“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
Scholarly activity is an integral component of a physician’s postgraduate training. Baystate Medical Center’s Research Week celebrates the contributions of its residents and fellows who are actively involved in clinical research.

BMC’s 8th annual Research Week is Tuesday, May 22, 2007 through Friday, May 25, 2007. The collection of work accomplished by our residents and fellows is located in various areas of the Chestnut Conference Center. Please visit, learn and recognize the breadth of scholarly contributions our residents and fellows have made to the field of medicine.

**Luncheon**

**TUESDAY, MAY 22, 2007**
Chestnut Conference Center, Room 1A & B
12:00 - 1:00 pm

12:00 pm: **Presentation of Awards**
*Hal B. Jenson, MD, MBA*
Chief Academic Officer
Baystate Health

12:10 pm: **Clinical Research in 2007: It’s About Time**
*Harry P. Selker, MD, MSPH*
Professor of Medicine and Director of the Clinical Research Graduate Program
Tufts University School of Medicine and the Tufts Sackler School of Graduate Biomedical Sciences
Executive Director, Institute for Clinical Research and Health Policy Studies
Tufts-New England Medical Center, Boston, MA

**Research Week Exhibit**

Chestnut Conference Center
Chestnut Lobby, Chestnut 1A & B
and Health Sciences Library
**Tuesday, May 22, 2007 - Friday, May 25, 2007**
7:00 am to 7:00 pm

**Luncheon & Keynote Address**

**TUESDAY, MAY 22, 2007**
*Harry P. Selker, MD, MSPH*
Chestnut Conference Center
Room 1A & B
12:00 - 1:00 pm

Dr. Selker is Professor of Medicine at Tufts University School of Medicine, Executive Director for the Institute for Clinical Research and Health Policy Studies at Tufts-New England Medical Center (Tufts-NEMC), where he is also Chief of the Division of Clinical Care Research in the Department of Medicine, Director of the Center for Cardiovascular Health Services Research, and Principal Investigator of its NIH General Clinical Research Center. He is also Director of the Tufts-NEMC NRSA Postdoctoral Training Fellowship in Health Services Research/Clinical Care Research and its NIH K-30 Clinical Research Curriculum-supported MS/PhD Graduate Program in Clinical Research at the Tufts Sackler School of Graduate Biomedical Sciences. He has served on boards and as an officer for a variety of professional and educational organizations, including in 2003-2004 as President of the Association for Clinical Research Training. He maintains his medical practice at the Pratt Diagnostic Clinic at Tufts-NEMC.

Dr. Selker's research focuses on factors that affect clinical care and its outcomes and the development of treatment strategies, decision aids, and methods and systems aimed at improving medical care, especially emergency and cardiac care. Dr. Selker is particularly known for a series of studies of the factors influencing emergency cardiac care and for development of cardiac “predictive instruments,” decision aids that provide emergency physicians with predictions of key outcomes for real-time use in the clinical setting. In addition to research involving clinical care, a significant portion of Dr. Selker's activities focus on fundamental issues of clinical study design, data analysis, combination of clinical data, and mathematical models that predict clinical outcomes.
ACUTE MONOCULAR BLINDNESS FROM PUNCTURE WOUND OF THE LEFT QUADRICEPS
Gina Luciano MD, Simon Li MD, Michael Chin MS-III, Michael Rosenblum MD

Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Patent foramen ovale, with a prevalence of approximately 25%, is of great significance as a mechanism for paradoxical embolization. We report a paradoxical embolus to the retinal artery through a patent foramen ovale in a patient with septic thrombophlebitis.

A previously healthy 34-year-old male presented with rigors, dyspnea, pleuritic chest pain, and cough following six days of fever and left leg pain from a puncture wound. Vital signs were remarkable for tachycardia, ... an oxygen saturation of 95%. Physical exam revealed rales, left leg erythema with tenderness and a large palpable cord. Chest x-ray showed bilateral multifocal opacities, and CT angiogram demonstrated multiple pulmonary emboli. Ultrasound revealed thrombi in the peroneal and greater saphenous veins extending to the common femoral vein. Anticoagulation therapy was initiated, and initial antibiotics were narrowed as blood cultures grew methicillin resistant staphylococcus aureus.

On the second hospital day, the patient developed sudden, painless loss of vision in his left eye. Dilated fundoscopic exam was consistent with retinal artery occlusion. Subsequent transthoracic echocardiogram showed patent foramen ovale with left-to-right shunt. Repeat echocardiogram showed atheromatous material within the left atrium. Patent foramen ovale was closed using a percutaneous hospital approach. Subsequently, thrombectomy was performed. Initial repeat vision was 20/300 and improved to 20/200 with a peripheral scotoma.

Although many cases of paradoxical embolism have been reported concomitant with cardiac abnormalities, rarely does paradoxical embolization to a retinal artery through a patent foramen ovale occur in a patient with septic thrombophlebitis. A previously healthy 34-year-old male presented with rigors, dyspnea, pleuritic chest pain, and cough following six days of fever and left leg pain from a puncture wound. Vital signs were remarkable for tachycardia, mild hypotension, tachypnea, and an oxygen saturation of 95%. Physical exam revealed rales, left leg erythema with tenderness and a large palpable cord. Chest x-ray showed bilateral multifocal opacities, and CT angiogram demonstrated multiple pulmonary emboli. Ultrasound revealed thrombi in the peroneal and greater saphenous veins extending to the common femoral vein. Anticoagulation therapy was initiated, and initial antibiotics were narrowed as blood cultures grew methicillin resistant staphylococcus aureus.

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Although many cases of paradoxical embolism have been reported concomitant with cardiac abnormalities, rarely does paradoxical embolization to a retinal artery through a patent foramen ovale occur in the setting of septic thrombophlebitis. It has been shown that communication between both sides of the heart can occur because of increased right-sided pressures secondary to pulmonary embolization. We postulate that septic pulmonary embolism led to exacerbation of a PFO and ultimately to left systemic embolization in our unfortunate patient.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
AMIODARONE TOXICITY RESULTING IN THE DEATH OF AN OLDER MAN
Alireza Vaziri MD, Maura Brennan MD
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: Amiodarone is widely used in elders despite many questions about its risks and benefits. With the aging of the population and the rising prevalence of heart failure and arrhythmias the appropriate role for amiodarone in seniors has become a compelling question. The authors report a case of pulmonary toxicity which highlights the risks of the drug.

The Case: A 67 year old man with a history of ischemic cardiomyopathy (LVEF 35%), a CABG had a AAA repair; during surgery a lung mass was seen. His stage III-A non-small cell lung cancer then was treated with chemotherapy, radiation and surgical resection. Postoperatively, he developed atrial fibrillation and amiodarone was begun. Rate and rhythm were controlled and the patient went home. A month later he became dyspneic and more hypoxic. The clinical course and X-Rays confirmed diffuse alveolar injury. Steroids were begun and he was intubated. A bronchial lavage was consistent with amiodarone toxicity superimposed on radiation injury. Given his poor prognosis and failure to improve his family decided to withdraw mechanical ventilation. The patient was kept comfortable and died.

Discussion: Amiodarone treats ventricular and atrial tachyarythmias and controls the rate. It is NOT a negative inotrope and is a useful drug in heart failure patients. However, pulmonary toxicity can be severe and may occur in 10% of cases. Older patients were included in the 3 large amiodarone efficacy trials (mean age = 60 yrs) but there was no subgroup analyses by age of adverse events or efficacy. The “old old” were also underrepresented. Thus, the real impact of age on the risks and benefits of the drug is still unknown. Seniors may be more prone to its complications. These include thyroid dysfunction, Stevens-Johnson syndrome, dysrhythmias, thrombocytopenia, hepatotoxicity, corneal deposits, peripheral neuropathy and delirium.

Conclusion: Amiodarone is high risk but arrhythmias and heart failure cause deaths and treatment options are limited. Amiodarone is on the “Beer’s list” of drugs to avoid in seniors but cardiologists use it extensively. Geriatricians and cardiologists should jointly assess the efficacy and toxicity of amiodarone for elders to resolve this controversy.

ABSTRACT SUBMISSION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA
to placebo, but not as much as when combined. The pregabalin/celecoxib combination was the most effective treatment for reducing pain both at rest and with movement over the 24-h postoperative time period. Hemodynamics and respiratory rate did not differ among the 4 treatment groups. Fewer patients experienced nausea or excessive sedation in the pregabalin/celecoxib group compared to the placebo group.

Discussion: This study revealed that the perioperative administration of the combination of celecoxib and pregabalin resulted in improved analgesia, with less opioid consumption and fewer side effects, compared to either analgesic agent alone following spinal fusion surgery.

References:
ANGIOGRAPHIC OUTCOMES IN PATIENTS WITH NON-STE ACS UNDERGOING PCI USING ADJUNCTIVE RECOMBINANT NEMATODE ANTICOAGULANT PROTEIN C2 VERSUS PLACEBO: AN ANTHEM-TIMI 32 ANGIOGRAPHIC CORE LAB ANALYSIS

Adrian Fluture, Gregory R. Giugliano, Mathew C. Southard, Marc J. Schweiger, C. Michael Gibson, Jacquelin Buros, Michael Goulder, Steven Deichter, Robert P. Giugliano
Department of Cardiology
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Background: Recurrent ischemic events in pts with ACS remain high despite early invasive management, possibly due to suboptimal anticoagulation. rNAPc2 is a potent TF/factor VIIa inhibitor that blocks thrombin generation and was previously shown to be safe in elective pts undergoing PCI.

Methods: ANTHEM-TIMI 32 was a randomized, double-blinded, phase II dose-escalation and heparin de-escalation study of IV rNAPc2 as an adjunct to heparin + clopidogrel and GP IIb/IIIa inhibitor in pts with nSTE-ACS. We evaluated 120 angiograms (56 with PCI) in a blinded central core lab for angiographic outcomes and complications.

Results: There were no significant differences in baseline angiographic parameters, thrombus, or PCI complications in pts treated with rNAPc2 vs placebo (Table). During the heparin de-escalation phase (n=52) there were no statistically significant differences in angiographic core lab outcomes with rNAPc2 10 mcg/kg and either half-dose heparin (n=26) or no heparin (n=26) compared to either rNAPc2 with standard anticoagulation or placebo with standard anticoagulation.

Conclusion: IV rNAPc2 10 mcg/kg added to standard anticoagulant therapy appears safe and effective at preventing angiographic complications during PCI compared to placebo in pts with ACS. Future PCI studies with low dose or no heparin in pts receiving rNAPc2 are warranted.

<table>
<thead>
<tr>
<th>Angiographic Core Lab Baseline Angiogram and PCI Outcomes</th>
<th>Baseline</th>
<th>Post-PCI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Placebo</td>
<td>rNAPc2</td>
</tr>
<tr>
<td>TIMI flow 2-3, n (%)</td>
<td>N = 31</td>
<td>N = 89</td>
</tr>
<tr>
<td></td>
<td>20 (77)</td>
<td>60 (83)</td>
</tr>
<tr>
<td>cTFC*, mean ±SD</td>
<td>53 ± 33</td>
<td>48 ± 30</td>
</tr>
<tr>
<td></td>
<td>66 ± 8</td>
<td>70 ± 26</td>
</tr>
<tr>
<td>TMFC**, mean ±SD</td>
<td>34 (49)</td>
<td>36 (50)</td>
</tr>
<tr>
<td>Thrombus score &gt; 2, n (%)</td>
<td>10 (38)</td>
<td>21 (28)</td>
</tr>
<tr>
<td>Any complications, n (%)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

* cTFC=corrected TIMI frame count; ** TMFC=TIMI myocardial frame count; *** TMPG = TIMI myocardial perfusion grade

ASPIRIN DESENSITIZATION PRIOR TO PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY

Mario Rodenas MD, Jonathan Bayuk DO
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Due to its ability to inhibit platelet aggregation, aspirin (ASA) is commonly administered prior to percutaneous transluminal coronary angioplasty (PTCA) to prevent arterial thrombosis and embolism. Previous evidence suggests that prophylactic aspirin therapy is associated with a reduction in ischemic complications following coronary angioplasty. However, for individuals with hypersensitivity to aspirin or other nonsteroidal anti-inflammatory drugs (NSAIDs), desensitization may become necessary prior to intervention. A 70-year-old female with a history of chronic idiopathic urticaria exacerbated by ASA, documented angioedema secondary to cyclooxygenase-2 (COX-2) inhibitors, and coronary artery disease (CAD) was admitted to the cardiac care unit for ASA desensitization. Informed consent was obtained. Desensitization was performed prior to PTCA according to the Wong et al protocol, which involves small incremental oral doses of ASA administered over the course of approximately three hours, until 325 mg of ASA is tolerated. Angiographic findings revealed a tubular 90% stenosis at the site of a prior stent in the ostial right coronary artery (RCA). A successful drug eluting stent with balloon angiography was performed on the lesion in the ostial RCA. Following the procedure, the patient was hemodynamically stable, vital measurements were within normal limits, and peripheral pulses were normal. Labs drawn after ASA desensitization and percutaneous cardiac intervention (PCI) of the ostial RCA lesion were all within normal limits. The patient complained of tongue swelling 12 hours after desensitization for which she was given fexofenadine 180 mg orally. No rash or swelling was documented on physical exam. The patient was discharged the day following the procedure with appointments with her allergist and cardiologist. The patient has not experienced urticaria since discharge. For patients with history of COX-2 inhibitor-induced angioedema and possible ASA hypersensitivity, and in the setting of chronic idiopathic urticaria, rapid oral challenge desensitization to ASA can be performed safely and efficiently for the prevention of platelet aggregation. In the rare circumstance that a patient adversely reacts to both COX-2 inhibitor and ASA treatment, one should suspect a non-immunoglobulin E mediated reaction rather than a cross reaction between ASA and a COX-2 inhibitor.

References:

ELECTRONIC POSTER PRESENTATION
Transcatheter Cardiovascular Therapeutics 2006
October 2006, Washington DC

POSTER PRESENTATION
American College of Allergy, Asthma and Immunology Annual Meeting
November 2006, Philadelphia PA

PUBLICATION
Annals of Allergy, Asthma and Immunology
ASSESSMENT OF DEPTH OF ANESTHESIA USING THE BIS MONITOR IN IVF PROCEDURES UNDER PROPOFOL TIVA

Lori Circeo MD, Margaret Kacprzak MD, Ananth Kashikar MD, Nadia Ahmed MD, Charles Gibson RN MA

Department of Anesthesiology
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: Ultrasound guided transvaginal oocyte retrieval (TOR) procedures are performed under sedation, local or general anesthesia. Present data suggests that there is no evidence that propofol has any negative impact on IVF success rate. For this reason, propofol (TIVA) with fentanyl is the standard anesthesia technique used in our institution for this procedure. The ASA has defined four levels of sedation: minimal, moderate, deep sedation and finally general anesthesia. BIS values ranges from 100 to 0. 100-95 = awake, 95-70 = light to moderate sedation, 70 to 60 = deep sedation with low probability of explicit recall, 60-40 = general anesthesia with low probability of consciousness, and below 40 = deep hypnotic state. We hypothesize that, patients may require high propofol rates and deep levels of sedation or general anesthesia, to achieve optimum patient comfort.

Methods: 50 patients scheduled to undergo TOR signed informed consents in this IRB approved study. Two anesthesiologists were blinded to the BIS monitor. All patients received a standard TIVA consisting of Fentanyl (1.5 mcg/kg) and Propofol (0.5-1 mg/kg) for induction, followed by propofol infusion at rate of 150 mcg/kg/min. BIS values at five minute intervals and key times were recorded. Sedation score assessments, using a modified Ramsay sedation scale, were made simultaneously with BIS scores. Total time and total propofol dosage used were recorded. Time to recovery (from infusion off to being able to state name) and corresponding BIS values were recorded. Patients were asked 30 minutes after PACU arrival, if they had any recall.

Results: Deep sedation was achieved in all 50 women, age 33.9±4.7, mean weight (kg) 72.4±21.3 pounds, mean height (cm) 160.4±24.2 in. BIS value at baseline was 96.9±1.8. Mean anesthesia time was 20±4.8 min. BIS values during oocyte retrieval were 53±14.3, at needle insertion into the first ovary and 46.9±13.8, upon needle insertion into the second ovary. Figure 1 plots mean BIS scores and mean sedation scores over minutes of anesthesia time. We recorded BIS values when the propofol infusion was discontinued; BIS was 51.2±13.3. Time to recovery (awake) was 4.8±2.7 min. BIS was 77.9±6.1 when the patients were able to state their name. Propofol used averaged 0.26±0.08 propofol mg/kg/min and fentanyl averaged 1.56±0.24 fentanyl mcg/kg. There were no instances of recall. There were no anesthetic side effects noted. No patient complaints were reported.

Conclusion: BIS monitor maybe a useful monitoring device during oocyte retrieval procedure. We observed that mean BIS ranged from 46 to 53 occurred at the points of oocyte retrieval, suggesting that a BIS-monitored IVF procedure could use this range as a target for a successful anesthetic procedure. Use of BIS may allow proper titration of propofol and shortened time of anesthesia and recovery. We also suggest that there is no need to use midazolam or high levels of fentanyl to obtain patient comfort and prevent recall.

References:

Figure 1
ATYPICAL PRESENTATION OF VOLVULUS IN AN OCTOGENARIAN

Deepa Chandrasekaran MD, Sivakumar Natanasabapathy MD

Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

An 84 year old man presented to emergency room with 1 week history of flu-like symptoms including malaise, fever and chills. On the day of admission he had one episode of vomiting. His oral intake was poor and he felt generally unwell and exhausted. His past medical history consists of only BPH which was treated medically. He was very active and independent, driving and golfing several hours a week until his problems started 1 week ago. His family noted significant functional decline in the last week. Initial work up revealed evidence of acute renal failure and he was fluid resuscitated. The following day he was found to have a rigid abdomen. His lactate levels were high and we ordered an urgent CT scan of abdomen for further evaluation. CT abdomen showed multiple air-fluid levels in distal small bowel without evidence of mechanical obstruction or free air. There was moderate ascites and dirty mesentery in the area of small bowel. An urgent surgical consult was obtained and he was taken to OR on the same night for a diagnostic laparoscopy. This showed bloody ascites which was suctioned. The surgeon could see twisting of mesentery in the region of ileum and necrosis of ileum. He underwent exploratory laparotomy and ileal resection and end to end anastomosis. Patient returned home successfully after a short period of acute rehabilitation.

Volvulus is twisting of an air-filled segment of bowel about its mesentry causing an obstruction. It can occur at any part of alimentary tract but most commonly at sigmoid colon and cecum and is the rarest in small bowel. Typical symptoms are abdominal pain, nausea, constipation and rarely vomiting. Rarely the compromise of blood supply can lead to gangrene of bowel with resulting peritonitis and sepsis. Majority of patients come to medical attention before the onset of gangrene. Volvulus is more common in the elderly and often who are institutionalized and debilitated with neurologic and psychiatric conditions such as Parkinson’s disease and Dementia. Early detection can lead to detorsion of the bowel endoscopically but if the mucosa appears gangrenous surgical resection is the main treatment option.

This case once again illustrates that atypical presentation is typical in the elderly and sudden functional decline in an active elder should prompt a careful and thorough clinical evaluation.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA

BACLOFEN WITHDRAWAL RESULTING IN SEIZURES AND INTUBATION

Saeid Behroozi MD, Sandra Bellantonio MD, Maura Brennan MD

Department of Geriatrics
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: Baclofen is a gamma-aminobutyric-acid derivative which inhibits spinal reflexes. It reduces excessive muscular tone and is used in all age groups. Increasingly it is being prescribed to elders to treat spasticity due to stroke and MS. It can be given orally or intrathecally. However, many clinicians are unaware that baclofen can cause a dangerous withdrawal syndrome. The authors report a case of baclofen withdrawal which was not initially recognized.

