase in the relative proportion of I-TPE patients with positive SLN. This latter effect, by increasing the prevalence of SLN positivity in the tested patient population, aided in reducing the potential of a false positive I-TPE.

**Poster Presentation**
United States and Canadian Academy of Pathology, 2008 Annual Meeting
March 1-7, 2008; Denver, CO
A New Web-Based Operative Skills Assessment Tool Effectively Tracks Progression In Surgical Resident Performance

Eyad M. Wohaibi, MD, David B. Earle, MD, Francis E. Ansanitis, AS, Richard B. Wait, MD, PhD, Neal E. Seymour, MD

Purpose: The study aim was to demonstrate that a new database tool for assessment of surgical resident operative skills tracks predictable progression in those skills over successive residency years for specific index case types.

Methods: A web-based interactive database (OpRate(c)) was used to assess selected aspects of resident operative performance as determined by supervising attending surgeons in a medium-sized residency (5-6 residents per postgraduate year [PGY]). This consisted of 1) 3 questions pertaining to patient information, technical and disease-specific preparedness, 2) 4 laparoscopic technical skills questions pertaining to tissue handling, dexterity, planning, and ability to function independently, and 3) similar open technical skills questions, with the addition of 2 questions defining knot tying ability. 2 years of assessment data were examined for cholecystectomy (CH), appendectomy (AP), colon resection (CR), ventral hernia repair (VH), and inguinal hernia repair (IH). Mean scores for total, technical, and preparedness responses, as well as each individual response area were compared for successive training years for each case type. Mean performance data between postgraduate years was compared by ANOVA.

Results: OpRate(c) data for 579 cases (142 CH, 67 AP, 73 CR, 202 IH, 95 VH) were examined. Incremental increase in total technical skills scores by training year were observed for all case types (PGY 1 vs PGY 5: CH, 2.9 ± 0.08 vs 3.9 ± 0.04; AP, 2.6 ± 0.1 vs 3.9 ± 0.1; CR, 3.0 ± 0.5 vs 3.8 ± 0.03; IH, 2.7 ± 0.08 vs 3.8 ± 0.04; VH, 2.6 ± 0.2 vs 3.7 ± 0.09; p<0.001). Individual technical skills as well as technical and disease-specific preparedness response areas also demonstrated significant improvement by successive training year. The training year-dependant improvement was not seen for the patient information preparedness response area.

Conclusions: Our early results show that the OpRate(c) database is a practical method of tracking expected changes in operative performance across successive training years. As such, the use of this database tool may offer the opportunity to 1) define performance benchmarks for specific levels of training, and 2) identify areas where focused training may be required for specific residents.

Keywords: Web-based assessment; Objective assessment; Surgical education; Surgery training, Operative skills; Resident progression

Poster Presentation
Massachusetts Chapter of the American College of Surgeons 54th Meeting
December, 2007; Boston MA
Demonstration Of Increasing Laparoscopic Clinical Skill Over Time:
Use Of A New Network-Based Resident Assessment Tool

Eyad Wohaibi, MD, David Lin, MD, David Earle, MD, Neal Seymour, MD

Background: The assessment of resident skill in laparoscopic surgery under actual clinical conditions is a difficult, but increasingly mandated process. We sought to demonstrate the utility of a new computer-based assessment tool to capture predictable incremental increases in resident skill over time. Methods: Using a network-based database instrument, performance of a group of 6 residents in a single postgraduate (PG) year at Baystate Medical Center, Springfield, MA, was assessed for 26 months starting from first day of employment (July 2005 - August 2007) for laparoscopic appendectomy (n=31) and cholecystectomy (n=31). This network-accessed multi-item assessment application (OpRate(c) application in Microsoft Visual C language interfacing with enterprise Oracle database) permits the in-OR entry by the supervising attending surgeon of data pertaining to 4 items of preoperative preparedness and 4 items of technical skill evidenced by the resident during the procedure. Overall performance was expressed as a mean of all items for each assessed case. Data were analyzed by multiple regression analysis, Spearman rank correlation, and Mann-Whitney test. Results: For the first 26 months of residency, OpRate evaluations showed a progressive increase in skill for laparoscopic appendectomy (2.7±0.2 for months 1-12 vs. 3.4±0.1 months 14-26), with a high degree of correlation between training month and overall performance value (Spearman R=0.53, p=0.002). Similar performance progression was not seen for laparoscopic cholecystectomy (Spearman R=0.21, p=0.26; 5±0.1 for months 2-12 vs. 3.4±0.1 months 13-25). Conclusions: OpRate assessment of performance from onset of residency to beginning of 3rd PG year enables incremental performance improvement to be detected for laparoscopic appendectomy for this pooled group of residents. We suspect experience with laparoscopic cholecystectomy, an arguably difficult case for this level of resident, was insufficient to detect meaningful performance increases. We assume longer term use will enable performance tracking for individual residents and for a broader range of procedures.