Case Report: A 48 year old woman with MS, CLL, DM, HTN was found on the floor of her apartment unresponsive and groaning and was brought to the ED. She developed generalized tonic clonic seizures and was given IV lorazepam and intubated for airway protection. Her home medications included: oxybutinin, gabapentin, montelukast, irbesartan-hydrochlorthiazide, aspirin, omeprazole, atorvastatin, sertraline, glyburide, and baclofen 10mg PO TID, although she had missed a few doses of baclofen recently. Head CT showed only cerebellar atrophy and laboratory and CSF fluid evaluation were unremarkable. She was diagnosed with baclofen withdrawal and admitted for supportive treatment. Her hospital course was complicated by prolonged ventilator support, pneumonia and a CVA. She recovered gradually and was discharged to a rehabilitation facility.

Discussion: Although our patient was relatively young, her comorbidities and many of her medications are typical of geriatric patients. Baclofen is largely renally excreted and has a short half life of 3-4 hrs. When renal function is not significantly impaired, withdrawal can occur rapidly and may be life threatening, as it was in our patient. Symptoms include seizures, fever and delirium which may include visual and auditory hallucinations. Intrathecal baclofen withdrawal is even more severe and may progress to hyperpyrexia, obtundation, spasticity/rigidity and rhabdomyolysis in a syndrome reminiscent of NMS. Treatment of baclofen withdrawal is supportive. In most cases symptoms resolve with resumption of the drug.

Conclusion: Because baclofen can have many side effects in elders, including delirium and orthostatic hypotension, geriatricians may often wish to discontinue the drug. However, they must be aware of the need for a gradual taper and learn to recognize the signs of baclofen withdrawal. Patients also should be regularly advised about the risks of noncompliance.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA
History: A 21-year-old University Junior Lacrosse Player while competing in a NCAA game sustained an injury to his chin after taking a cross-check to the anterior portion of his jaw. During the 4th quarter an opposing player delivered a traumatic forceful blow that was directed in an upward manner to the anterior-inferior aspect of his jaw. Medical staff were on site and quickly arrived at the scene where the athlete was found to be alert, oriented times three and in considerable pain, most notably at his chin, and the right side of his jaw extending up to his right ear. He had a two cm laceration with moderate bleeding from his chin and was also found to have a mild to moderate amount of blood extravagating out the right ear.

Physical Examination: On field examination found the athlete in considerable pain, most notably at his chin, and the right side of his jaw extending up to his right ear. He was alert and oriented to time, place, and person. A full and complete gross neurological exam was within normal limits without motor, sensory or cerebellar deficits. He communicated appropriately with a normal voice but was in obvious discomfort. He initially complained of decreased hearing on the right which progressed to a sensation of full unilateral hearing loss as more blood collected in the right external auditory canal. A two cm vertical laceration with a moderate amount of bleeding was present on the anterior aspect of the chin. Pupils were equal and reactive to light, extra-ocular muscles intact. Right ear was unable to be assessed as the right external auditory canal was full of blood, left external auditory canal and tympanic membrane was normal. Nasal mucosa and septum appeared normal, teeth were in alignment. Mild tenderness was present on the anterior aspect of the chin with moderate pain at the right temporomandibular joint (TMJ) with associated mild trismus.

Differential Diagnosis:
1. Basilar Skull Fracture
2. TMJ Fracture
3. Ruptured Tympanic Membrane
4. Facial Laceration

Test and Results:
CT Head/Brain without Contrast:
- Non-displaced fracture through the posterior wall of the right temporomandibular joint extending into the external auditory canal without extension into the mastoid air cells.
- Air seen dissecting into the soft tissues of the neck from the fracture inferiorly.

Final Working Diagnosis:
Non-displaced fracture through the posterior wall of the right TMJ extending into the external auditory canal with associated lacerations to the face and the right ear canal.

Treatment and Outcomes:
A) TMJ Fracture:
1. Athlete advised to refrain from all activity until cleared by Team Physician.
2. In office appointment with an ENT Consultant two days after the injury.
3. In office appointment with an Oral Surgeon Consultant three days after the injury.
4. Following one week of complete rest, athlete began light aerobic activity on the stationary bike and sport specific strengthening and stretching exercises.
5. Athlete was fitted with a modified helmet with an attached mandibular protective device and a custom-made mouth piece.
6. Activity was advanced in the second week with non-contact drills in practice.
7. Athlete was cleared by the Team Physician and all Consultants and returned to full contact sports three weeks post injury when pain and symptom free and able to meet the demands of his sport.

B) Facial Laceration:
1. Facial laceration was cleaned, irrigated and prepped in the usual sterile fashion.
2. Seven interrupted sutures were placed to the vertical facial laceration.
3. Sutures were removed five days later without incident or complication.
CAN WE USE A CATHETER TO DO THE Q-TIP TEST?
PRELIMINARY ANALYSIS
Emily E. Weber LeBrun MD, Oz Harmanli MD, Jeffery Lidicker BS MS, Vani Dandolu MD

Department of Obstetrics and Gynecology
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Objective: The Q-tip test has become an essential step in the evaluation of urethral hypermobility in women with pelvic floor disorders. In an attempt to reduce patient discomfort, the original method has been modified by some contemporary practitioners. This study aims to compare two commonly used modifications to the standard Q-tip test; straight catheter alone, catheter plus Q-tip.

Methods: After the approval of the institutional review board, all women referred for the evaluation of urinary incontinence and/or pelvic organ prolapse were included in the study. Information regarding age, parity, height, weight, primary complaint, symptoms of stress urinary incontinence, previous vaginal surgery, presence of anterior defect, and menopausal status were obtained. Each woman was examined in the same way by the same physician. Following voiding, the patient was placed in lithotomy position and a 14 French self-catheter, lubricated with lidocaine jelly, was inserted in the bladder to assess residual urinary volume. Then the angle of the catheter with the horizontal plane was measured at rest and with Valsalva. These measurements were repeated first with the wooden-end of a Q-tip placed completely into the catheter, and then with the standard technique, by placing a Q-tip alone at the urethrovaginal junction. A standard plastic protractor with a liquid leveling device was placed against the perineum for accurate measurement of the Q-tip angles. The test was considered positive when the difference between the Valsalva and resting angles was 30º or more.

Results: This study group of 100 consecutive women had a mean age of 57.1, parity of 2.75, and body mass index of 29.5. The mean change in the angle was significantly different from the standard Q-tip test (50.7º) when catheter alone (35.25º, p<0.0001) or catheter plus Q-tip modifications were used (43.45º, p<0.0001). This difference was due to a significant reduction in the resting and Valsalva angles with the catheter alone, and a significant decrease only in the Valsalva angle with the catheter plus Q-tip method (p<0.0001). The percentage of positive tests for the standard Q-tip test (92%) was significantly different from the catheter only method (63%, p<0.0001), and from the catheter plus Q-tip technique (83%, p=0.021). The cutoff values of 10º for the catheter alone, and 15º for the catheter plus Q-tip methods produce the best equivalent results at this time. Conclusions: The modifications of the Q-tip test produce significantly different results.

POSTER PRESENTATION
27th Annual American Urogynecological Society Scientific Meeting
October 2006, Palm Springs CA

CARBIDOPA-LEVODOPA CAUSING HYPOPITUITARISM IN A SEPTUAGENARIAN
Raul Octaviani-Agostini MD, Stephen Ryzewicz MD FACP

Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Hypopituitarism has many causes including hypoperfusion, hemorrhage into the gland, tumor, etc. We report here a patient with an unusual presentation and a rare cause that caused pituitary failure.

A 73 year-old diabetic, hypertensive male presented with a history of multiple falls after TURP two weeks ago. He developed progressive weakness, somnolence and waxing-waning mental status. Vital signs were unremarkable. He was a thin, frail elderly male with flat affect, tremor, difficulty speaking, cogwheel rigidity and with unsteady shuffling gait. CT scan showed severe generalized cerebral atrophy, old infarcts in the temporal and frontal lobes without basal ganglia lesions. Given his exam findings he was started on Carbidopa-Levodopa. Following the first dose of Carbidopa-Levodopa the patient became persistently hypotensive. Work-up at that time did not reveal a source of infection, bleeding or other cause for persistent hypotension and recurrent hypoglycemic episodes. The Carbidopa-Levodopa was stopped and a cosyntropin stimulation test was performed which revealed a normal baseline cortisol level (18mcg/dL). Despite improvement of blood pressure with fluid boluses, the patient remained catatonic, very rigid and began having fevers with negative urine, sputum and blood cultures. His EEG showed slow background activity consistent with mild-to-moderate diffuse encephalomalacia of unknown etiology. Because of his deteriorating clinical condition, further workup included a TSH. To our surprise, the results showed a central hypothyroidism (TSH<0.03mIU/mL, low total T4, Free T4 and Free T3). We further carried out another cosyntropin stimulation test which now confirmed a very low basal cortisol (1.5mcg/dL), poor stimulation response (30-min 5.7mcg/dL and 60-min 5.3mcg/dL). He also had low ACTH, FSH, LH and Somatotropin indicating hypopituitarism. An MRI of pituitary was non-contributory. The patient was placed on hydrocortisone, thyroxine and testosterone.

This case illustrates an unusual presentation of hypopituitarism caused by Carbidopa-levodopa. The patient’s significant hypotension possibly led to hypoperfusion and pituitary apoplexy. At presentation, he had no clinical evidence of hypocortisolism confirmed by cortisol levels. However, within 6 weeks, he manifested a complete anterior pituitary failure. We are not aware of any case reports of pituitary failure secondary to Parkinson’s medication.

Conclusion: Hypotensive episodes secondary to any cause can lead to pituitary hypoperfusion and failure. One should suspect this if the cause of hypotension is not evident.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
A CASE OF PAINLESS BILIARY OBSTRUCTION
Lee Chadrick Chua MD, Michael Rosenblum MD

Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

A 78 year old Indian male was taken to the ER for acute jaundice of one week’s duration. Symptoms started approximately 2 months prior to the ER visit with nausea, vomiting and malaise. Review of systems revealed intermittent chills early in the course but no fever, no blood or bile in vomitus, no change in bowel habits and a 10 pound wt loss attributed to nausea and vomiting. The nausea and vomiting had actually resolved in the past 10 days.

His past medical history included HTN, CAD and stent placement following cardiac catheterization. Social history was significant for 40 + pack years, no IVDA, and an occasional social drink. The patient had resided in New York City with his grandson for the past 10 years and during this time had made yearly visits to India. He had been relatively healthy during this.

The physical exam was essentially normal except for his deep jaundice. Labs revealed minimally elevated liver enzymes, INR of 2.5, normal lipase, and a total bilirubin of 40, with a direct of 31. A CT of his abdomen showed significant intrahepatic ductal dilatation as well as a dilated common bile duct with gallstones and some gallbladder thickening. MRCP confirmed the CT findings and ERCP showed an obstructive mass at the bifurcation of the hepatic ducts. Brushings and biopsies were obtained and a plastic stent was placed in the left main hepatic duct. His jaundice improved at this time. Pathology was significant for cholangiocarcinoma. After discussion with his family, patient decided to undergo a palliative approach to his malignancy. He was discharged with follow-up appointments with oncology.

Often, a patient with chronic biliary obstruction presents with the usual signs of jaundice, coagulopathy, and abdominal pain. However, the differential diagnoses shrinks when the physical finding of belly pain is absent from the case.

This case illustrates one of the most malignant causes of chronic biliary obstruction and the value of a good history and physical exam. Although common etiologies are more likely with jaundice, distinct clinical details preclude the consideration of carcinoma. Recognition of these patterns can help improve diagnosis and guide work-up.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA

A CASE OF RELATIVE BRADYCARDIA IN A PATIENT INFECTED WITH HIV
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Case: A 54 year old Hispanic female with a history significant for HIV and Hepatitis C presented to the hospital with acute onset of headache, myalgias, fever and bone pain. Her headache was diffuse and associated with intractable vomiting as well as photophobia. The initial history and physical were limited by the pain and an elevated anxiety level. The initial differential was very broad as a result of her severe immunocompromise and non-specific history.

Physical exam was unremarkable and included a grossly normal neurological exam with no cranial nerve dysfunction. CT scan, lumbar puncture and lab results did not show evidence of hemorrhage, infarct or acute infection. In view of her comorbid conditions, she empirically received ceftriaxone and acyclovir for presumptive meningitis and herpes encephalitis.

On the second day of admission, the patient continued having emesis and high-grade temperatures. Interestingly, her pulse did not match the expected increase that would be anticipated with temperature elevation. A more thorough history was obtained at this time and revealed a recent trip to Puerto Rico where she had been exposed to mosquitoes. The differential diagnosis expanded with this information and we obtained blood samples to test for the presence of Dengue Fever antibodies. She was found to be positive for dengue fever and her symptoms improved with supportive therapy over the next 72 hours.

Discussion: A thorough history and physical exam are the stepping stones for the development of the differential diagnosis. In this case the high temperatures and the relative bradycardia were the keys to making an accurate diagnosis. Dengue fever is one of the rare infections that may cause a pulse-temperature disassociation. This infection is a common one in many parts of the world but is a rarity in the northeastern United States.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
THE CHALLENGE IN DISTINGUISHING BETWEEN NEUTROPHILIC DERMATOSES  
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Introduction: Sweet’s syndrome (SS) and pyoderma gangrenosum (PG) are two rare neutrophilic dermatoses. Both disorders demonstrate dense dermal infiltrate of neutrophils. Often the diagnosis is made by correlation between histopathology and clinical findings. However, these syndromes have similarities which make definitive diagnosis difficult.

Case: An 81 year-old male presented to a community hospital with acute left lower leg pain, exacerbated by weight bearing, without history of trauma or previous episodes. The patient had a past medical history of myelodysplastic syndrome (MDS) and untreated prostate CA. On initial presentation there was mild erythema over the medial aspect of the left lower leg. Over the next two weeks, tender nodules developed with an expanding erythematous rash from the left ankle to the knee. Cultures taken from a debrided nodule were negative. The patient was transferred to a tertiary care center for further evaluation and management of a suspected left lower leg cellulitis refractory to piperacillin-tazobactam following 14 days without improvement.

Infectious disease (ID), wound care, dermatology and rheumatology consultants evaluated the patient. There were mixed opinions on the diagnosis. Rheumatology and ID felt the patient had SS based on clinical presentation of the skin findings, as well as the frequency of occurrence in the setting of malignancy and MDS. The patient was started on vancomycin for presumed MRSA cellulitis and the underlying erythema improved. The patient’s leg was further debrided and despite drainage of purulent material from open areas, cultures remained negative. A skin biopsy showed dense neutrophilic infiltrate which was suggestive of PG. IV steroids were added for the presumptive diagnosis of neutrophilic dermatoses with further improvement. However, the clinical lesions were not suggestive of PG, given the lack of ulcerative lesions.

Conclusion: This case is an example of the difficulties often encountered when attempting to diagnose neutrophilic dermatoses. While there are distinct clinical differences in the classical lesions of these disorders, there are many patients who have overlapping features. Fortunately, the management for both SS and PG is corticosteroid therapy.

THE CHALLENGE OF HEART FAILURE IN A PATIENT WITH SEPTIC SHOCK AND RECENT IDARUBICIN AND CYTARABINE: REVERSIBLE MYOCARDIAL DYSFUNCTION  
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Department of Internal Medicine  
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Acute cardiomyopathy is characterized by rapid enlargement of the myocardium. The differential for cardiomyopathy are ischemic, idiopathic, hypertensive, infectious, alcoholic, toxic, tachycardia related, and peripartum. We present a case of cardiomyopathy in a patient who had recently undergone induction chemotherapy with cytarabine and idarubicin and developed neutropenic septic shock.

A 44 year old male presented to the emergency department two days after discharge from the hospital after a month long stay for induction chemotherapy with Idarubicin and cytarabin (ARA-C) to treat AML. His chief complaint was high fever. On presentation, he was diaphoretic, hemodynamically unstable, and was in respiratory distress. He was diagnosed with neutropenic fever and septic shock; he was admitted to the ICU. Because of his recent history of possible cardiotoxic medications and chest radiograph consistent with congestive heart failure, an echocardiogram was performed. The patient had an EF of 20-25% and his heart was markedly dilated in all four chambers. A small pericardial effusion was also noted. With a minimally invasive cardiac monitor attached, cardiac output and index were followed in an effort to monitor hemodynamic status and volume responsiveness. Interestingly, despite the low EF, CO and CI were both either normal or elevated after about eight liters of fluid had been used to maintain blood pressure. He was treated with broad spectrum antibiotics. Two days later, after nursing raised concern of a change on the cardiac monitor, an EKG was performed. The EKG was very low voltage and a follow-up echocardiogram to rule out worsening effusion was performed. On this echo, the patient’s EF had risen to 40-45% and the massive dilation had resolved.

This case illustrates acute reversible cardiomyopathy of septic shock associated with rapid resolution. Establishing this diagnosis in our patient via a repeat echocardiogram was critical for proper therapy and allowed differentiation from Idarubicin induced cardiac toxicity. It is recognized that reversible myocardial dysfunction (RMD) occurs in the critical care setting. Sepsis is a common cause of this problem. The mechanism has not been fully elucidated but is proposed to be through various myocardial depressant factors, cytokines, and other cellular mechanisms. Currently RMD associated with septic shock requires serial echocardiography documenting reversion to establish a diagnosis. Recent attempts to utilize serology to diagnose RMD have been unsuccessful. Early diagnosis might impact both acute and long term therapy. Further research in pathophysiology and diagnosis is needed.

ABSTRACT SUBMISSION  
American College of Physicians, MA Chapter  
December 2006, Waltham MA
CLASS III CHF PRESENTING AS A GERIATRIC SYNDROME

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Body: Geriatric pts. often have atypical presentations of diseases & may be misdiagnosed with weakness, depression, or failure to thrive. Heart disease is a frequent cause of hospitalizations in older adults. The authors report on a case of previously undiagnosed CHF presenting as failure to thrive & recurrent hospitalizations.

Case: A 78 yo independently living man with HTN, essential tremors, GERD, neuropathy & endarterectomy comes to the ER for falls, weakness & anorexia. He has had several admissions for pneumonia & anorexia, most recently 1 week prior. He denied cough, DOE, or chest pain. Physical exam was normal with no signs of CHF, but pro-BNP was 1122; a new anteroseptal infarct on EKG compared to 1996 was noted, with T wave abnormalities consistent with ischemia. CXR revealed only mild cardiomegaly. He ruled out for an MI & was dx with depression & started on an antidepressant. Subsequently a cardiac ECHO revealed severe LV dysfunction (EF of 25-30%), akinesis of the anteroseptal wall, & aneurismal deformity of the entire periphal wall. Nuclear imaging confirmed a past MI. Based on these findings, his failure to thrive over the past several months was now attributed to undiagnosed & untreated Class III CHF, likely due to CAD. Prior to D/C to rehab, an ACE inhibitor & statin were begun.

Discussion: In older pts. CHF & CAD may present without the typical sx of cough, DOE, & chest pain. Our pt.’s primary sx was weakness with falls & anorexia. Older adults with CHF may also present with confusion. The authors suspect this pt.’s limited activity due to previous hospitalizations, functional decline & malnutrition may have limited his activity so that he failed to experience DOE. Conclusion: Older cardiac pts may not report DOE, cough, or chest pain, anorexia, weakness, & falls may be the only sx. Our pt.’s heart disease presented as a “geriatric syndrome” with failure to thrive. His functional decline might have been attributed solely to depression; however the elevated pro-BNP was an important clue triggering a more thorough evaluation. It is essential to conduct a systematic evaluation of pts who are “failing” to avoid missing treatable diagnoses. Future research should focus on the prevalence & subtypes of atypical presentations of disease to clarify their roles in the downward spiral of functional decline into frailty.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA

A COMPARISON OF EXERCISE CAPACITY IN MEN AND BOYS
IN COLD AND HOT ENVIRONMENTS

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Children have been believed to tolerate exercise in elevated ambient temperature less well than adults due to an inferior cardiovascular response. The purpose of this study is to address these differences, and attempt to determine the limiting factor of exercise capacity in these groups. Eight adult (A) males(31.8 + 2.9yrs) and eight boys (B) (11.7 + 0.4yrs) performed steady load cycling at approximately 65% peak VO2 to exhaustion in both hot (H): A: 88.0 + 0.6o; B: 87.9 + 0.5o and cool (C) (A: 67.7 + 1.8o; B: 67.3 + 1.1o) environmental conditions. All subjects were healthy, nonacclimatized and nontrained. Cardiac output, heart rate, rectal temperature (Tr), rating of perceived exertion, blood pressure, and calculated arterial venous oxygen difference were obtained, subjects were allowed to drink water ad libitum, and percent dehydration was calculated from body weight loss. Total time of exercise (mins) was significantly shorter in the hot environment (AH: 30.46 + 8.84; BH: 29.30 + 6.19, AC: 42.88 + 11.79; BC: 41.38 + 6.30, p<0.05), but there were no differences between boys and men (p>0.05). There were no significant differences in change in cardiac index(Qindex), percent dehydration or rectal temperatures between environments or groups (p>0.05).

<table>
<thead>
<tr>
<th></th>
<th>Qindex at 5 mins (L/min/m2)</th>
<th>Qindex at max (L/min/m2)</th>
<th>Percent Dehydration (mean)</th>
<th>Peak Rectal Temp oC (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Hot</td>
<td>8.42 + 1.96</td>
<td>10.07 + 1.68</td>
<td>0.20 + 0.3</td>
<td>37.9 + 0.4</td>
</tr>
<tr>
<td>Boy Hot</td>
<td>10.15 + 1.75</td>
<td>11.75 + 1.91</td>
<td>0.11 + 0.2</td>
<td>38.2 + 0.3</td>
</tr>
<tr>
<td>Adult Cool</td>
<td>8.82 + 1.94</td>
<td>9.98 + 2.23</td>
<td>0.23 + 0.3</td>
<td>38.1 + 0.3</td>
</tr>
<tr>
<td>Boy Cool</td>
<td>9.79 + 1.63</td>
<td>11.25 + 2.13</td>
<td>0.28 + 0.15</td>
<td>38.1 + 0.2</td>
</tr>
</tbody>
</table>

These findings suggest that prepubertal and adult males tolerate exercise in the heat similarly, and that rise in core body temperature rather than circulatory insufficiency defines exercise capacity in conditions of elevated ambient temperature.

POSTER PRESENTATION
Eastern Society for Pediatric Research
March 2007, Philadelphia PA
CORONARY ARTERY DISEASE IN A PATIENT WITH NORRIE-WARBURG SYNDROME AND PSUEDOPSEUDOHYPOPARATHYROIDISM
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Background: Norrie-Warburg Syndrome (NWS) is a rare genetic disorder described by Norrie in 1933 and further by Warburg in 1961. It is characterized by a mutation in the Xp11.4 locus of the Norrie Disease Protein with X-linked recessive inheritance. The syndrome is associated with fibrovascular masses behind the lens leading to bilateral blindness, deafness and mild mental retardation. The exact incidence is not known with an estimated 1000 cases reported worldwide since 1933. We report the first case of premature coronary artery disease and incidentally detected Pseudopseudohypoparathyroidism (PPHP) in a patient with NWS.

Case Report: A 53 year-old patient was admitted to our institution with chief complaint of chest pain and diaphoresis. His past medical history was significant for NWS diagnosed at the age of 21 years, and a left cochlear implant. He denied any previous episodes of chest discomfort and was a non-smoker with no family history of CAD. Physical examination was unremarkable except for brachydactyly of the 4th toes bilaterally. His mother reported a family history of brachydactyly. Given this phenotypic anomaly, PPHP was suspected. Laboratory evaluation revealed an elevated Troponin T (3.34ng/ml), CK-MB (81.8ng/ml) and CK (1555 units/L) and normal Calcium (9.4mg/dl), Phosphorous (3.7mg/dl), Magnesium (1.7mg/dl) and PTH (31pg/ml). EKG showed ST elevation in V1-4 and II, III and aVF. Emergent cardiac catheterization demonstrated a significant Mid LAD stenosis and a Cypher stent was deployed successfully. Subsequent echocardiography demonstrated severe hypokinesis of the apical, interseptal, and apical anterior walls. His hospital course was uneventful and he was discharged home. Follow-up stress testing with nuclear imaging demonstrated no ischemia.

Discussion and Conclusions: In patients with NWS surviving to 50 years, there is a 50% prevalence of peripheral vascular disease (Norrie Registry at Massachusetts General Hospital, Sims unpublished, http://www.geneclinics.org/profiles/norrie/). This raises the possibility of disease in other vascular beds including the coronary arteries. Our patient had no other traditional cardiovascular risk factors but was found to have significant single vessel CAD. This is the first reported case of a patient with Norrie-Warburg Syndrome presenting not only with premature coronary artery disease but also an incidental association of PPHP. The etiopathogenic significance of these findings in NWS is not yet known.

DEVELOPMENT OF A SIMULATION PROGRAM TO TEACH ADULT RESUSCITATION IN AN INTERNAL MEDICINE RESIDENCY PROGRAM
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Introduction: At teaching hospitals across the country, medical residents of all varying capabilities are responsible for performing cardio-pulmonary resuscitation. Most residents learn ACLS in a 1-2 day training course, but the real experience comes from trial and error during “Code Blues.” The ACLS course provides education in current protocols but lacks instruction in implementing these protocols or the management skills needed to perform a successful resuscitation.

Objective: To implement a novel curriculum to teach medicine residents the skills and knowledge to successfully supervise a code as a team leader or contributing team member. Familiarity with critical patient care scenarios via Human Patient Simulation (HPS) may develop more experienced leaders with improved outcomes.

Method and Results: Over a six month period HPS was used to teach leadership and practical skills needed during the code setting. With HPS residents ran mock codes and were able to identify errors, areas for improvement, and strengths. The most frequent observations were:

1. Code leaders attempted to perform tasks during the code, rather than assigning tasks and monitoring the overall process.
2. The code leader often would not verify if assigned tasks were being implemented properly such as adequate chest compressions.
3. Inability of many residents to provide leadership and knowledge, as well as explore for the underlying cause.
4. The residents’ reactions to HPS were very enthusiastic. Residents were videotaped and were able to learn from their experience by immediate feedback when reviewing their team performance on videotape. Residents were able to recognize deficits and build upon strengths. Residents were able to learn from each other how to be better code leaders in the safe environment of the simulation lab.

Conclusion: The use of HPS for teaching ACLS is considered an invaluable tool by the medical residents. In the future our residents will take part in five different code scenarios based on AHA-ACLS protocols that they will repeat twice a year. Knowledge assessment of the key concepts will be conducted. The goal is to provide internal medicine residents with the skills needed to be stronger code leaders as well as contributing members of the code team through HPS.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA
2nd Place Winner
DIAGNOSTIC ACCURACY OF IMAGE-GUIDED PERCUTANEOUS FINE NEEDLE ASPIRATION BIOPSY OF THE MEDIASTINUM

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Introduction: Interpreting a fine needle aspiration biopsy (FNAB) from the mediastinum is challenging as this location may harbor many lesions, including primary and metastatic tumors. Image-guided transthoracic (percutaneous) FNAB is less invasive than mediastinoscopy or endoscopic-guided FNAB. The aim of this study was to determine the diagnostic accuracy of FNAB performed percutaneously for evaluating mediastinal lesions.

Materials and Methods: A retrospective study of 157 consecutive CT-guided transthoracic FNAB of the mediastinum was performed (1988-2004). Direct smears (N=145; average 13 slides/case), ThinPrepTM slides (N=25) and adequate cell blocks (N=131) were prepared from procured cytologic material. When needed, ancillary studies included immunocytochemistry (N=53) and flow cytometry (N=8). Subsequent histologic tissue diagnoses available for 68 cases were also reviewed.

Results: Patients were of average age 57 years (range 1-88 years), including 75 males and 82 females. A definitive diagnosis was rendered in 128 (82%) cases. Primary neoplasms (N=38) included 24 lymphomas (6 Hodgkin & 18 non-Hodgkin), 7 thymomas, 1 thymic carcinoma, and 6 peripheral nerve sheath tumors. Metastases (N=72) were mainly carcinomas (N=71) and 1 melanoma. There were 4 benign lesions (1 granulomatous process; 2 bronchogenic & 1 pericardial cyst), 1 case of undifferentiated malignant large cell neoplasm, 13 cases negative for malignancy, and 29 (18%) that were indeterminate, due largely to insufficient cellularity. Subsequent histologic diagnoses were concordant with FNAB diagnoses in 53/68 cases (78%). Of the 15 discordant cases, 9 FNAB were inadequate/non-diagnostic, 5 FNAB interpreted as negative for malignant cells (on subsequent histology 2 turned out to be Hodgkin lymphoma, 2 carcinomas, and 1 diffuse large cell lymphoma), and 1 diagnosed as thymoma that on histologic evaluation was a thymic large cell lymphoma.

Conclusions: Adequate diagnostic cytologic material was obtained by image-guided percutaneous FNAB of mediastinal lesions in 82% of our cases. Sufficient material was available to make cell blocks and perform ancillary studies when necessary. These data also show a high proportion of agreement (78%) between FNAB and subsequent histologic diagnoses for a wide variety of mediastinal lesions. Cases with non-definitive FNAB diagnoses were due to sampling error and/or insufficient cellularity. Therefore, percutaneous FNAB of the mediastinum is a diagnostically helpful, minimally invasive procedure that can be performed in patients of all ages as part of the evaluation of a mediastinal mass lesion.

POSTER PRESENTATION
American Society of Cytopathology
November 2006, Toronto ON

DIAGNOSTIC UTILITY OF BILE DUCT CURETTAGE SPECIMENS IN BILE DUCT CYTOLOGY

Margaret Assaad MD, Robert Goulart MD, David Desilets MD, Maryanne Hornish CT(ASCP) MBA, Liron Pantanowitz MD
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Introduction: Malignant biliary tract strictures may be difficult to diagnose. Current biliary tract cytology specimens, including bile duct brushings (BDB), have relatively low diagnostic sensitivity and negative predictive value. In the absence of a mass lesion, fine needle aspiration biopsy (FNAB) has limited value. At our institution, bile duct curettage (BDC) is frequently performed at the time of stent insertion. The aim of this study was to determine the relative diagnostic utility of BDC when compared to BDB and/or FNAB in the evaluation of biliary strictures.

Materials and Methods: BDC is an ERCP-guided procedure using a flexible stent extractor that traps cellular material in grooves. All BDC (N=23) specimens (16 month period) submitted in CytolytTM and from which ThinPrepTM slides were prepared were reviewed, and compared to BDB (N=22) and/or FNAB (N=8) specimens procured at the same time. Specimen cellularity, background material, artifacts and any additive diagnostic potential were recorded. Forceps biopsy (N=22) and surgical outcome (Whipple procedure in 3 cases) were also noted.

Results: Patients with BDC were of age 52-84 years (average 69 years), including 11 males and 12 females. Based upon all available specimens diagnostic categories were adenocarcinoma (14), suspicious for adenocarcinoma (2), atypical (5) & negative for malignant cells (2). BDB provided the most cellular cytologic specimen in 13 cases, BDC in 7 cases and FNAB in 3 cases. Almost all BDC (22) and BDB (19) specimens had non-obscuring background material (bile, blood and necrotic debris), only 2 BDC cases had air-drying artifact and 1 case each of BDC and BDB had crushed cells. BDC and BDB/FNAB yielded the same diagnosis in 14 cases. In patients with adenocarcinoma, BDC versus (vs) BDB/FNAB was positive in 7 vs 9, suspicious in 3 vs 1, atypical in 2 vs 3, and negative in 3 vs 2 cases, respectively. BDC was additive in 2 cases. In these 2 cases, BDC was positive while BDB/FNAB was negative in one case and suspicious for adenocarcinoma in another. In 3 cases BDC was negative whereas BDB/FNAB was positive (1) or atypical (2).

Conclusions: BDC is a novel ERCP-guided procedure performed with bile duct stent insertion that provides additional cytologic material for the evaluation of biliary strictures. Although the additive diagnostic sensitivity of BDC specimens compared to standard (BDB and FNAB) cytologic material is limited, in our study BDC provided the only diagnostic cytologic material in 2 (9%) cases. Therefore, as BDC may prove diagnostically additive in a subset of patients, further evaluation of this novel technique is warranted.

POSTER PRESENTATION
American Society of Cytopathology
November 2006, Toronto ON
DOES INCREASED BMI IMPAIR PREDICTED ADULT HEIGHT IN FEMALE PATIENTS TREATED WITH DEPOT GNRH FOR PRECOCIOUS PUBERTY?
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Department of Pediatrics
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Background: Children with central precocious puberty (CPP) are frequently treated with depot GnRH agonist (GnRHa) to delay pubertal progression and attempt to increase final height. GnRHa’s inhibit ovarian estrogen production, slowing estrogen-mediated advancement of pubertal development and bone maturation, and have been shown to improve final height in CPP over untreated controls. The few reports describing body composition generally reveal elevated BMI at diagnosis and either a slight increase or no change during therapy. Since adipose tissue contains aromatases which produce estrogen we hypothesized that excess weight gain might be associated with impaired final height. We also sought to confirm that BMI did not increase during therapy.

Objective: To determine whether GnRHa therapy resulted in excessive increase in BMI and if increased BMI was associated with impaired predicted adult height (PAH).

Design/Methods: This is a retrospective chart review. Using our EMR application (Pedrosoft, LLC, E. Longmeadow, MA) and billing data we identified all female patients treated with GnRHa for precocious puberty in a moderate sized pediatric endocrine practice. Females with CPP were eligible if they were treated with depot-GnRH for at least 11 months, and data from >2 visits were available.

Results: Of 66 charts reviewed 59 female patients were eligible for inclusion. At start of rx median age was 7.8 (2.2-9.9), median Tanner stage B3 and P2. Mean height SDS at start was +1.20, weight +1.35, producing a mean BMI SDS of +1.12. The mid-parental height SDS was -0.50 and predicted height was -1.13. Mean duration of rx was 35.2 mos. BMI SDS did not change during treatment (p=0.274). There was a significant height SDS decline from the start of treatment both to end of treatment (-0.608, p=0.001) and to 1 yr post treatment (-1.068, p=0.001). The PAH SDS did not change during treatment (p=0.142), and there was no correlation between change in BMI and change in PAH.

Conclusions: These findings are clinically significant in that they confirm previous studies finding that excess weight gain does not occur in girls treated for CPP with GnRHa, nor does increased weight gain appear to be a risk factor for further impairment of adult height.

POSTER PRESENTATION
Pediatric Academic Society
May 2007, Toronto ON

DON’T FORGET THE HACEK
Catherine T. Le, Peter Butler MD, Lisa Massie MD, Daniel Skiest MD

Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: The HACEK bacteria are gram-negative oral bacilli that cause at least 3% of reported cases of endocarditis. Haemophilus parainfluenzae, a major contributor in these cases, tends to produce large vegetations that can embolize in up to 85% of patients and cause a mortality rate between 10-35%. Similar to other HACEK bacteria, its fastidious nature may require at least 5 days of incubation to show positive blood cultures. Given the high risk of embolization, early identification and imaging is necessary for optimal medical and surgical treatment.

Case Presentation: A 40-year-old previously healthy woman presented with 1 month of fevers peaking to 103 degrees Fahrenheit and 2 sets of blood cultures that grew gram-negative bacteria after 4 days of incubation. ROS included chills, malaise, and a sore right fifth DIP joint. Physical exam revealed tachycardia, a 3/6 holosystolic murmur heard loudest over the PMI, a non-blanching pink macule on her left hypothenar eminence, and a splinter hemorrhage on her left index finger. EKG was normal. The patient was initially treated with piperacillin-tazobactam (Zosyn), which was then changed to ceftriaxone after the bacteria was identified as Haemophilus parainfluenzae via a protocol for aerobic gram negative bacilli (see Figures). 3 sets of blood cultures were taken after admission, which were all negative for microorganisms after 5 days of incubation. Transthoracic echocardiogram showed a prolapsing mitral valve with moderate regurgitation and small strand-like vegetations. Transesophageal echocardiogram showed ruptured chordae tendineae, a mitral valve perforation, and a 0.5 cm by 1.6 cm echogenic density below the mitral valve that was suspicious for abscess formation. Given these results, the patient’s endocarditis was classified as Class IIIb, with surgery as a consideration, under the ACC/AHA practice guidelines. Given the mitral valve dysfunction, the inability to rule out abscess, and the risk of septic embolization, surgical valve repair with vegetation resection was advised. The patient consented and following cardiac catheterization underwent an uncomplicated mitral valve annuloplasty with chordal reconstruction. The resected vegetation was larger than expected, measuring 1.9 cm long. The patient recovered well after the operation and was discharged with negative blood cultures 10 days after admission to complete 21 days of IV ceftriaxone and coumadin therapy.

Discussion: This case illustrates the importance of high clinical suspicion of rare causes of SBE in cases of prolonged fever and malaise in otherwise healthy individuals. Delayed diagnosis can have profound consequences, including unavoidable valve replacement and complications of embolization. Fortunately, medical and surgical treatment can cure 82-87% of HACEK SBE. Obtaining blood cultures early in the course is vital for guiding successful treatment, as HACEK bacteria require longer incubation times, and early involvement of cardiologists and cardiothoracic surgery prevents complications of SBE. Such experiences demonstrate that expeditious intervention will prevent morbidity and mortality in future cases.
Conclusion:

1. HACEK bacteria are slow-growing, fastidious bacteria that can produce large vegetations with high risk of embolization in native valve endocarditis.
2. In cases of culture-negative blood specimens, the HACEK bacteria should be considered as a possible cause of a patient’s clinical signs and symptoms of endocarditis.
3. Early involvement of infectious disease, pathology, cardiology, and cardiothoracic surgery are critical in identifying the bacteria, assessing the severity of the vegetation by TEE, and weighing the option of surgery that will help decide a patient’s outcome.

References:


POSTER PRESENTATION
American College Of Physicians Nationals
April 2007, San Diego CA

DOSE-RESPONSE RELATIONSHIP BETWEEN OPIOID USE AND ADVERSE EVENTS AFTER SPINAL FUSION SURGERY
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Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: Although opioids are considered the "gold standard" for treatment of moderate to severe postoperative pain, they are associated with significant adverse side effects (1). A dose-response relationship between opioid use and adverse effects has been reported (2). Multimodal analgesic treatment reduces opioid use, but a definitive relationship between the reduction in opioid use and corresponding reduction in adverse events remains unclear (3).