Poster Presentation
Society of American Gastrointestinal and Endoscopic Surgeons
April, 2008; Philadelphia, PA
Surgical Resident Performance On A Virtual Reality Simulator Correlates With Operating Room Performance

Eyad M. Wohaibi, MD, David B. Earle, MD, Ron W. Bush, Neal E. Seymour, MD

Background: To define the ability of a virtual reality (VR) simulator to reflect clinical skill in surgical residents we compared clinical laparoscopic performance and contemporary lab performance during curricular VR skills training.

Study Design: 9 postgraduate year 1 and 2 surgical residents were assessed during laparoscopic cholecystectomies and appendectomies using a web-based interactive database (OpRate©) over a 6 month period. Operative performance data were collected at the conclusion of procedures (mean responses of attending surgeons in 10 areas pertaining to resident preparedness and technical skill). During this period all residents undertook iterative laparoscopic training using a new VR trainer (SEP™: SimSurgery AS, Oslo, Norway; METI, Sarasota FL). OpRate© performance over 4 week blocks and closest VR performance data (mean time, path length and errors for 3 iterations of 6 basic skills tasks) were compared by linear regression analysis.

Results: Residents performed 1-3 operative cases each (median = 2) during time blocks used for comparisons (median separation operative and SEP performance data 18 days). Significant correlation of operative and VR scores was found for time to task completion in 5 of 6 VR tasks. Results were most significant for a gallbladder dissection task (p = 0.0066, r² = 0.4450). No significant correlation of path length or error data and operative performance was observed for any VR task.

Conclusions: These data indicate that time to task completion on a VR training device correlates with resident performance in the clinical operating room. Serial evaluations will determine if concurrent performance improvement can be demonstrated.

Oral Presentation
American College of Surgeons, 62nd Meeting
October 2007; New Orleans, LA
Suture Survival In An Acidic Environment: Implications For Natural Orifice Transgastric Endolumenal Surgery (NOTES)

Eyad M. Wohaibi, MD, Sabha Ganai, MD, Richard B. Wait, MD, PhD, John R. Romanelli, MD

**Background:** Recent interest in translumenal approaches to conventional surgical procedures such as NOTES has reintroduced the question of what is the ideal suture material for visceral closure of enterotomy sites. With necessity of secure closure from transgastric approaches, a study was designed to test the hypothesis that there would be variable longevity of suture ligature in an acidic versus neutral pH environment.

**Methods:** Twelve different types of 2-0 caliber suture were studied. Square knots of each suture material were secured on gauze pads then divided into two experimental groups (n=5): Phosphate Buffered Saline (PBS), pH 7.4, versus 0.1N Hydrochloric acid, pH 2.0. Samples were incubated at 37°C for 12 weeks with media changes and visual assessment of knot integrity three times per week. Longevity of suture ligature are reported as means ± standard deviation (days). Suture with equal integrity ranks indicate no difference in longevity at a significance level of p<0.05.

**Results:** All absorbable sutures had significant differences in suture longevity in an acidic versus neutral environment (Mann-Whitney p<0.01). Under acidic conditions, Vicryl and Dexon had the longest survival (53±0 both), followed by Monocryl (46±0), then Chromic Gut (37±1), while PDS II and Plain Gut had the shortest survival (23±0 and 20±1 respectively). At neutral pH, Plain Gut and Chromic Gut survived the longest (60±11 and 51±2 respectively) followed by PDS II, Vicryl and Dexon (39±6, 37±0, and 35±3 respectively). Monocryl had the poorest survival (32±0) at a pH of 7.4. Integrity rank under acidic conditions was: 1) Vicryl and Dexon, 2) Monocryl, 3) Chromic Gut, 4) PDS II, 5) Plain Gut. Integrity rank under neutral conditions was: 1) Gut (Plain&Chromic), 2) PDS II, Vicryl, and Dexon, and 3) Monocryl. At the end of 12 weeks, there was no breakage of Prolene, Ethibond, Ti-cron, Tevdek, Novafil, Gore-Tex and silk suture ligatures incubated under either condition.

**Conclusions:** The data suggest that Vicryl and Dexon are favorable absorbable suture choices for an acidic environment. PDS II has decreased integrity in an acidic environment. Future studies in animal models should be done in order to have a better concept of suture behavior in the stomach under physiologic conditions.

**Poster Presentation**

Society of American Gastrointestinal and Endoscopic Surgeons

April 2008; Philadelphia, PA
“The principle goals of research and education are to create people who are capable of doing new things, not simply of repeating what other generations have done — people who are creative, inventive and discoverers.”

Jean Piaget