Methods: This analysis is based upon data from a randomized, double-blind, placebo-controlled clinical trial among patients undergoing spinal fusion surgery. 80 patients received either placebo, celecoxib 400 mg, pregabalin 150 mg, or a combination of celecoxib 400 mg and pregabalin 150 mg 1 hour before the induction of anesthesia. Patients received PCA morphine for the first 24 h. Twelve hours after initial study drug administration, patients were administered either placebo, celecoxib 200 mg, pregabalin 150 mg, or a combination of celecoxib 200 mg and pregabalin 150 mg. After 24 h patients completed an opioid symptom distress (SDS) questionnaire (2). A total of 12 opioid-related symptoms were assessed including nausea, vomiting, constipation, difficulty passing urine, difficulty concentrating, drowsiness, feeling dizzy, feeling confused, weakness, itchiness, dry mouth, and headache. Further, each symptom experience was measured along three dimensions: frequency, severity, and bothersomeness. The Likert scale (0-4) was used to grade acuity within each dimension. Patients with no symptoms were scored 0 across all dimensions. Patients with cumulative average SDS scores between 0 and 1 were considered mild, 1 and 2 were moderate, and > 2 were severe.

Results: Total 24-h cumulative morphine consumption was different among the 4 treatment groups (p<0.001), with each group statistically different from each other: placebo 134.0 ± 3.3 mg, celecoxib 88.0 ± 2.4 mg, pregabalin 77.4 ± 1.7 mg, pregabalin/celecoxib 43.0 ± 1.3 mg (mean ± SEM). 64% of patients reported no symptoms, 22% mild symptoms, and 14% moderate to severe symptoms. There is a significant difference in the distribution of cumulative average SDS scores (linear-by-linear association; p=0.013). No patients in the celecoxib/pregabalin group reported moderate or severe symptoms. Patients in the celecoxib, pregabalin, or celecoxib/pregabalin groups were significantly (p=0.031) less likely to have moderate or severe symptoms compared with placebo. The incidence of nausea, vomiting, drowsiness, and dry mouth were significantly (p<0.05) lower in the pregabalin/celecoxib group compared to placebo. Cumulative morphine use across average SDS scores revealed that patients with no symptoms used on average 4.6 mg less morphine in the PACU and 78 mg less morphine over 24 hours compared to patients with severe symptoms.

Discussion: A dose-response relationship exists between the dose of morphine and incidence of opioid-related adverse side effects. The use of celecoxib or pregabalin results in a reduction in...
morphine use and lower incidence of moderate to severe opioid-related side effects compared to placebo. The combination of celecoxib and pregabalin provided for the greatest reduction in morphine use and opioid-related side effects.

References:

POSTER & ORAL PRESENTATION
American Society of Anesthesiologists Annual Meeting
October 2006, Orlando FL

EARLY SURGICAL INTERVENTION IN ACUTE CHOLECYSTITIS FOR OUR ELDERLY
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Introduction: Acute cholecystitis (AC) is a syndrome involving right upper quadrant pain, fever and leukocytosis. Left untreated symptoms of cholecystitis may abate within 10 days. However, complications can occur at alarmingly high rates, the most common is gangrenous cholecystitis (GC). GC disease is more frequent in the elderly and atypical presentations may result in a dangerous delay in diagnosis. Our patient highlights this challenge.

Case: An 85 y/o previously well women, presented with a one day history of abdominal and back pain, nausea and vomiting. Her past medical history included osteoporosis, colostomy secondary to rectal prolapse, kyphoscoliosis, compression fractures, PAF and bronchiectasis. On initial exam she was afebrile, clinically stable. On abdominal exam there was minor RUQ tenderness, without rebound or guarding, active bowel sounds and an intact functional colostomy bag. Lipase, total bilirubin, LFTs, WBC, chest and abdominal films were normal. CT showed gallbladder distention and cholelithiasis. A HIDA scan was positive for AC. She was started on empiric therapy with piperacillin-tazobactam and vancomycin. On HD #2, still afebrile and hemodynamically stable she underwent open cholecystectomy which revealed a gangrenous gallbladder. She did well and was discharged with no subsequent complications.

Background: AC occurs secondary to obstruction of the cystic duct and irritation of the gallbladder. It is hypothesized that lysolecithin is released in the bile during gallbladder irritation. Once inflammation of the gallbladder begins, additional inflammatory mediators, such as prostaglandins, are released. Infection of bile within the biliary system may also have a role in the development of cholecystitis. Gangrenous cholecystitis results from a combination of vascular compromise/inflammation and is seen in 1-3% of cases. In elderly patients treated with conservative medical management 97.4% fail the therapeutic regimen. With failure, emergent operative intervention is often necessary and usually successful.

Conclusion: Gangrenous gallbladder is a common complication of AC and is associated with significantly increased morbidity and mortality. Diagnosis is difficult to make in the elderly due to the frequent lack of a classical clinical presentation. A high index of suspicion and a low threshold for further investigation is needed when treating the older adult. Treatment is surgery. Elderly patients undergoing cholecystectomy typically do quite well and have a lower risk of complications when surgery is planned rather than emergent.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA
ED MEDICATION LISTS ARE NOT ACCURATE

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Introduction: Medication errors are a common source for adverse events. The elderly are at high-risk for medication adverse events. Medication errors generated in the ED may impact care in the ED or inpatient setting. Medication reconciliation, a JCAHO requirement, begins with an accurate home medication list.

Methods: Prospective, observational study at a single institution investigating the accuracy of a patient’s home medication list as it is recorded in the ED record. The ED sees over 100,000 patients per year and is the only level 1 trauma, pediatric and tertiary referral center in the region. English-speaking patients, aged >65, who were admitted from the ED during weekday daytime hours to a non critical care bed and consented for the study were enrolled. For each patient, a comprehensive home medication list was compiled by research staff after consultation with the patient, the patient’s family, and the primary care provider, as needed. This comprehensive home medication list was not available to ED staff and was not placed in the ED medical record. ED records were then reviewed by a single reviewer, blinded the comprehensive medication list, using a standardized data sheet to record the medications that are routinely listed at initial triage. The comprehensive home medication list compiled by the research staff was then compared to the triage generated medication list. Omissions, duplications, and dosing errors were recorded.

Results: 98 patients, mean age 77, met all inclusion criteria and were included in the study: 53 were female and 88 were Caucasian. Noted medication errors include:

<table>
<thead>
<tr>
<th>Number of Errors</th>
<th>Omission</th>
<th>Duplication</th>
<th>Dosing</th>
</tr>
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<tbody>
<tr>
<td>None</td>
<td>43 (44%)</td>
<td>97 (99%)</td>
<td>20 (20%)</td>
</tr>
<tr>
<td>1 or more</td>
<td>55 (56%)</td>
<td>1 (1%)</td>
<td>78 (80%)</td>
</tr>
</tbody>
</table>

87% patients had at least one medication error in the ED record. This study is limited as it reflects the practice of a single institution.

Conclusion: Errors in listed medications for ED patients being admitted are common in our institution. An accurate medication list in the ED might reduce medication errors in the ED and in the hospital.

POSTER PRESENTATION

Society of Academic Emergency Medicine
April 2007, Shrewsbury MA
May 2007, Chicago IL

THE EFFECT OF A PATIENT’S RISK TAKING ATTITUDE ON THE COST EFFECTIVENESS OF TESTING STRATEGIES

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Introduction: Definitive diagnosis of lung lesions may be difficult. As efforts persist to obtain quality care at an affordable cost, cost effectiveness has become a dominant issue for deciding medical practice including diagnostic study. Currently, there are no generally accepted clinical guidelines for the diagnostic work-up of lung lesions and the medical literature presents conflicting opinions regarding the optimum workup strategy. Under these circumstances, patient’s preference is of paramount importance. Here we present a case in which patient’s risk taking attitude significantly influenced the diagnostic workup.

Case: A 70 year old man who has never been to a physician presented to the ED with fever, productive cough and increasing dyspnea for the past 3 months. He had a 30 pound weight loss in 3 months, pleuritic chest pain and back pain. He had 40 pack year smoking history. Physical exam revealed a frail, pale, cachectic man with right axillary lymphadenopathy as a 4-5 cm mass and right cervical lymphadenopathy firm to hard in consistency. Chest auscultation showed reduced air entry to bilateral bases and also crackles in both bases. CXR showed findings of COPD and lobulated mass in the left lower lobe. CT chest showed irregular 5.6 by 2.6cm obstructing mass in the left lower lobe and innumerable multiple pulmonary nodules bilaterally suspicious for metastasis. It also showed 4cm hypodense mass in left kidney and bilateral adrenal masses. He was informed of the findings and a lymph node biopsy was recommended. Patient refused any invasive procedure and so sputum cytology was performed. This revealed atypical squamous cells suggestive of a squamous cell carcinoma. Patient preferred to have hospice care and he expired in a month.

Discussion: Sputum cytology is often not the first test ordered although there is considerable evidence that this is the cost-effective strategy at least in centrally located lesions. On the other hand, there is evidence that cost effectiveness of competing strategies depend on patient’s risk taking attitudes. In actual practice, test sensitivity alone would not be expected to be the sole driving force behind diagnostic test selection. Additional factors, including the clinical condition of the patient, pretest probability of the disease, likelihood ratios for the given test, patient preference, test availability and cost enter into the final selection of the diagnostic test.

POSTER PRESENTATION

American College of Physicians, MA Chapter
December 2006, Waltham MA
EFFECT OF IMPLEMENTING OPEN ACCESS APPOINTMENT SCHEDULING ON REDUCING INAPPROPRIATE URGENT CARE VISITS IN AN INNER CITY RESIDENT TEACHING CLINIC

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Background: Recently our inner city resident teaching clinic converted its scheduling system for well child and follow up visits to a modification of an open access (OA) scheduling system. Whereas before, patients were booked far in advance, and often to a large waiting list, now physicians schedules are opened 2 weeks in advance and well child and follow up visits are booked 1-2 weeks after calling. This has resulted in a dramatic reduction in no-show rates and enhanced continuity for both residents and staff.

Objective: The purpose of this study is to evaluate the effects of this OA continuity system on appropriate scheduling in our urgent care clinic (UCC). The UCC is a dedicated same day clinic that provides service for acute pediatric problems. This UCC is closely coupled to the continuity clinic, where OA was implemented. Our hypothesis is OA will be associated with a decrease in appropriately booked, first time and follow up visits, to UCC.

Design/Methods: The reason for visit (RFV) was scanned in UCC schedules for four 5-day weeks just prior to OA and for four 5-day weeks after OA was in effect. Patients who were scheduled for UCC were categorized as appropriate or inappropriate based on the RFV. Those who had routine health care maintenance visits (including newborn, well child, lead tests, vaccines, weight checks, warts and medication refills), those with chronic complaints and those with follow up greater than 4 days since the first UCC visit were considered inappropriate UCC bookings. All other UCC visits were considered appropriate.

Results: Before the implementation of OA for continuity clinic, the number of inappropriate visits was 38 out of 665 patient visits to UCC, whereas after implementation of OA there were 13 out of 778 inappropriately booked visits (p<0.001, x2). Thus, there was a 70% relative risk reduction of inappropriate visits.

Conclusions: Implementing OA scheduling for continuity patients in an inner city resident teaching clinic resulted in significant reductions in inappropriately scheduled visits to the closely coupled UCC. The OA continuity clinic, which is better at providing a medical home for continuity of care, provided an alternative to UCC for health maintenance and long term follow up.

EFFICACY OF RECTAL MISOPROSTOL AS SECOND LINE THERAPY FOR TREATMENT OF PRIMARY POSTPARTUM HEMORRHAGE

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Objective: To assess the efficacy of rectal Misoprostol as a second line therapy in the management of primary post partum hemorrhage (PPH) as compared to methylergometrine.

Methods: In this retrospective cohort study, charts were reviewed from July 2000 to Feb 2005. Inclusion criteria were patients between 37-42 wks gestational age, singleton vaginal delivery, patients who received a clinical diagnosis of PPH and patients who required a second uterotonic following initial oxytocin therapy. The control group represented those receiving methylergometrine (18 patients) and the study group consisted of those receiving Misoprostol (40 patients). All patients received 20u of intravenous oxytocin in liter of Lactated Ringers after placental delivery. If patients continued to bleed they received either 800-1000 mg of Misoprostol rectally or 0.2mg of methylergometrine intramuscularly. Primary outcome was to determine the percentage of patients in each group who were clinically assessed as having failed second line therapy and required a third line treatment which was either a medical treatment and/or surgical intervention and/or blood transfusion. Third line treatment was either PGE2 alpha, Misoprostol, methylergometrine or surgical interventions like D&C, uterine packing, uterine artery ligation, uterine artery embolization, hysterectomy.

Results: The demographic characteristics of the 2 groups were similar. There was no statistical difference between the need for blood transfusion [methylergometrine group 0/18 (0%), Misoprostol group 4/40 (10%) (p=0.11)], the need for a third uterotonic [methylergometrine group 10/18 (55.5%), Misoprostol group 21/40 (55.5%) (p=0.96)] and the need for any surgical intervention [methylergometrine 4/18 (22.2%), Misoprostol 5/40 (12.5%) (p=0.51)].

Conclusions: This limited study suggests that rectal Misoprostol is comparable to methylergometrine as second line therapy for the treatment of primary post partum hemorrhage.

POSTER PRESENTATION
1st Annual Research Poster Symposium Mass Medical Society
April 2006, Waltham MA

PENDING PUBLICATION
Journal of Reproductive Medicine
Epidural Infusion Volume Study and Its Effect on Analgesia in Early Labor

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Baystate Medical Center/Tufts University School of Medicine, Springfield MA

We have previously shown that epidural fentanyl (given in 10 ml volume) is a useful means of achieving analgesia in early laboring patients. The current study was designed to determine whether there was a significant difference in the duration of analgesia when patients received a standard amount of an epidural bupivacaine and fentanyl infusion while varying the concentrations and volumes of the epidural infusions.

Sixty laboring primigravid women received a 3 ml epidural test dose of lidocaine with epinephrine, then received a fentanyl 100 mg bolus in 10 ml of diluent volume. Patients then received one of two continuous epidural infusions, either Bupivacaine 0.125% with fentanyl 3 mg/ml at 5 ml/hr or Bupivacaine 0.0417% with fentanyl 1 mg/ml at 15 ml/hr. Pain scores and side effects were recorded for each patient. The mean duration prior to re-dose was (164.8 ± 74.9 min) in the B 0.125% group and (191.3 ± 93.3 min) in the B 0.0417% group. No patient in any group experienced detectable motor block.

In early laboring patients, after 100 mg epidural fentanyl (after a lidocaine-epinephrine test dose) is administered in 10 ml diluent volume, no significant statistical difference in analgesia duration could be found when altering the volume and concentration of an epidural infusion provided the hourly total amount of fentanyl and bupivacaine remained the same. There was also no difference in side effects, VAS, or rate of instrumented and/or cesarean deliveries in the two groups.

Implication: Although previous studies have suggested that varying the volume of epidural infusions has the potential to affect the quality and duration of analgesia, we were unable to show a statistical difference when altering the volume and concentration of an epidural infusion while keeping the total amount of drug given per hour the same. [figure1] [figure2]

Poster Presentation
American Society of Anesthesiologists Annual Meeting
October 2006, Orlando FL

Evolution of a Hands-on Surgical Skills Curriculum for Obstetrics and Gynecology Residents: One Institution’s Experience

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Objective: Medical education continues to instruct the adult learner. Didactic sessions have not been determined to be the optimum means of teaching adults. Dedicated education time in residency is limited, demanding efficient and concentrated teaching sessions. Hands-on sessions are an effective means of teaching residents, especially in skill based fields such as obstetrics and gynecology.

Methods: A pilot hands-on surgical skills curriculum was developed for July and August 2005. These sessions were facilitated by senior residents. Using the positive experience from the pilot sessions, an expanded curriculum was developed for July-December 2006, involving faculty facilitators and senior residents. These sessions were presented during existing protected education time. The following topics were covered: suturing and knot tying, cervical conization techniques, episiotomy repair, laparoscopy basics, circumcision and pudendal blocks, IUD insertion, sonohysterogram and vaginal ultrasound, forceps, and amniocentesis. An electronic survey was distributed to the faculty, residents, and recent graduates of the program to assess the curriculum and obtain feedback.

Learning objectives were aimed to fulfill a core competence:

<table>
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<tr>
<th>Core Competency</th>
<th>Objective</th>
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<tr>
<td>Medical Knowledge</td>
<td>Increase knowledge about subject matter</td>
</tr>
<tr>
<td>Patient Care</td>
<td>Improve technical skill</td>
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<tr>
<td>Practice-based learning and improvement</td>
<td>Practice self-evaluation</td>
</tr>
<tr>
<td>Interpersonal and communication skills</td>
<td>Work with a team, provide clear commun</td>
</tr>
<tr>
<td>Systems-based practice</td>
<td>Demonstrate an ability to teach</td>
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</table>

At each session a team of senior residents and an Attending presented the selected topic to the group. A pretest for each topic was created by the faculty and senior residents and taken by the participants. Low fidelity models were developed by the presenter. The senior residents proctored the junior residents during application of techniques and practice on models. Post-tests were to be done at the end of each session.

Results: All sessions began with didactics. Pretests were performed 33% of the time and were used to evaluate basic general medical knowledge and identify areas of improvement for self-study. Models included foam cut for episiotomy repair and food products for cervical conization. Suture, surgical, and laparoscopic instruments were available for practice. Development of post-tests proved to be difficult for facilitators for each topic.

The majority (88.2%) of residents reported that they learn well with this type of teaching and recommend continuing the curriculum for future years (88.2%). All faculty felt the residents learned well with this format of teaching and felt more comfortable working with a resident after completing the curriculum.

Poster Presentation
American Society of Anesthesiologists Annual Meeting
October 2006, Orlando FL

Publication
Anesthesiology 2006; 105: A920
Conclusions: A hands-on surgical curriculum facilitates skill acquisition in the predominant adult learning style. Using low fidelity models, residents can become familiar with surgical instruments in a low-stress environment. Basic skills can be taught in a small group setting. Limitations included difficulties in developing effective formal evaluations via posttests, variation in effectiveness of teaching models, and optimal time division between didactic and hands-on components of each session. The evolution of a hands-on curriculum requires support of residents and faculty to optimize success. Thus far, it has been a positive experience at our institution, and worth the effort. Future directions included inter-disciplinary simulation and hands-on training, as well as including other topics to be covered in the curriculum.

**EXERCISE-INDUCED ASTHMA: COMPARISON OF SELF-REPORTED SYMPTOMS WITH SPORT SPECIFIC SCREENING - FIELD VERSUS LABORATORY EXERCISE CHALLENGE IN ELITE ROWERS**

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Purpose: The purpose of this study was to evaluate the presence of exercise-induced asthma (EIA) in a cohort of elite male varsity rowers by comparing the use of a self-reported questionnaire with results from a pre- and post-sport-specific exercise challenge using a comparable protocol in a controlled laboratory environment and during a “field” setting.

Methods and Study Design: 16 rowers (x=20.6 years) completed an Asthma Symptom Questionnaire (ASQ) and were evaluated for the presence of EIA using a calibrated computerized portable spirometer. Pre- and post-spirometry tests were obtained following an exercise challenge (2K) on a rowing machine at >85% maximum HR both within a controlled laboratory environment (ambient temperature and humidity) and within a race representative “field” environment. Data was obtained prior to warm-up and at 5, 10, and 15 minutes post-exercise with a decrease of >10% in FEV1 considered significant. Statistical comparisons between field and lab data were made with paired t-tests and ANOVA with level of significance set as P<0.05.

Results: 14/16 (88%) reported at least one symptom of EIA on the ASQ, with wheezing reported most frequently. This differed significantly from individual and grouped data analysis. Individual analysis revealed 5/16 (31%) who met the criteria for EIA when tested in the field, compared with 1/16 (6%) in the laboratory (P<0.05). Further analysis suggested that EIA was evident in the field exercise challenge at 10 and 15 minutes (P=0.016 and 0.014), but not at 5 minutes, and at no time point during indoor testing (P=0.676, 0.390, and 0.111).

Conclusions: The data suggest that questionnaires may over-predict the incidence of EIA. Furthermore, testing of athletes in controlled laboratory conditions appears to be a poor diagnostic predictor of EIA, especially in those athletes who compete in cold weather conditions.

Significance of Findings: Failure to accurately test an athlete in a sport-specific environment may lead to inaccurate diagnoses and inappropriate treatment.
Pheochromocytomas are rare tumors of chromaffin cells with a prevalence in hypertensive patients of 0.1 to 0.6%. The non-specific nature of its clinical presentation can delay the diagnosis for years. Occasionally, patients can manifest pheochromocytoma crises characterized by abrupt release of catecholamines into the circulation with resultant direct cardiac toxicity and cardiogenic shock. We present the first case of such a crisis precipitated by dobutamine stress echocardiography, a procedure with a major complication rate of less than 1%.

**ABSTRACT SUBMISSION**
American Society Echocardiography
Discussion: Transgender bilateral mastectomies can be technically demanding and are associated with a high incidence of complications. A good cosmetic outcome frequently requires surgical revision. Referral of these patients to a high volume regional center can maximize cosmetic outcome and patient satisfaction.

ORAL PRESENTATION
New England Society of Plastic and Reconstructive Surgeons
June 2006, New Castle NH

FERTILITY SERVICES FOR HIV POSITIVE AND SERODISCORDANT COUPLES: PROVIDER POLICY, PRACTICE AND PERPECTIVES.

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Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Objective: To examine the demand for, and the access to fertility services for HIV positive and HIV serodiscordant couples in the US.

Design: An electronic survey was conducted to elicit data on the following dimensions: current policy and practice in the evaluation and treatment of HIV positive and serodiscordant couples who wish to conceive; the demand for these services; and the perceived barriers to providing fertility services to HIV positive patients.

Setting: The survey was emailed to all members of the Society of Reproductive Endocrinology and Infertility (SREI) of the American Society of Reproductive Medicine (ASRM).

Results: A total of 204 of the 916 SREI members responded (22%). Fifty one percent of respondents reported having written policies in place regarding fertility services offered to HIV positive patients, while 9% reported being in the process of instituting a policy. Of the 51% with a written policy, 93% are currently offering treatment to HIV positive patients. Requests for fertility services from HIV positive patients in the past 12 months were reported by 51% of respondents. Of respondents, 64% reported offering treatment to serodiscordant couples with either an HIV positive male or an HIV positive female, and 57% reported offering treatment to couples with both members having HIV positive status. The treatments most frequently offered to serodiscordant couples with HIV positive males were reproductive surgery (50%), ovulation induction (46%) and intracytoplasmic sperm injection (ICSI) (45%). Only 29% of those offering treatment reported specifically offering sperm washing for HIV positive semen. The most frequently reported factors which limit the provision of fertility services to the HIV positive population include: low volume of HIV positive patients requesting services (45%); professional concern for the welfare of the child (37%); no laboratory policy for handling infected sperm (32%); and legal risk to the office (32%). When questioned about the factors that limit the provision of reproductive services to HIV positive patients, 13% of respondents reported that they do not believe there are any limitations.

Conclusions: HIV positive patients are seeking fertility services from a majority of REs. However, a standard of care has not been universally instituted for this patient population. Provider education is needed to ensure that safe and effective reproductive services are offered to HIV positive patients. Lab policy and legal reform are needed to improve access to reproductive services for the HIV positive population.
GOUT-A MISSED DIAGNOSIS IN THE ELDERLY

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An 80 year old Vietnamese-speaking woman presented to emergency department with 2 week history of left ankle pain and swelling of left and right index finger. The patient stated that her symptoms are associated with fevers and chills. She has seen her primary care physician who prescribed cyclobenzaprine 10mg and tramadol 50mg and she had no relief with these medications. She also recalled a similar episode of pain in her fingers 2 months ago which resolved spontaneously. Her PMH is significant for HTN for which she was treated with lisinopril for the last 3 years. She denied any history of smoking or alcohol. On physical examination, she was uncomfortable with pain but afebrile and her vital signs were stable. Musculo-skeletal exam revealed tender PIP joint in the Right index finger with mild erythema and DIP joint of left index finger was hot, tender and erythematous. The left ankle was swollen and tender on the side of medial malleolus but no erythema. Laboratory data were significant for normocytic normochromic anemia with Hb of 8.2, Renal impairment with BUN of 55 and creatinine of 2.3, sed rate of 134, CRP of 15.8 and uric acid levels of 14.9. Left ankle arthrocentesis was performed which revealed both intracellular and extracellular negatively birefringent uric acid crystals. Due to her age, renal impairment, high sed rate and hyperuricemia a suspicion of multiple myeloma was raised but serum and urine protein electrophoresis, skeletal survey and a bone marrow failed to demonstrate any evidence of multiple myeloma. She achieved complete resolution with prednisone therapy. This proved to be a case of acute gouty arthritis with urate nephropathy.

Acute gouty arthritis typically presents as a monoarticular arthritis and 80% of the time it involves a single joint of the lower extremity (1st MTP joint or knee). Polynarticular symmetrical upper extremity presentation in our patient might have misled the primary care provider to treat this as an osteoarthritis. As elderly do not mount a significant inflammatory response, they may not always present with a hot, tender joint. Physicians should have a low threshold for aspiration as this is the only way a definitive diagnosis can be established.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA

GUILLAIN BARRE SYNDROME (GBS) MASQUERADING AS AN ACUTE MYASTHENIC CRISIS

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Introduction: We report the case of a pt. with a rare pharyngeal-cervical-brachial variant of GBS. Atypical presentation & false positive results delayed dx & presented a challenge in determining best tx.

Case: A 70 yo lady with recent URI tx’ed with Abx presents with prominent back pain & lesser degree of progressing upper truncal weakness. PMH: PE, depression, hypothyroidism. Brachial neuritis was tentative dx, however areflexic weakness worsened over 48 hrs. & involved resp. muscles resulting in intubation. EMG’s revealed lack of F waves in arm muscles & lack of repetitive wasting of amplitude, suggestive but not diagnostic of GBS; immunoglobulin (IVlg) X 5 days was initiated. There was no significant improvement & acetylcholine receptor binding Ab (Ach-R binding Ab) was positive, thus myasthenic crisis was considered. A false positive Ab was possible due to IVlg tx, thus we retested after plasmapheresis & 7 day washout; Ach-R binding Ab. was again positive, c/w acute myasthenia crisis. However, when both the acetylcholine blocking & modulating Ab’s were negative & a highly specific test for GBS, Anti GD1b was positive, she was dx’ed with pharyngeal-cervical-brachial variant of GBS. She improved with plasmapheresis, was extubated & transferred to SNF.

Discussion: Pharyngeal-cervical-brachial variant of GBS is very rare; incidence in older pts. is unknown. To our knowledge 2 other cases have been reported in Japan in pts. over age 60, but none in the US. GBS is an acute inflammatory polyradiculopathy with weakness & diminished reflexes. Incidence peaks in infancy, 1-2/100,000, & in later life 8/100,000. Respiratory muscle weakness, occurring in 12% of MG, is a myasthenia crisis & is difficult to distinguish from atypical presentation of GBS. In our pt. initial prominent back pain & testing for Anti Ach-Receptor Ab after IVlg tx, likely resulting in false positive tests for MG, may have obscured the true dx. Weakness & back pain are common in older pts. which can further delay recognition of GBS.

Conclusions: This case highlights the challenges in dx’ing GBS in older adults. Common & non-specific sx’s such as weakness can make differential diagnosis with other diseases difficult. Specificity of diagnostic Ab tests in this age group is not defined. A rigorous & analytical approach was crucial to achieving our pt.’s survival. Geriatricians need to be aware of this life-threatening variant of GBS, which is atypical in presentation but treatable.

ABSTRACT SUBMISSION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA
THE HUMAN PATIENT SIMULATOR (HPS): IS IT ESSENTIAL TO BE IN THE “HOT SEAT” FOR BETTER LEARNING?
Rukshana Cader MD, Joel Abraham MD, Jack Chase MS-IV, Mihaela Stefan MD, Gladys Fernandez MD
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield MA

Introduction: Simulation can be used as a tool to enhance the efficiency of learning in a safe environment. The objective of the study is to assess if training through simulation based modules of medical emergencies will achieve improved clinical decision making through direct evaluation and feedback.

Methods: We developed modules for didactic training of 3rd year medical students which complemented existing curricula in Internal Medicine. The design is groups of 8 students with total of 32 students over one year. There are 5 medical emergencies scenarios, each topic having two different grades of difficulty, the basic one will be given first and the more difficult one, six months later. A specific tool has been developed to evaluate student’s performance and each case has a general checklist of critical actions. A basal rate of error occurring in the first scenario and error reducing if any is documented in each case. Because the cases will be run six months apart the retention rate of skills and mistakes can be studied.

Results: We report the initial results from the first group of students. They performed significantly more key tasks in the later scenarios. We review the critical errors after each case with the student and overall they were able to identify errors and through teaching and practice there was a considerable improvement to the subsequent cases.

Conclusions: Preliminary results support the use of simulator based training for students to develop critical thinking, decision making skills and professional demeanor. Students learned better being in the “hot seat” than observing. Simulation offers the benefit of hands-on learning in addition to visual learning and active reinforcement, giving a unique opportunity to engage students in an environment that does not put the patient at risk.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA

INITIATION OF DROTRECOGIN ALFA (ACTIVATED) [DTAA] VERSUS PLACEBO INFUSION ACUTELY IMPROVES HEMODYNAMICS IN PATIENTS WITH SEPTIC SHOCK
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Purpose: We previously reported using a Cumulative Vasopressor Index (CVI) score to quantify acute hemodynamic changes associated with initiation of DTAA in patients with septic shock(1). The CVI score (range = 1-25) is an aggregate score of number and dose of all vasopressors used. PROWESS patients treated with DTAA had significant improvement in cardiovascular SOFA score over 7 days compared to placebo patients(2). We now evaluate the acute hemodynamic response to DTAA compared to placebo in a subgroup of patients from the PROWESS trial.

Methods: We retrospectively collected hourly hemodynamic measurements from charts of patients who participated in PROWESS at our institution. The assignment (placebo or DTAA) of patients was obtained from the study sponsor after publication of results. We assigned hourly Cumulative Vasopressor Index (CVI) scores for first 24 hrs to quantify vasopressor use, and recorded both a daily CVI score, and a daily Cardiovascular SOFA score for 96 hrs.

Results: 33 of 51 patients enrolled in PROWESS at our hospital had MAP<70, and 28 patients received vasopressors (14 placebo and 14 DTAA subjects). Patients on pressors were equivalent (placebo vs. DTAA in baseline APACHE II score, age, P/F ratio, and need for mechanical ventilation. In the first 12 hours following study drug, 8 patients (57%) treated with DTAA vs. 2 patients (14%) that received placebo had decrease in vasopressors to the lowest CVI score of 1(p=0.046 (Fisher’s Exact).

Conclusion: 1. A higher proportion of patients treated with DTAA for vasopressor dependent septic shock had decreased vasopressor requirements (lower CVI score) over the first 12 hours of infusion. 2. There was no statistical difference in CVI scores at 24 hours of infusion between the DTAA and placebo groups. 3. The CVI score may be a method to assess the degree of hemodynamic changes in septic shock, as defined by dose and number of vasopressors used.

Clinical Implications: Further examination of larger populations with septic shock is required to address these preliminary findings.


ORAL PRESENTATION
American College of Chest Physicians
October 2006, Salt Lake City UT
4INTEGRATION OF HIGH-FIDELITY PATIENT SIMULATION INTO A TRADITIONAL INTERNAL MEDICINE CURRICULUM: STUDENTS PERSPECTIVE

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Introduction: High-fidelity patient simulators promise to enhance the efficiency of learning in a safe environment, reliably allowing medical trainees to gain clinical experience through active involvement and reflection.

Objective: To evaluate if 3rd year medical students find simulation based learning beneficial in addition to their regular curriculum.

Methods: Students were exposed to 5 clinical problems per 12-week clerkship rotation: (a) respiratory distress secondary to asthma (b) acute MI (c) hypotension secondary to GI bleeding (d) sepsis secondary to acute cholecystitis (e) CHF with rapid atrial fibrillation. Once the simulation was complete, a debriefing session took place. Each scenario provided for the student an opportunity to apply basic management interventions and the chance to work “independently”. The objective of the study was to evaluate if 3rd year medical students find simulation based learning beneficial in addition to their regular curriculum. Qualitative and quantitative analysis was done by pre and post simulation surveys. We present the results for the first group of 7 students. In total there will be 32 students, having simulation training in both internal medicine and surgery clerkship.

Results: We asked them pre and post simulation, how confident they feel to manage the clinical cases by themselves. We used a Likert scale of 1-5 (1 being the lowest and 5 the highest). Pre simulation the scores ranged from 1.14-2.00, the lowest average being for hypotensive shock from bleeding (1.14) and the highest being for asthma (2.00). Post simulation the mean score was 4.14 with the following results: Asthma 4.57, Myocardial infarction 4.14, Septic Shock 3.43, Hypotensive shock 4.00, Arrhythmia 3.57. Students were also asked questions regarding the possible improvement of specific skills by simulation training. The mean score was as following: 4.57 for practical skill, 4.57 for clinical knowledge, 2.86 for presentation skills, 4.29 for teamwork, 4 for communication skills with patients. Students strongly favored that simulation based training should be part of their training.

Conclusion: This pilot study demonstrate that students considered simulation based training very valuable and support its use as an incorporated part of their traditional curriculum.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA

4INTRA VENOUS IMMUNOGLOBULIN THERAPY IN REFRACTORY CLOSTRIDIUM DIFFICILE DIARRHEA

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Introduction: Clostridium difficile can cause antibiotic-associated diarrhea. Exotoxin release leads secretory diarrhea and an acute inflammatory infiltrate. The gold standard of treatment is metronidazole PO, with vancomycin PO an alternative agent. In some cases of severe, persistent, or relapsing diarrhea, administering intravenous immunoglobulin (IVIG) has been efficacious.

Case: A 69 year-old male with diabetes mellitus, hypertension, macrovascular disease and pulmonary fibrosis was hospitalized for pneumonia and given a 7 day course of levaquin, piperacillin/tazobactam and vancomycin as well as 10 days of imipenem before being transferred to a rehabilitation center. There he developed watery diarrhea. He had both positive toxin and culture assays for C. difficile. Diarrhea persisted despite a 7 day course of oral metronidazole followed by 14 days of oral vancomycin. Flexible sigmoidoscopy and tissue biopsy confirmed the pervasive presence of C. difficile. Intravenous metronidazole, cholestyramine and probiotics had poor efficacy. After having had 12 weeks of diarrhea and a 22 kg weight loss the patient was given a single dose of 30 grams of IVIG. The diarrhea resolved within 48 hours of the infusion and did not recur. He was maintained on a lactose free diet, a tapering dose of vancomycin upon discharge to the rehabilitation center.

Discussion: C. difficile is a common nosocomial infection that can result in significant morbidity and even mortality. Patients with severe or recurrent C. diff diarrhea (CDD) often have low circulating antitoxin antibody levels. Treatment with either metronidazole or vancomycin has been associated with a 37-50% recurrence of symptoms. Over the last 10 years approximately 25 cases of successful treatment of CDD with IVIG have been published. Some of the risks of IVIG infusion include potential infection with viruses and prions, but overall the treatment has been well tolerated.

Conclusion: IVIG has been successfully used in the treatment of severe CDD in patients who have failed conventional therapy. Further studies should be pursued to clarify the role of IVIG in the treatment of CDD.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA
1st Place Winner
INTRODUCTION OF A MODIFIED NEONATAL RESUSCITATION COURSE TO LAY MIDWIVES IN THE DOMINICAN REPUBLIC

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Background: It is estimated that 40% of the under five childhood mortality worldwide occurs during the neonatal period, with a significant proportion from birth asphyxia. In the Dominican Republic, approximately 90% of births occur in a hospital setting with an infant mortality rate of 24/1000. This necessitates training of hospital personnel in neonatal resuscitation at the point of delivery (POD).

Objective: Lay midwives, who attend the majority of term and near term deliveries in a regional hospital in the Dominican Republic, were trained in a modified neonatal resuscitation program designed to give them the ability and confidence to perform resuscitation at the POD. Previously, resuscitation was carried out in a separate unit, delaying resuscitation by several minutes.

Methods: A modification of an evidence-based neonatal resuscitation program was implemented using adult learner theories. Fifty-four participants were evaluated by their knowledge base prior to the course using a pretest and immediately following the course with a posttest. Twenty-two and 26 of the original participants were retested at 3 and 9 month intervals, respectively. The overall course was then evaluated by 24 participants in focus groups at 12 months. Outcome was measured by birth asphyxia events requiring admission to the neonatology unit one year prior compared to one year post intervention.

Results: Using Students T test, there was a highly significant change in posttest knowledge immediately after (p < 0.01), at 3 month (p < 0.01) and 9 month (p < 0.01) intervals and participants were more confident with their resuscitation abilities at 12 months. There were 15 birth asphyxia events in a total of 2689 deliveries that required admission to the neonatology unit one year prior to the intervention compared with 22 events of 2885 deliveries one year post intervention. Differences were non-significant.

Conclusion: Implementation of a neonatal resuscitation course was effective in training lay midwives neonatal resuscitation for term and near term infants and has a lasting effect on their knowledge base and ability to perform resuscitation. Outcome studies are needed to determine if neonatal resuscitation is feasible in resource poor settings.

POSTER PRESENTATION
16th Annual Global Health Education Consortium Conference
February 2007, Santo Domingo DR

Pediatric Academic Society
May 2007, Toronto ON

ORAL PRESENTATION
Eastern Society for Pediatric Research
March 2007, Philadelphia PA

Is Anticoagulation Warranted?

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Introduction: Patent foramen ovale (PFO) is a congenital cardiac lesion that can persist into adulthood. Most individuals with a PFO are asymptomatic; a broad spectrum of clinical manifestations may occur, most notably cryptogenic stroke. PFO is associated with other cardiac anomalies including atrial septal aneurysm (ASA). The risk of cryptogenic stroke is increased six fold with the combination of PFO-ASA.

Case: A 53 YO healthy male presented with acute dizziness and left sided parathesia that developed while walking. Dizziness resolved within 15 minutes, however the numbness persisted. He denied other symptoms and his vitals signs and labs were within normal parameters. He had experienced similar symptoms two days prior that spontaneously resolved after 10 minutes. During his hospital stay he continued to experience episodes of dizziness and left lower limb numbness that appeared consistent with transient ischemic attack.

Echocardiogram revealed a normal ejection fraction with a 41 mm diffuse (fusiform) ascending aortic aneurysm, a right to left atrial shunt and an atrial septal aneurysm. The history and echocardiogram stratified this patient as high risk for cryptogenic stroke however carotid duplex, CT and MRI of the brain were entirely normal.

Discussion: PFO has been described in 25-30% of individuals. Right-to-left shunting through the PFO may result in a paradoxical embolus. Straining, vigorous repetitive cough, lifting or pushing heavy objects, may induce this transient shunting. The causal relationship between PFO and stroke is unclear. Some potential mechanistic links include paradoxical embolism of thrombus from the peripheral venous system, direct arterial embolism of thrombus from the endocardial surface of the atrial septum, cerebral ischemia related to occult paroxysmal atrial fibrillation, and associated vascular pathology. Most patients with ischemic strokes with no clear etiology are termed cryptogenic stroke. Of these it has been found that 9% had a PFO-ASA.

Conclusion: The best treatment modality to prevent recurrent cryptogenic stroke in patients with PFO has not yet been defined. There are four major choices: surgical closure, percutaneous device closure, and medical therapy with anticoagulation or antiplatelet agents. The efficacy of warfarin or aspirin for individuals with PFO in reducing the primary event of stroke was not found. Although the two year risk of stroke or death was lower among the warfarin-treated cryptogenic stroke patients with PFO but not statistically significant. Our patient received 325 mg of Aspirin.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
INTRODUCTION OF A MIRC-BASED DIGITAL TEACHING FILE TO SUPPLEMENT THE SUBSPECIALTY EMERGENCY RADIOLOGY CURRICULUM IN RADIOLOGIC TRAINING

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Teaching files are integral to radiological training. DICOM compatible digital radiological data and technological advances have made digital teaching files a more desirable way to preserve and share representative and/or unusual cases for training purposes. The Medical Imaging Resource Community (MIRC) system is a robust multi-platform digital teaching file implementation that is freely available. Case conferences and apprenticeship have traditionally been used to guide self-directed learning and review of numerous cases. A MIRC-based system built upon a detailed emergency radiology curriculum developed by the American Society of Emergency Radiology (ASER) has facilitated the teaching of emergency radiology at our institution via didactic training sessions and independent distributed learning. This format will be extended to other educational curricula in other radiological subspecialties.

POSTER PRESENTATION
Radiological Society of North America
November 2006, Chicago IL

LIFE-THREATENING MASSIVE PULMONARY EMBOLISM — A PIONEERING APPROACH WITH RHEOLYTIC THROMBECTOMY

Peter Butler MD, Archan Shah MD, Prabhdeep Singh Sethi MD, Michael Rosenblum MD, Ratnakar Mukherjee MD, Boyd Hahn MD, Satyendra Giri MD

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Massive pulmonary embolism (PE) is second only to coronary artery disease as a cause of sudden death. Often the signs and symptoms are subtle with approximately 80% of the cases diagnosed at autopsy. Prompt diagnosis and treatment, however, markedly reduce the mortality rate. This case dramatically illustrates the necessity of rapid diagnosis and treatment initiation for massive PE as well as the potential of a novel life-saving treatment modality.

A 62 y/o healthy male presented with an episode of acute dizziness and shortness of breath. He was tachycardic (108/min), tachypneic, and hypotensive with room-air oxygen saturation of 87%, improving to 96% with supplemental oxygen at 2 liters/min. Physical exam revealed use of accessory muscles of respiration and mild bilateral lower extremity edema. EKG showed right bundle branch block, multiple PVCs and a right ventricular strain pattern. Emergent echocardiography for suspected RV infarction showed a large mobile mass in the RV intermittently prolapsing into the right atrium associated with poor RV function. CT angiography revealed complete thrombotic occlusion of the right pulmonary artery and left descending pulmonary artery branch.

Thrombolytic therapy failed to improve cardiorespiratory function and mechanical ventilation in conjunction with inotropic support was needed to prevent cardiovascular collapse. Subsequent pulmonary and coronary angiography revealed significant residual clot burden with high PA pressures and marked RV dilatation. Percutaneous rheolytic thrombectomy was performed on both pulmonary artery thrombi with concomitant clot aspiration leading to normalization of the pulmonary circulation and resolution of RV dilatation. The patient rapidly improved over the ensuing 14 hours. He was discharged home 12 days later on warfarin therapy.

Our patient deteriorated at an astonishing pace from mild respiratory distress to profound cardiorespiratory failure over a few short hours. From the initial presentation and diagnostic studies it was recognized that we were witnessing the early stages of massive PE. A trial of thrombolytic therapy and the timely mobilization of our interventional vascular team to attempt a pioneering and ultimately lifesaving procedure occurred as a result of early recognition in this remarkable case.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
METASTATIC ILEAL CARCINOID IN A PATIENT WITH LONGSTANDING CHRONIC VAGUE ABDOMINAL PAIN

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Carcinoid tumors are neuroendocrine tumors that arise from enterochromaffin cells occurring most commonly in the small intestine and proximal colon. These tumors are often difficult to diagnosis due to the relative vagueness of symptoms commonly resulting in distant metastases at diagnosis and a poor prognosis.

A 56 year old female presented to the ED with a five day history of intermittent dull RLQ pain, bloating and BRBPR with significant clots. Past medical history was significant for intermittent constipation and occasional diarrhea with several years of BRBPR worse over the previous few months. Prior to presentation, patient had been evaluated several times for similar symptoms, diagnosed with an anal fissure and possible IBS, and referred for a colonoscopy which did not occur.

Initial examination revealed mild abdominal distension with vague pain to palpation in the RLQ. Labs were unremarkable except for chronic iron deficiency anemia. Colonoscopy revealed a partial stricture at the hepatic flexure restricting visualization of the distal colon. Biopsy of the area was negative. Contrast enema CT showed a definite narrowing of the colon with stricture in the terminal ileum. CEA was normal. A preliminary diagnosis of Crohn’s was made and high dose steroid treatment was initiated, however her symptoms persisted. A repeat CT scan was significant for three distinct liver lesions, and biopsy confirmed carcinoid tumor. An octreotide scan demonstrated uptake in the liver and terminal ileum.

On exploratory laparoscopy multiple adhesions were lysed around the terminal ileum and ascending colon. Right hemicolectomy was performed resulting in removal of the terminal ileum and the majority of the ascending colon. Lymph node biopsy was positive for carcinoid tumor in 3/17 tissue samples. The patient was placed on long-acting somatostatin analog treatment and was discharged with follow-up. Since presentation, there has been enlargement of the liver lesions with development of suspicious lung lesions consistent with metastasis.

Carcinoid tumors are among the most common small intestinal tumor and account for significant morbidity and mortality. Although rare, this case illustrates the vague and variable presentation of carcinoid tumors and the need to consider this diagnosis early in the diagnostic work-up in patients with vague abdominal symptoms. Prompt recognition can improve prognosis and ultimately the outcome in this disease.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA

A NEW WEB-BASED OPERATIVE SKILLS ASSESSMENT TOOL EFFECTIVELY TRACKS PROGRESSION IN SURGICAL RESIDENT PERFORMANCE

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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) 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 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 [PGY 2] 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.

Conclusions: Our early results show that the OpRate 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.

ORAL PRESENTATION
Association of Program Directors of Surgery
April 2007, Washington DC
Objective: Virtual Reality has emerged as a potential method to both assess surgeon skill level and improve surgical performance. The Minimally Invasive Surgical Trainer-Virtual Reality (MIST-VR) laparoscopic trainer has been validated as a method to improve operating room (OR) performance in gallbladder bed dissection among general surgery residents, yet little work has been done among gynecologic surgeons. The purpose of this study was to assess the use of the MIST-VR trainer for proficiency-based laparoscopic skills training among surgeons and trainees not previously exposed to virtual laparoscopic simulators.

Design: A prospective evaluation of the MIST-VR laparoscopic trainer in a medium sized gynecologic training program.

Materials and Methods: The MIST-VR trainer consists of 12 laparoscopic tasks in which virtual cubes, spheres, and cylinders are manipulated in three-dimensional space with virtual graspers, and a mechanical pedal is used to apply virtual diathermy to the objects. The MIST-VR provides visual feedback such as change of object color to simulate both success and error, but there is no change in resistance of the instrument handle with object manipulation, as would be encountered in live laparoscopy. Performance is measured based on time, economy of movement, economy of diathermy, and errors, with an overall score that combines individual measurements. In our study, 12 Medical Students, 17 OB/GYN residents, and 8 attending gynecologic surgeons were enrolled in a MIST-VR training program that culminated in an assessment of the number of repetitions required to reach a defined proficiency level in the manipulative diathermy task, the most complex of the trainer tasks. None of the participants had any previous exposure to the MIST-VR platform. Experience level (medical student=0, R1=1, R2=2, etc, and attending surgeon=5) was correlated with the number of task iterations required to reach minimal proficiency.

Results: Unexpectedly, among those reaching proficiency, the more experienced laparoscopists took a greater number of iterations to become proficient than those who had little or no experience (p=0.002). The trend held, though not significantly, when both attendings and/or medical students were excluded from the data analysis.

Conclusion: In the framework of our study, the MIST-VR laparoscopic trainer was not a valid measure of skill or experience level in our population of gynecologic surgeons and trainees, and even suggested that increased operating room experience was associated with a handicap for simulator performance. It is possible that this difference can be explained by a generational difference between current trainees and attendings (i.e. “video game” vs “pinball machine” generation). This trend may also suggest that those with live OR experience are conditioned to focus on tactile feedback cues not measured by the virtual trainer, possibly to impairment of those skills that are measured by the MIST-VR simulator. Currently, studies are under way at our institution to elucidate why performance acquisition differences observed might be operational in the subject groups studied.
PHYSICIAN VS. SELF-REPORTED MEASURES OF DYSPNEA IN PATIENTS WITH ACUTE DECOMPENSATED HEART FAILURE

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Introduction: Dyspnea is a frequently used outcome measure in trials of acute decompensated heart failure (ADHF). It is not clear whether physician assessment can substitute for patient self-assessment of dyspnea severity.

Objectives: To assess agreement between physician and patient self-reported measures of dyspnea.

Methods: This was a planned secondary analysis of a prospective observational study of all ADHF patients presenting with dyspnea to the ED of an academic tertiary referral center with a mixed urban/suburban catchment area. Patients were enrolled weekdays, June through December 2006. Both the physician and patient measured the change in dyspnea severity by two methods using 10-cm visual analog scales (VAS): 1) the difference of two static (STATIC) measures (How is your dyspnea now?) obtained at baseline and 1-hour; and 2) as a single transition (TRANS) measure (How much has your dyspnea changed?). They were also asked if the dyspnea “stayed the same” or “changed”. An ordinal scale was then used to quantify the amount of change. Physician and patient were blinded to the others measures. The minimal “important” differences (MID) were calculated. Agreement was assessed using the method of Bland and Altman. Kappa was calculated where appropriate.

Results: Data on 92 patients were analyzed. The mean difference between physician and patient VAS scores was 2 mm and their limits of agreement were -50 mm to 54 mm using the STATIC data. For TRANS data the values were 16 mm and 7 mm to 25 mm. When assessing if dyspnea “stayed the same” or “changed”, agreement was 70% and kappa was 0.35 (95%CI: 0.14 to 0.55). The mean MID for patients was 24 mm (95%CI: 10 mm to 37 mm) and for physicians it was 19 mm (95%CI: 2 mm to 35 mm).

Conclusion: On average, the values between physicians and patients were similar; however, the limits of agreement were wide. This may restrict our ability to substitute physician assessment for patient self-assessment of dyspnea in ED patients with ADHF.

PRECLINICAL SAFETY EVALUATION OF A NOVEL HELICAL ROTATIONAL THROMBECTOMY DEVICE

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Background: Mechanical endovascular thrombectomy is effective for removing thrombus in multiple vascular beds, but coronary artery thrombectomy with current devices has been fraught with lengthy set-up time and no change in outcomes. We evaluated the safety of a simple, handheld, powerful, helical rotational (700mmHg, internalized cutter) thrombectomy device, the ThromCat™ (TC), in coronary arteries of healthy pigs.

Methods: Ten anesthetized pigs underwent coronary angiography via 7F guide. Thrombectomy runs (3 passes over 2 cm length) in 2 vessels per animal were performed using the TC (n=6) and the ev3 X-Sizer® (n=4) for comparison. Catheter dwell time within the vessel was measured. Half of the animals in each group were sacrificed after the procedure and half at 30 days. Macroscopic and histological examination of the hearts and coronary arteries were performed. Baseline and serial CBC, CKMB and troponin T were measured. Clinical hemorrhagic or cardiac complications were tracked.

Results: Online QCA parameters (vessel size, length, and flow) were similar in both groups. At autopsy, no macroscopic or histological abnormalities were observed. There were no significant differences in bleeding, cardiac myonecrosis, or clinical events.

Conclusion: Thrombectomy using the TC in porcine coronary arteries appears safe and feasible without evidence of histologic or angiographic complications. This newer generation device may offer clinical advantages over other devices, particularly with ease of use.

<table>
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<tr>
<th>Angiographic, Clinical and Histologic Data</th>
<th>X-Sizer N = 4</th>
<th>ThromCat N = 6</th>
<th>p-value</th>
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<tr>
<td>Dwell time/vessel mean + SD</td>
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<td>41±11.3 sec</td>
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<td>Segments with endothelial lesions on microscopy, n (%)</td>
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<td>Hb change at 24 hours (g/dl) mean + SD</td>
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<td>Maximum CKMB change (U/l) mean + SD</td>
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<td>Maximum Troponin T (ng/ml) mean + SD</td>
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POSTER PRESENTATION
Society of Academic Emergency Medicine
April 2007, Shrewsbury MA
May 2007, Chicago IL

ELECTRONIC POSTER PRESENTATION
American College of Cardiology 2006
March 2007, New Orleans LA
PROLONGED ASYSTOLE AFTER ELECTROCONVULSIVE THERAPY: CASE REPORT

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Introduction: Electroconvulsive therapy (ECT) has evolved into an effective albeit controversial treatment modality for refractory depression and catatonia. Although regarded as safe, cardiac dysrhythmias are frequent complications of ECT. These are usually transient and rarely harmful to the patient. Some cases, however, have reported instances of asystole that have been considered potentially dangerous.

Case: A 74 years old male patient with a history of major depression, dementia, blindness, diabetes mellitus and seizure disorder was admitted to the psychiatric unit for worsening of severe depression despite multiple medication trials. Medications included….A preop ECG showed a first degree atrioventricular block. He was normotensive at baseline. He underwent two sessions of ECT with no complications. On the third ECT session immediately after the seizure, the patient became suddenly asystolic for 30 seconds. He required cardiac resuscitation with chest compression, intubation and a single dose of epinephrine before returning to sinus rhythm. He was transferred to Telemetry for observation, and he remained free of any cardiac events for the rest of hospitalization. Cardiac workup showed preserved ventricular systolic function. Despite the recommendation of the cardiologist that ECT can be repeated if necessary with adequate premedication (premedication with atropine), the patient and his family chose not to continue with ECT treatment.

Discussion: ECT has become a reliable form of treatment for patients of severe depression who otherwise failed conventional pharmacological treatment. While the treatment has been considered safe, there have been various reports of the patients experiencing asystole beyond what is considered benign, that is, for more than 10 seconds. Some suggested risk factors are use of beta-adrenergic blocking agents, bilateral electrode placement, use of thiopentane as anesthetic, and higher doses of succinylcholine. Adjustment of succinylcholine doses as well as premedication with atropine has been recommended, but there are no controlled studies that support this.

Conclusions: The risks of ECT are well documented and necessitate a thorough evaluation. Many elderly patients have multiple preexisting cardiovascular diseases. Close communication between the psychiatrist, anesthesiologist and medical consultant are necessary to assure a safe and successful treatment.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA

PULMONARY-RENAL SYNDROME FROM SJOGREN’S SYNDROME AND TYPE III CRYOGLOBULINEMIA

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Introduction: Cryoglobulinemia is a disorder characterized by the presence of single or mixed immunoglobulins in the serum that under reversible precipitation at low temperatures. Type II cryoglobulinemia can develop in patients with Sjogren syndrome (SS) and is commonly associated with Hepatitis C. We present a case of SS presenting with Pulmonary-renal syndrome and type III cryoglobulinemia not associated with hepatitis B or C in complete remission after prednisone and azathioprine therapy.

Case: A 69 year old female presented with cough, arthritis, dry mouth, scratchy eyes and fatigue. Chest CT showed bilateral infiltrates with pleural effusions and extensive bronchiectasis with honeycombing. PFTs showed restrictive lung disease. Sputum, blood and viral cultures were negative. Lung biopsy showed bronchiolitis obliterans with organized pneumonitis. High dose prednisone was started. She developed acute renal failure (rise in serum creatinine from 0.7 to 1.8 mg/dl). Urinalysis revealed 1+ protein, 100 WBCs, >1000 RBCs and occasional granular and red cell casts. ANA was positive (titer 1:3200; centromere pattern), ESR 60. RF, total CK, pANCA, cANCA, Smith-Ab, SCL-70, RNP-Ab and Anti-SSB Ab (LA) were negative. Anti-SSA Ab (RO) positive at 1:77. Serum cryoglobulins, initially negative, later became positive by immunodiffusion showing polyclonal IgG, IgA, IgM and C3 (type III pattern). C3 and C4 complements were both low at 20 and 2 mg/dl. IgA level high at 891 mg/dl. Hepatitis B and C serologies, including viral DNA and RNA PCR were consistently negative. Renal biopsy showed focal membranoproliferative glomerulonephritis.

Repeat CT showed complete resolution of the parenchymal lung disease with a persistent mild right sided pleural effusion. Patient was discharged to a rehabilitation center on oral prednisone, which was tapered with addition of azathioprine secondary to aseptic necrosis of the hip.

Discussion: This case highlights the rare presentation of SS with type III cryoglobulinemia without any evidence of hepatitis C involvement presenting as pulmonary-renal syndrome. Review of the literature suggests a strong correlation with hepatitis C infections with cryoglobulinemias; specifically types II and III, however that is not the case in our patient.

Reports illustrate no clear evidence of beneficial therapeutic modalities. Reported treatments include plasmapheresis, cytotoxan and rituximab. Our patient achieved complete remission 6 months into treatment with prednisone and azathioprine. SS with cryoglobulinemia should be included on the differential diagnosis of pulmonary-renal syndrome.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA

American Geriatrics Society, Annual Scientific Meeting
May 2007, Seattle WA
A QUESTION OF HETEROGENOUS VISA
IN A PATIENT WITH PERSISTENT RESPIRATORY ALKALOSIS
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Increasing antibiotic usage and extended hospital stays have led to a rise in the selection of resistant organisms. We present a case of a woman who developed nosocomial pneumonia likely caused by heterogeneous vancomycin intermediate resistant staphylococcus aureus (VISA).

A 44-year-old diabetic female presented in extremis with hyperglycemia, ketonuria, and an arterial blood gas of pH 7.07, pCO2 14, pO2 74, and HCO3 4 associated with a white blood cell count of 44,000 (24% bands) and decreased breath sounds in the left lower lung field. She was admitted to the ICU for diabetic ketoacidosis and pneumonia. Ceftriaxone and azithromycin were started. A sputum culture revealed Streptococcus pneumoniae and coverage was narrowed to penicillin G.

Her ICU course was complicated by acute respiratory distress syndrome and empyema of the left lung requiring decortication. She developed right-sided ventilator associated pneumonia, and piperacillin-tazobactam and vancomycin were initiated. Sputum culture showed methicillin-resistant Staphylococcus aureus sensitive to vancomycin.

Following ICU transfer to a medical floor she had intermittent episodes of tachypnea resulting in a marked and persistent respiratory alkalosis with a pH of 7.54. CT of the head and chest x-ray did not reveal an etiology. CT angiography done less than 24 hours after the chest x-ray demonstrated a left lower lobe consolidation without evidence of pulmonary embolus.

It was postulated that her tachypnea was caused by vancomycin failure of the right-sided pneumonia as other potential foci had been excluded. Vancomycin was stopped and empiric linezolid and levofloxacin were started. Sputum cultures again demonstrated vancomycin susceptible MRSA. Her hypoxia, tachypnea, and mental function gradually improved and she was discharged to a rehabilitation facility.

There have been increasing reports of VISA and heterogenous VISA. The prompt response to linezolid suggests the possibility of heterogenous VISA as the etiology of this patient’s pneumonia. Most labs now evaluate for VISA, but heterogenous VISA is not tested for routinely. Although, heterogenous VISA can test vancomycin susceptible, it actually represents a heterogeneous population of which portions have intermediate susceptibility. Development of glycopeptide resistance should not be surprising with the increasing incidence of MRSA infections. Thus, clinicians need to be aware of this possibility in their patients.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA

RECURRENT THROMBOEMBOLIC PHENOMENA ON THERAPEUTIC WARFARIN:
A QUESTION OF VKORC1 POLYMORPHISM
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Systemic anticoagulation for prevention of embolic phenomena in patients with recurrent or established vascular and intra-cardiac thromboses is common practice. Options remain limited for patients who have further embolic events while on systemic anticoagulation, posing a clinical dilemma for the treating medical team.

A 44 y/o male presented with acute onset left facial droop associated with left sided weakness in sinus tachycardia, tachypnea and hypertensive crisis. Past medical history was significant for recurrent deep venous thromboses despite therapeutic warfarin anticoagulation, pulmonary emboli, non-ischemic cardiomyopathy and a 20 mm apical thrombus.

Our case demonstrates failure of warfarin anticoagulation with therapeutic INR for the prevention of recurrent thromboembolic phenomena – an infrequent clinical scenario. The seventh ACCP Guidelines recommend anticoagulation with warfarin for patients at high risk of thromboemboli aiming to maintain INR of 2.0-3.0 (level 1C). The INR in our patient was higher but he continued to have recurrent thromboembolic events.

A recent study has suggested overexpression of wild-type vitamin K epoxide reductase complex subunit 1 (VKORC1), but not VKORC1 carrying the VKCFD2 mutation, leading to a marked increase in vitamin K epoxide reductase complex (VKOR) activity, that is sensitive to warfarin inhibition.

Patients exhibiting difficulty in achieving target INR despite increasing doses of Warfarin or having thromboembolic events with a therapeutic INR may benefit from identification of this relatively common genetic mutation. The appropriate management for these patients remains unclear. This unique group of patients may benefit from a trial implementing the novel Direct Thrombin Inhibitors or LMW heparin and its derivatives for systemic anticoagulation.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA
RESPECTING SEXUALITY IN OLDER ADULTS
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Abstract
Body Physical & emotional intimacy is a crucial part of life. Sex & physical contact is important for everyone who desires it, especially for older adults who have experienced intimacy throughout their lives. Physical & emotional contact provides security, a feeling of well-being & a support/trust network that enriches one’s life. Despite normal changes in sexual functioning with increasing age, healthy individuals, those with chronic diseases as well as those with cognitive impairment continue to enjoy intimacy & sexual relations & desire physical contact. However, older adults who are no longer able to live independently in their own homes may have unexpected challenges in expressing their sexuality.

Case: A 76-year-old woman with Parkinson’s disease (PD) moved into Assisted Living. Several months later, the staff was alarmed to hear her scream, “He’s killing me; get off me”. Upon arrival, staff found a male resident, also with PD, on top of the woman post-coital. They assisted the residents with separation & hygiene & notified the woman’s son who initiated a police investigation. Investigation revealed a consensual sexual relationship. Following several more encounters, the woman’s son asked that his mother be given privacy. Staff had several practical and ethical concerns as well as religious & personal beliefs about this couples relationship but respected their privacy.

Discussion: Review of the literature yields limited information & resources with regards to geriatric sexuality. The American Association of Retired Persons’ landmark survey on sexuality in 1999 & update in 2004 found that 65-79% of older adults > age 70 are sexually active & that sexual intimacy improved quality of life. Our case illustrates several challenges for older adults who are sexually active. Privacy is challenging, especially when physical & cognitive limitations require staff to assist residents post-coital. Facility directors and physicians must balance cognitively impaired resident’s autonomy with their capacity to make decisions about intimacy. Family members & staff may have their own beliefs about intimacy & sexuality that might be in opposition to the resident’s needs or desires.

Conclusion: Regardless of cultural, religious, & personal beliefs, health care providers need to respect older adults’ need for intimacy & sexuality. Older persons may require guidance, reassurance & privacy to remain sexually active.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA

RIGHT SIDED ENDOCARDITIS IN AN IMMUNOCOMPETENT HOST
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Introduction: Subacute bacterial endocarditis is an infection of the endocardial surface often undetected at initial office visits. If left untreated, it can cause severe valvular insufficiency with subsequent complications such as heart failure and embolic phenomena.

Case: A 24 year old immunocompetent male presented with a 4 month history of malaise, low grade fevers, night sweats and a 20 lbs weight loss. The onset was following sudden high grade fever, with fatigue and body ache that was presumed to be viral in origin. Past medical history was significant for a congenital Ventricular septal defect and the patient denied intravenous drug use. Physical exam was significant for a grade 4/6 holosystolic murmur at the left lower sternal border, and splenomegaly. A CT scan of the abdomen and pelvis revealed splenomegaly, multiple bilateral subpleural pulmonary nodules and a well-circumscribed lytic lesion in the superior facet of 4th lumbar vertebra. A CT of the chest confirmed bilateral subpleural nodular densities ranging from 2 – 5 cms of likely septic origin. Streptococcus viridans was isolated from his blood. A transthoracic echo revealed Grade 2+ tricuspid regurgitation with a 5 mm mobile vegetation on the anterior leaflet of the tricuspid valve and a small perimembranous VSD. The patient denied any recent procedures warranting prophylactic antibiotics. He was initiated on appropriate antibiotics per sensitivities.

Discussion: American Heart Association has recommendations for antibiotic prophylaxis for individuals at risk of IE. Our patient denied any dental procedures, genitourinary manipulation, respiratory or GI procedures. Further enquiry revealed recent flossing with bleeding as the only likely factor. Two independent events are required for endocarditis: a damaged endocardium, and a bacteremia by adherent organisms. Absence of any event precludes endocarditis. In congenital or acquired cardiac lesions, endothelium can be damaged by an abnormally high-velocity jet-stream -flow that results in turbulent, rather than laminar blood flow which may have occurred in our patient. Bacteremia from flossing led to seeding of the damaged endothelium and thus SBE. Flossing does not feature amongst the categories that warrant prophylaxis. We wonder if minor dental procedures resulting into bleeding such as flossing should be incorporated as risk factors for IE in susceptible individuals thus recommending antibiotic prophylaxis.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
December 2006, Waltham MA
RIGHT VENTRICULAR DIVERTICULUM, REPORT OF A RARE PATHOLOGY

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Introduction: Diverticulum of right ventricle is a rare disorder, first described by Cumming MD in 1969. Until today only one case of RV diverticulum has been reported in adults. Ten other cases have been reported in children, all with congenital heart anomalies. We describe the first case of RV diverticulum in an elderly.

Case Presentation: A sixty eight year old Caucasian man presented with several hours of substernal chest pain, shortness of breath and diaphoresis. His medical history was significant for hypertension and hyperlipidemia. He didn’t have any family history for congenital heart anomalies. Physical examination revealed hypertension, crackles in right lung and II/VI apical systolic murmur. Electrocardiogram showed first degree AV block and T wave abnormality in lateral pericordial leads. Serial cardiac enzymes were diagnostically elevated. Patient underwent cardiac catheterization that showed advanced triple vessel disease and he was planned for a CABG. He had a transthoracic echocardiogram prior to CABG to access cardiac function that showed a small area of systolic protrusion near the apical right ventricular free wall, suggesting a diverticulum. There was no color flow evidence of perforation.

Discussion: To the best of our knowledge there has been only one reported case of an RV diverticulum in a middle aged adult before this. Our case is the first case of RV diverticulum reported in an elderly. Right ventricular diverticuli are extremely rare and most of them are congenital lesions in children accompanied by other cardiac abnormalities. An inflammatory etiology has been suggested. Most of the reported cases are muscular type diverticulum, located in base or apex of RV. Clinical presentations include asymptomatic murmurs, infective endocarditis, cardiac failure, ventricular arrhythmia and pulmonary embolization. Complications of RV diverticulum are clot formation and thrombus in the diverticular sac and rupture of diverticulum which is an unlikely complication due to thick muscular wall. If the size of diverticulum increases cardiac failure secondary to paradoxical motion of RV wall is possible. Management of symptomatic RV diverticuli is usually surgical and this often happens in the continuum of correction of other congenital abnormalities.

In our patient the lesion was located at the apex of the RV and was protruding during systole. There was no other dormant congenital abnormality. RV diverticulum in this case was basically an accidental finding and was asymptomatic. All symptoms of angina pectoris in the patient subsided after CABG. Follow up serial yearly echocardiogram in this patient is planned to monitor the size of diverticulum.

SINGLE INCISION FOR MIDURETHRAL SLING PROCEDURE AND PELVIC RECONSTRUCTIVE SURGERY

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Objectives: To compare the postoperative outcomes between women who underwent midurethral sling placement with and without additional pelvic reconstructive surgery through a single incision.

Materials and Methods: In this prospective observational study, we included all of the patients with at least 6 month follow up after a midurethral sling procedure which was performed by the same surgeon with or without concomitant pelvic reconstructive surgery through the same incision between October 2004 and September 2006. In all cases, the surgeon made one mid-sagittal incision on the anterior wall, and when necessary, extended it to perform anterior, apical and posterior compartment repairs. We compared various safety and efficacy measures between women who underwent midurethral sling placement with and without additional pelvic reconstruction.

Results: Out of 135 patients, 120 had 6 month follow up information: 41 (34.2%) in the sling only group (Group A) and 79 (65.8%) in the sling with other pelvic reconstructive surgery group (Group B). Total follow-up period was 16 (6-26) months. There were no significant differences with respect to parity, body mass index, preoperative estrogen therapy, history of stroke, neurologic disease, lumbar disc disorder, previous pelvic surgery and smoking between Groups A and B, respectively. Group A was significantly younger than Group B The success rates for Group A (83.0%) and B (89.9%) were similar. Groups A and B did not significantly differ with respect to the number of days with a catheter and de novo urge incontinence One patient (2.4%) from Group A required loosening of the tape while this was necessary in two women (2.5%) in Group B. Mesh extrusion occurred in one patient (2.4%) in Group A, and in two (2.5%) in Group B. There was no patient with wound infection in Group A but one (1.3%) in Group B. P value<0.05 was considered significant.

Conclusion: Safety and efficacy of the tension free midurethral sling procedures are not significantly affected by concomitant pelvic reconstructive surgery done through the same incision.
SPONTANEOUS ESOPHAGEAL PERFORATION IN A PATIENT WITH VAGUE ABDOMINAL PAIN

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Spontaneous esophageal perforation, also known as Boerhaave’s Syndrome, is a rare life-threatening condition characterized by severe chest pain in the lower thorax and upper abdomen, often following episodes of repeated retching and vomiting. Although rare, those patients that are most susceptible to the condition are males age 40-60. It is often associated with heavy food and alcohol intake. Although most esophageal perforation are iatrogenic, spontaneous perforations, accounting for 15% of all cases, carry the highest mortality rate.

A 54 year old male presented to the Emergency Department with nausea, vomiting, fevers, and chills for three days, as well as RLQ abdominal pain for two weeks. Past medical history included IV drug abuse, alcohol abuse, insulin dependent diabetes mellitus, and hepatitis C, anxiety, hypertension, lymphedema, as well as multiple presentations for the same complaints as above. The only medications that he could remember were insulin and methadone, although past records indicated multiple home medications. He denied smoking or alcohol use. He denied illicit drug use, although he later admitted to heroin use two days prior to presentation. He denied any drug allergies. His pulse of 115-125, blood pressure was normal, and oxygen saturation was 95% on room air. He was afebrile. His blood sugar on presentation was 487. CBC revealed a WBC count of 22.6, a moderate normocytic anemia, and a platelet count of 813. Beta-hydroxybutyrate was 0.51. Anion gap was 11 Serum osmolality was 305. Renal function was normal. Chest x-ray showed an early right lower lobe early infiltrate, otherwise unremarkable.

Several hours after presentation the patient was admitted to the medicine service with a working diagnosis of Hyperglycemic Hyperosmotic Nonketotic Syndrome. During our assessment, the patient complained of severe non-radiating RLQ abdominal pain. He also complained of mild dyspnea with non-productive cough. He reported one episode of hematemesis on the morning prior to admission. He denied chest pain. On exam, he was writhing on the stretcher in obvious discomfort. Abdominal exam revealed a diffusely tender, non-distended abdomen. Tenderness to palpation, which was out of proportion with expected findings, was worse in the right lower and left upper quadrants. Voluntary guarding was noted, but there was no rebound tenderness. Lung exam revealed decreased breath sounds in the right lower lobe. Cardiac exam was benign except for tachycardia. Concern was elevated for a more sinister etiology and a STAT CT of the abdomen and pelvis with oral and IV contrast was obtained. This obvious extravasation of the oral contrast into the right hemithorax with an associated right hydropneumothorax. After surgical evaluation, the patient was emergently rushed to the OR for repair of a distal esophageal rupture. 2300cc of pus was drain from the right thoracic cavity. The patient had a nearly two month hospital course with multiple complications, including self-removal of several chest tubes, hemathorax requiring redo thoracotomy, and multiple post-op infection, including VRE of the pleural fluid.

This case demonstrates an atypical presentation of a rare condition. Atypical presentations are frequent with spontaneous esophageal rupture, often making diagnosis very difficult. The condition carries a mortality rate of up to 72%, with worse outcomes if diagnosis and treatment are delayed. Given these factors, it is vitally important for internists to consider this diagnosis when working up patients with abdominal pain or chest pain, particularly after episodes of vomiting.

ABSTRACT SUBMISSION
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December 2006, Waltham MA
SPONTANEOUS TUMOR LYSIS CAUSING ACUTE RENAL FAILURE IN A PATIENT WITH MYELOFIBROSIS

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Background: Tumor lysis syndrome commonly occurs in rapidly proliferating neoplasms such as acute leukemias, high-grade Non-Hodgkin’s Lymphomas in response to aggressive therapy. It has been reported in a variety of hematological malignancies and other solid tumor types. We report here a rare case of acute renal failure resulting from spontaneous tumor lysis in a patient with Idiopathic myelofibrosis.

Case Report: A 69-year-old man presented to the Emergency department with generalized malaise, nausea, decreased urine output over two weeks. His past medical history included Idiopathic Myelofibrosis, Hypertension, Ischemic heart disease and spleenectomy for extra-medullary hematopoiisis. There was no history of radiotherapy, chemotherapy or transformation to acute leukemia. Physical examination revealed bradycardia with pulse 35/min, BP-124/45 mm Hg, Respiratory rate of 30/min, Oxygen saturation of 86% on room air. Laboratory data revealed a WBC count of 12 k/mm3, Hb 7.9 gm/dl, Hematocrit-22.6%, platelet count of 555 k/mm3. Peripheral smear showed 2 blast cells and pannynelosys. Sodium128 mmol/l, Potassium 8.6 mmol/l, BUN 125 mg/dl, Creatinine 12.3 mg/dl, Uric acid 31.6 mg/dl, Phosphate 14.1 mg/dl and LDH 1391 mg/dl. Urine analysis was negative. Immune-fixation studies were normal. Ultrasonography of the kidneys showed bilateral renal calculi and no evidence of obstruction. Finally an EKG demonstrated sinusoid pattern of widened QRS complexes with absent P waves. His clinical management involved aggressive fluid resuscitation and emergent hemodialysis with reversal of EKG changes. Potassium and uric acid levels returned to normal. His creatinine was 3.5 upon discharge.

Discussion: This case emphasizes the association of Myelofibrosis with spontaneous tumor lysis syndrome and subsequent acute renal failure. Early recognition and appropriate management reversed the renal failure and our patient is dialysis independent. Literature search discovered only one case report of acute renal failure associated with spontaneous tumor lysis in a patient with Myelofibrosis.

Conclusion: Clinicians should consider tumor lysis as a potential cause for Acute Renal Failure, and that tumor lysis can occur spontaneously in Myelofibrosis.

ABSTRACT SUBMISSION
American College of Physicians, MA Chapter
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SURGICAL RESIDENT PERFORMANCE ON A VIRTUAL REALITY SIMULATOR CORRELATES WITH OPERATING ROOM PERFORMANCE
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Introduction: 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.

Methods: 7 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 Likert-scale 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). Mean 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 performance was found for time to task completion in 5 of 6 VR tasks. Results were most significant for a gallbladder dissection task (p = 0.0062, r2 = 0.4777). 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 evaluation will determine if concurrent performance improvement can be demonstrated.

ABSTRACT SUBMISSION
American College of Surgeons
October 2007, New Orleans LA
SUTURE SURVIVAL IN AN ACIDIC ENVIRONMENT: IMPLICATIONS FOR NATURAL ORIFICE TRANSGASTRIC ENDOLUMENAL SURGERY (NOTES)

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Background: Recent interest in transluminal approaches to conventional surgical procedures such as NOTES has reintroduced the question of what is the ideal suture material for visceral closure of gastrotomy site. 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).

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 days), 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. At the end of 12 weeks, there was no breakage of Prolene, Ethibond, Ticon, 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.

SWEET’S SYNDROME ON THE HANDS

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Introduction: Sweet’s syndrome is the prototype of acute febrile neutrophilic dermatoses that are characterized by erythematous plaques typically on the face and lower extremities, associated with fever and leukocytosis. It accompanies or precedes systemic illness most commonly hematological malignancies and bacterial infections in 50% of the cases.

Case Report: A 53-year-old female presented to the clinic with a two-week history of fever and sore throat associated with myalgias and dry cough. She was treated with Azithromycin for a presumed mycoplasma infection. She developed painful swellings on both palms nearly a week later, which led to hospital admission. Her past medical history was notable for diabetes mellitus, hypertension, migraine, depression and hypothyroidism. She has a history of “rash” in association with penicillin. She was febrile but in no apparent distress, systemic exam was normal and skin revealed erythematous tender “juicy” plaques on both palms and dorsum of the hands. Laboratory data revealed WBC count of 22 k/mm3, platelets 620 k/mm3, ESR of 114. Throat swab for Group A streptococci was negative. All workup for infectious etiology was negative.

Discussion: Sweet’s syndrome was suspected and skin biopsy revealed perivascular and interstitial inflammatory infiltrate composed predominantly of neutrophils. There was marked dermal edema and no evidence of vasculitis. This confirmed the clinical diagnoses of Sweet’s syndrome. She was started on cyclosporine with rapid resolution of all lesions. Sweet’s syndrome presenting with palmar lesions is extremely rare and we were not able to find a biopsy proven case of Sweet’s syndrome occurring on palms, on Medline literature search.

Conclusion: Sweet’s syndrome should be considered in the differential diagnosis in every case of fever, leukocytosis, and painful skin lesions so that early skin biopsy can be performed. This would lead to early diagnosis and appropriate therapy. Patient should be followed closely as Sweet’s syndrome may precede an underlying malignancy.
SYSTEMIC CAPILLARY LEAK SYNDROME – CLARKSON’S DISEASE

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Systemic capillary leak syndrome (SCLS) is a rare disorder characterized by recurrent spontaneous episodes of hypovolemic shock due to marked plasma shifts from the intravascular to the extravascular space. SCLS presents as a characteristic triad of hypotension, hemococoncentration and hypoalbuminemia often with an associated monoclonal gamopathy. Case: A 63 y/o male presented with one week of diarrhea followed by three days of nausea and vomiting. He was hypotensive and responded to an initial fluid challenge of three liters normal saline (NS). CT scan of the abdomen was unremarkable except for partial occlusion of both internal iliac veins and an unobstructed IVC filter. US venous dopplers showed complete occlusion of the femoral and popliteal veins bilaterally for which he was initiated on parenteral heparin. Labs revealed albumin of 2.9 g/dL and a hematocrit of 57. For recurrent hypotensive episodes he received an additional 9.5 liters of NS overnight. He developed worsening lower extremity edema, associated with loss of arterial pulses and distal sensation. Repeat biochemical markers were significant for elevated creatinine kinase, creatinine and BUN. All cultures remained negative and there was no evidence of an allergic component. He required emergent fasciectomy of the anterior and posterior muscle groups for compartment syndrome. The muscle tissue appeared viable, but he continued to have blood loss from the fasciectomy wounds. He developed oliguric renal failure warranting renal replacement therapy. Despite repeat fasciometies and explorative surgeries, he continued to bleed. He continued to have refractory shock and was not interested in having any further aggressive interventions or procedures. He was made comfort measures only and expired rapidly. SCLS or Clarkson’s disease is an exceptionally rare disorder with extremely high mortality (>60%) if not recognized. The pathophysiology remains unclear but increased Bax to Bcl-2 ratio in endothelial cells of patients with SCLS suggest an oxidative injury leading to acute cell apoptosis. 70% of plasma volume may extravasate into the peripheral tissues leading to compartment syndrome, rhabdomyolysis, acute renal failure and ultimately death. Physician awareness and recognition are a necessity to ensure rapid administration of life-saving therapy.

POSTER PRESENTATION
American College of Physicians, MA Chapter
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2nd Place Winner

TARGETING BACTERIOLYTIC THERAPY OF BREAST CANCER USING SALMONELLA TYPHIMURIUM

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Background: Attenuated Salmonella typhimurium, a motile, nonpathogenic facultative anaerobic bacterium, has been demonstrated experimentally as a novel anticancer agent because of its preferential growth within the hypoxic and nutrient-rich environments of tumors. In order to optimize its use in the clinical spectrum, we chose to examine the spatiotemporal dynamics of bacterial accumulation. We hypothesized that bacterial chemotaxis and accumulation is determined by both nutrient and oxygen gradients, and is thus a function of distance from intact vasculature and necrosis.

Materials and Methods: In a syngeneic subcutaneous murine cancer model, 4T1 mammary tumors were created in female Balb/C mice. Mice were systemically injected via tail vein with 100,000 cfu/g VNP20009 (Vion Pharmaceuticals, New Haven, CT) or phosphate-buffered saline. At predetermined time points ranging from three hours to six days, necropsies were performed. Tumors were then subjected to bacterial culture and various histologic techniques examining regions of bacterial accumulation (Brown-Hopps stain), perfused vasculature (Lycopericon esculentum lectin stain), necrosis (hematoxylin and eosin), and apoptosis (cleaved caspase-3 immunohistochemistry). Institutional animal care use committee approval was obtained prior to initiation of the study.

Results: During the study interval, no mice exhibited sepsis or required euthanasia as a consequence of the experimental treatments. Bacterial accumulation was 10,000-fold greater in tumors than liver (p < 0.05), with an exponential relationship of accumulation within tumors with time. Bacteria exhibited a doubling time of 7.6 hours (95% confidence interval, 6.7 – 8.9) in tumors and 11.2 hours (95% confidence interval, 8.4 – 16.6) in liver. Bacterial stratification occurred in regions bordering necrosis corresponding to regions with caspase-3 activation. With later time points, many tumors developed evidence of intratumoral abscesses suggesting neutrophil infiltration. Regional spatial heterogeneity of bacterial accumulation within tumors in relation to regions near vasculature, necrosis, and apoptosis was observed.

Conclusions: Modeling in vivo bacterial accumulation in the immune-competent host is complex due to the interplay of the bacteria against the tumor, the host against the tumor, and the host against the bacteria. VNP20009 do appear to favor dense colonies in regions bordering necrosis, with the possibility of an induction of apoptotic cell death. Regions of accumulation suggest localization within regions of quiescence, in a margin between necrosis and viable tumor. Capitalization of this favored microenvironment will enhance the therapeutic use of S. typhimurium as a tumor-specific vector.

PRESENTATION
The Society of Surgical Oncology
60th Annual Cancer Symposium
March 2007, Washington DC
ADRENAL TUBERCULOSIS

Adrenal tuberculosis is an infrequent cause of adrenocortical insufficiency in the United States. In this paper, we present the case of a 41 year-old Indian male vacationing in the United States, who presented with a two day history of vomiting and light-headedness. He had been vomiting at least six times a day and felt extremely thirsty. Review of systems was significant for anorexia and fatigue for a month and no recent cough. Physical examination revealed he was hypotensive and tachycardic, with a blood pressure of 86/63mmHg and heart rate of 120 beats per minute. He had dry mucus membranes and cool extremities. He was placed in pulmonary isolation and started on intravenous steroids and fluids. Initial laboratory tests showed a hematocrit of 53, sodium of 122mmol/L, potassium of 6mmol/l and creatinine of 1.8g/dl. A cosyntropin stimulation test showed an initial serum cortisol of 1.9 mcg/dl, with levels of 2 mcg/dl and 1.9 mcg/dl at 30 and 60 minutes respectively. He had a positive tuberculin skin test of 8mm. CT scan of chest and abdomen showed bilateral adrenal masses with the right adrenal mass containing specks of calcification and an 8mm non-calcified left upper lobe nodule with no hilar lymphadenopathy. HIV, CMV and fungal serologies were negative.

Empiric treatment for tuberculosis was commenced and bronchoalveolar lavage was performed to obtain samples for acid fast bacilli and culture. His symptoms resolved within 48 hours, and he was discharged on oral steroids and anti tuberculosis therapy, with follow up at the tuberculosis clinic. Culture grew Mycobacterium tuberculosis 4 weeks later. Unfortunately, despite multiple visits to the address provided, this patient was lost to follow up.

Adrenal involvement is most often the result of hematogenous spread of pulmonary tuberculosis. Most cases occur 10-15 years after the initial infection. Bilateral adrenal calcification is the most common radiologic finding but the absence of enlarged or calcified adrenal glands does not rule out tuberculosis as the cause of adrenal failure. The world has become much smaller as international travel has become more affordable and commonplace. Hence, physicians must think globally as diseases and presentations usually rare in the United States make international borders blur.

ABSTRACT SUBMISSION
American College Of Physicians, MA Chapter
December 2006, Waltham MA

POSTER PRESENTATION
Society of Hospital Medicine
May 2007, Dallas TX

TOLOSA-HUNT SYNDROME: A RARE ENTITY

Background: Tolosa-Hunt syndrome (THS) is a painful ophthalmoplegia caused by nonspecific inflammation of the cavernous sinus or superior orbital fissure. Primarily being a diagnosis of exclusion, recognizing it as a clinical entity in a patient is indeed a challenge.

Case Report: 34 year old male with history of right sided headaches for 3 months presented with an 8 day history of a severe right sided headache originating in the right occiput with radiation through the right eye, piercing in quality, 10/10 in intensity. This was associated with a 4 day history of right facial droop, right sided tongue paresthesia with loss of taste and photophobia. Patient then further developed redness, periorbital edema and ptosis of the right eye along with extreme intra-aural pain and blurred vision. Movement of the right eye was limited on lateral gaze. CT scan reported only mild right sided preseptal soft tissue swelling. The MRI report was normal, except for a trace enhancement of the right seventh cranial nerve. Further MRA studies of the brain and CSF analysis were inconclusive. Other investigations included routine labs, Lyme serology, HIV PCR, spinal fluid culture, Herpes Simplex and Varicella PCR, all of which were negative. During the hospital course, the patient was seen by different sub-specialties and a varied array of differential diagnoses was drawn up including viral etiologies. Even though a consensus on the true nature of the patient’s disease was yet to be drawn, treatment was empirically initiated with high dose analgesia, corticosteroids and anti-virals. The patient’s condition improved over the following days and was discharged from the hospital within 4 days of his admission with a continuation of a prednisone taper and analgesics as his home medications.

Discussion: This case shows how challenging it can be for physicians to arrive at one single diagnosis for a disease whose symptoms could so easily be identified with different clinical entities and syndromes, especially when there is no definitive confirmatory test. Using prudent clinical judgment, a diagnosis of exclusion can be made after reasonable lab and clinical investigations have ruled out other causes.

Conclusion: THS, though it may remain the final diagnostic possibility in cases such as these, should not be overlooked, especially as it responds promptly and successfully to treatment.

POSTER PRESENTATION
American College of Physicians, MA Chapter
December 2006, Waltham MA
TRANSITION AND STATIC MEASURES OF DYSPNEA USING ORDINAL AND VISUAL ANALOG SCALES IN PATIENTS WITH ACUTE DECOMPENSATED HEART FAILURE

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Introduction: Dyspnea is a frequently used outcome measure in trials involving patients with acute decompensated heart failure (ADHF). The validity of transition and static measures for assessing dyspnea in this population have not been previously studied. Change in dyspnea severity can be measured as the difference of two static measures (How was your dyspnea now?) obtained at baseline and after a fixed time, or as a single transition measure (How has your dyspnea changed?).

Objectives: To determine the relationship between these two methods for assessing change in dyspnea using both ordinal and visual analog scales. METHODS: This was a prospective observational study of all ADHF patients presenting with dyspnea to the ED of a tertiary referral center with a mixed urban/suburban catchment area. Patients were enrolled from 8 AM to midnight on weekdays from June through December 2006. Patients measured their static dyspnea using 10-point ordinal (ORD) and 10-cm visual analog scales (VAS) at baseline (PRE) and at 1 and 4 hours (POST). Transition (TRANS) dyspnea was measured using ORD and VAS at 1 and 4 hours. The data were analyzed using a modification of the methods described by Guyatt (J Clin Epidemiol 2002;55,900-8). A sample size of 68 patients was calculated.

Results: Ninety-nine of 258 screened patients were enrolled. Data on 71 patients were analyzed. The correlations between TRANS and PRE, TRANS and POST, as well as TRANS and PRE-POST for 1-hour V AS data were: 0.26, -0.20, and 0.47. For 4-hour V AS data: 0.35, -0.11, 0.38. For 1-hour ORD data: 0.15, -0.05, and 0.21. For 4-hour ORD data: 0.19, -0.05, and 0.15. Regression methods with TRANS as the dependent variable and PRE and POST as independent variables yielded p-values <0.05 for both PRE and POST (VAS data) but not for PRE and POST (ORD data).

Conclusion: Our results support the use of transition and static measures of dyspnea using VAS in research involving ED patients with ADHF. The use of ORD remains unclear.

POSTER PRESENTATION
Society of Academic Emergency Medicine
April 2007, Shrewsbury MA

TRUE INCIDENCE OF CBD STONES AT ERCP AFTER REFERRAL FOR “CBD STONE ON ULTRASOUND”

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Introduction: 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 >= 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 <= 10 mm had CBD stones (p=0.030). Two patients had a bile duct diameter of < 6mm, 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 <= 10 mm predicts a lower likelihood that stones will be found at ERCP (65%).

POSTER PRESENTATION
American Society for Gastrointestinal Endoscopy – Digestive Disease Week
May 2007, Washington DC
We present a case of a morbidly obese male with intractable uric acid nephrolithiasis due to hyperuricosuria refractory to treatment. Pyrazinamide, at standard dose, affectively decreased his uric acid stone frequency but was later overwhelmed by his obesity. We now report resolution of uric acid stones by gastric bypass surgery which is highlighted by obesity related nephrolithiasis.

Our patient exhibited excessive uricosuria that overwhelmed the kidneys’ ability to reabsorb effectively. In normal circumstances, uric acid is extensively reabsorbed in the early proximal tubule. Post-secretory reabsorption also occurs in the distal segment of the proximal tubule. Until recently, it had been surmised that pyrazinamide primarily blocked the secretion of urate after early proximal tubule reabsorption. It is now known that pyrazinamide’s anti-uricosuric actions are, in fact, due to a URAT 1 exchanger in which pyrazinamide acts as an active substrate that fuels the absorption of luminal urate. Similar to pyrazinamide, salicylates have also been shown to have a duel effect on urate handling. Small doses of salicylate produce uric acid retention whereas large doses produce uricosuria. As the use of thiazide diuretics, allopurinol, B6, and potassium citrate failed to reduce uric acid stone burden in our patient, we instituted a novel therapy of pyrazinamide plus low dose aspirin in an attempt to improve the reabsorption of tubular urate. Over time, our patient’s uric acid stone frequency had almost completely resolved. This is the first report that pyrazinamide can lead to a long term decrease in uric acid stone formation resulting in resolution.

Unfortunately our patient had not complied to dietary measures and, despite an improvement in stone frequency, his weight continued to increase. He soon overwhelmed our treatment to effectively enhance reabsorption of tubular urate by producing a hyperfilterable state that increased urinary stone frequency. As seen in table 1, the patient’s dramatic increase in glomerular filtration rate in conjunction with nephrotic range proteinuria overwhelmed the kidney’s ability to reabsorb the filtered and secreted urate. It is this hyperfilterable state that has been well documented in association with obesity and may contribute to focal segmental glomerulosclerosis (FSGS). Although no biopsy was obtained, the pathology is quite evident, as was shown by Neeraja et al. in 2001, in which the first large renal biopsy-based clinicopathologic study on obesity-related glomerulopathy was performed that showed a FSGS distinct from idiopathic FSGS. At this point, medical management of any kind was futile in the face of massive proteinuria and hyperfiltration, and surgical intervention was needed. After gastric bypass, our patient lost a total of one hundred fifty-five pounds (BMI of ---- to ----) with normalization of GFR and complete resolution of his nephrolithiasis. It is known that obesity-related hyperfiltration ameliorates after weight loss and that moderate weight loss in overweight patients with chronic proteinuric nephropathies induces a significant decrease in proteinuria. This improvement in hyperfiltration prevented the development of overt obesity-related glomerulopathy, and subsequently, the development of uric acid stones. There have been several case summaries of reversible renal failure following intestinal bypass, but none regarding gastric bypass. In fact, the majority of cases pertaining to kidney function and intestinal bypass resulted in deleterious effects.

In conclusion, it was shown by our patient that pyrazinamide can lead to a long term decrease in uric acid stone formation. We have also evidenced the effects of overwhelming anti-uricosuric treatment with morbid obesity, which unfortunately, resulted in increased uric acid stones in our patient. Our case was highlighted by the resolution of uric acid stones by gastric bypass surgery which has never been reported.
USEFULNESS OF SERUM CREATININE FOR DETECTING RENAL INSUFFICIENCY IN ELDERLY OUTPATIENTS

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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. 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 391 patients with sufficient information to compute creatinine clearance, 192 (49%) had a GFR < 60. The sensitivity of an elevated serum creatinine was only 60%. Providers failed to identify renal insufficiency in 71% of cases. Of those with GFR<60, 89% had hypertension, 46% had diabetes, and 20% had congestive heart failure. While 68% received an ACE inhibitor (ACE) or angiotensin receptor blocker (ARB), 80% received a potentially inappropriate medication, the most common being oral hypoglycemics (37%) and non-steroidal anti-inflammatory drugs (NSAID) (25%). Compared to patients without recognized CRI, patients with diagnosed CRI were slightly less likely to receive an NSAID (19% vs. 28%, p=0.02) and more likely to receive an ACE or ARB (85% vs. 62%, p=0.0025).

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.

POSTER PRESENTATION
American Geriatrics Society Annual Scientific Meeting
May 2007, Seattle WA

VANCOMYCIN INDUCED THROMBOCYTOPENIA AND NEUTROPENIA

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Background: Vancomycin is frequently used because of the increasing prevalence of resistant gram-positive bacterial infections, including MRSA. We describe here a patient with an unusual sequence of events following vancomycin administration.

Case Report: A 38 year old woman was admitted with fever, diarrhoea and myalgias for 1 day. Her past medical conditions included HIV (CD4 count = 106/mm3), drug abuse, bipolar disorder, anxiety, migraine, left basilar vein thrombosis, schwannoma and bacterial pneumonia. Medications: quetiapine, warfarin, gabapentin, trileptal and paroxetine. She was allergic to penicillin. Physical examination was significant for temperature of 100.2F. Labs: platelet count 295 k/mm3(150-460), white cell count (WCC) 7.5 k/mm3(4-11), neutrophils%: 68 (44-76). Blood cultures were negative. She received vancomycin and the following morning she developed a diffuse petechial red rash over her entire body not consistent with Red Man Syndrome. Subsequent Lab values: platelet count: 6, WCC: 2.4, neutrophils: 64% (lowest 28.4% after 3 days). Vancomycin and warfarin were stopped. Daptomycin was commenced. Once vancomycin was stopped, she rapidly recovered both clinically and hematologically, Platelets returned to normal (188) after 5 days followed by WCC. Bone marrow biopsy showed normal cellularity with trilineage. Subsequently, the patient received antiretroviral treatment in the outpatient clinic with a good response.

Discussion: The deterioration and recovery of the hematological parameters immediately after stopping vancomycin strongly suggest this was the offending cause. Because of the dangerously low and quick decrease in the platelet count, we did not re-challenge this patient. Thrombocytopenia was postulated due either to a direct toxic effect or an immunologically mediated mechanism. The latter was most likely in this case as the patient had received vancomycin a few weeks earlier. In addition, there was no diminution of megakaryocytes. The cases reported in literature developed either thrombocytopenia or neutropenia days after receiving vancomycin. This is the first case reporting a dramatic deterioration in neutrophil count along with thrombocytopenia in a patient who has received vancomycin with no ill effects in the past.

Conclusion: 1) Physicians should be aware of the potentially critical thrombocytopenia and neutropenia as an adverse effect of vancomycin that can manifest within a day of starting this antibiotic. 2) Vancomycin may not manifest these adverse effects on first usage.

ABSTRACT SUBMISSION
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VARIABLE TROPONIN T AND CK MB LEAK AND ECG CHANGES IN RHABDOMYOLYSIS WITHOUT CHEST TRAUMA

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Background: Troponin T has a specific amino acid structure and is measured to assess myocardial damage. CK and CKMB are also present in the myocardium. Literature on Troponin and ECG changes in patients with Rhabdomyolysis who did not have chest trauma is scant. While elevated CK is a consequence of muscle damage and rhabdomyolysis is a direct cause of this leading to acute renal failure, its detrimental effects if any on other organs is little studied. We collected a series with variable changes in muscle enzymes and ECGs and present one of them.

Case Report: A 30 year-old man presented with decreased responsiveness and cold and clammy extremities. His past medical history included hypertension and depression. Medications on admission were lisinopril, verapamil, amitriptyline and risperidone. He denied toxic ingestion. He became acidotic needing endotracheal intubation. Because of his high potassium and renal failure he was dialyzed. Labs: amitriptyline 109 ng/ml - therapeutic, cocaine negative, potassium 6.9, BUN: 59, Creatinine 7.2 CK (peak) 74,120, CKMb (peak) 321, initial Troponin T 0.69 peaking at 2.6. ECG showed multifocal atrial tachycardia, RBBB with a bizarre QRS and ST elevation in V1-V3, III and aVF and a prolonged QTc of 520. The abnormal ECG persisted for 48 hours despite normalization of the potassium level. Echocardiography showed normal LV function and normal regional wall motion.

Discussion: CK and CK MB fractions are high in asymptomatic runners. Boston Marathon runners are known to have transient systolic but persistent diastolic dysfunction.(European Heart J 2006:27:1079-84). It was traditionally believed that acute polymyositis does not cause myocardial damage, but now it is increasingly recognized that it can cause myocardial damage and also small vessel disease. While the ECG changes could have also been contributed by the metabolic disturbance, in the case discussed, subsequent ECGs continued to be abnormal for 48 hours despite normalization of the potassium level with dialysis. The acute ECG changes eventually reverted to normal with treatment.

Conclusions: We are not aware of data on either permanent or transient detrimental effects of elevated CK on the myocardium or conduction system. We present a series of cases with cardiac enzyme and ECG changes in rhabdomyolysis.

POSTER PRESENTATION

American College of Physicians, MA Chapter

December 2006, Waltham MA