7th Annual Research Week

Celebrating the Research of Our Residents and Fellows

Hosted by the Office of Graduate Medical Education of the Division of Academic Affairs

Baystate Medical Center

The Western Campus of Tufts University School of Medicine
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.

The 7th Annual Research Week will be held Tuesday, May 23, 2006 through Thursday, May 25, 2006. The collection of work accomplished by our residents and fellows will be 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.

**Reception**

**TUESDAY, MAY 23, 2006**

Chestnut Conference Center, Room 1A & B
12:00 - 1:30 p.m.

12:00 pm: **Welcome - Hal B. Jenson, M.D.**
Chief Academic Officer
Division of Academic Affairs
Baystate Medical Center

12:15 pm: **Keynote Speaker - Michelle Khoo, M.D.**
Assistant Professor of Medicine
Vanderbilt Medical Center

**Research Week Exhibit**

Chestnut Conference Center
Chestnut Lobby, Chestnut 1A & B
and Health Sciences Library

**Tuesday, May 23, 2006 - Thursday, May 25, 2006**

7:00 a.m. to 7:00 p.m.
Dr. Michelle Khoo received her medical degree from Trinity College, University of Dublin in Dublin, Ireland. She completed her Internal Medicine Residency in 2000 at Baystate Medical Center in Springfield, MA. Dr. Khoo continued her training as a Cardiology fellow at Vanderbilt Medical Center in Nashville, TN. From 2003 to 2004, she served as chief fellow in the Division of Cardiovascular Medicine.

Dr. Khoo joined the Vanderbilt faculty as an assistant professor of Medicine in the Division of Cardiovascular Medicine in 2005. She also serves as chair for the Cardiopulmonary Resuscitation Committee and the Acute Coronary Syndrome Committee for the VA Medical Center in Nashville, TN.

Dr. Khoo's work focuses on understanding the pathophysiological mechanisms underlying heart failure and sudden death. On May 18, 2006, Dr. Khoo was awarded the Outstanding Publication Award for Young Electrophysiologists (Experimental Research) by the Heart Rhythm Society for "Calmodulin kinase II activity is required for normal atrioventricular nodal conduction."
COST-BENEFIT ANALYSIS FOR PATHOLOGIC EXAMINATION OF REDUCTION MAMMOPLASTY SPECIMENS

Brian Olack, M.D., Richard Martin, M.D., Michael Tirabassi, M.D., Kristin Stueber, M.D.

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

Background: Reduction mammoplasty has a number of indications, including relieving back pain, improving the cosmetic appearance of the breast, and providing symmetry after excision of a contralateral malignancy. Reduction mammoplasty is not indicated for resection of malignant or premalignant lesions of the breast. Despite this, the excised breast tissue is routinely sent for pathologic examination. Titley et. al. in 1996 reported a case series of 157 women undergoing reduction mammoplasties. Pathologic examination of all specimens failed to identify any malignant or premalignant changes. This raises into question the value and cost benefit of submitting breast reduction specimens to pathology. Our study seeks to determine the incidence of premalignant changes in the pathology of women undergoing reduction mammoplasty at our institution, as well as to determine the cost-effectiveness of pathologic examination of specimens from reduction mammoplasty. Specifically, the study examines whether it would be more cost-effective to only submit the specimens from women age 40 or above, as that is the age at which routine screening mammography is recommended.

Methods: A retrospective chart review was performed on 300 women who underwent bilateral reduction mammoplasty at a tertiary care center between 1991 and 1999. Any patient with a previous history of breast cancer was excluded. The inferior pedicle technique was used for all patients, with a total of four surgeons performing the operations. The specimens were sent to pathology in formalin, and were then cut in 1 cm intervals for gross inspection. If no gross abnormalities were seen, three sections from each breast were sent for histologic examination. If gross abnormalities were present, then more cuts from the specific area were obtained.

Results: In this study, 36 of the 300 patients (12%) had abnormal pathology reports which indicated either a premalignant lesion, or a lesion which puts the patient at increased risk of developing breast cancer. Seventy-two percent (26/36) were low-risk lesions. These included apocrine changes, duct ectasia, moderate or florid hyperplasia, sclerosing adenosis, or papilloma. Three percent of all patients in the study (10/300) had lesions which were moderate or high risk, and would put them at significantly higher risk than the general population for developing breast cancer. The average age

<table>
<thead>
<tr>
<th>Pathologic Finding</th>
<th>Patients</th>
<th>Increased Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>26</td>
<td>&lt; 2 times</td>
</tr>
<tr>
<td>Atypical Ductal Hyperplasia</td>
<td>5</td>
<td>4-5 times</td>
</tr>
<tr>
<td>Atypical Lobular Hyperplasia</td>
<td>3</td>
<td>4-5 times</td>
</tr>
<tr>
<td>LCIS</td>
<td>2</td>
<td>8-10 times</td>
</tr>
<tr>
<td>DCIS</td>
<td>0</td>
<td>8-10 times</td>
</tr>
</tbody>
</table>

(continued on next page)
of patients with benign pathology was 32.6 years old (range 14 to 67), and the average age of patients with abnormal pathology was 42.5 years old (range 16 to 73). The cost of pathologic examination of one breast specimen at our facility is $190.86 ($381.72 for a bilateral reduction mammoplasty), resulting in a total cost of $229,032 for all 300 patients. The cost to identify a patient with a moderate to high risk lesion was $22,903. If pathologic examination was restricted to women 40 years or older (86 patients), the total cost would have been reduced to $32,828, with a total savings of $196,204. In this study of 300 patients, 10 had moderate to high risk pathology. Of these 10 patients, 2 were less than 40 years old. These 2 patients showed LCIS and atypical ductal hyperplasia on their pathology reports.

Conclusions: Limiting pathologic examination of reduction mammoplasty specimens to women older than 40 years would fail to identify 20% of moderate to high risk pathology. Despite the potential cost savings, this is not an acceptable risk.
SEGMENTAL BILATERAL RENAL ARTERY THROMBOSIS WITH RETAINED RENAL FUNCTION

Anunta Virapongse, M.D., Jeffrey Mulhern, M.D.
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Bilateral renal artery occlusion is a rare complication following blunt abdominal trauma, with fewer than 20 cases documented as of 1997. This injury can lead to hypertension, renal failure requiring dialysis, and death. In this case of segmental renal artery thrombosis, sequela of hypertension requiring three-drug therapy developed in the presence of preserved renal function.

A 59-year-old woman with a history of mild hypertension on single drug therapy was found unresponsive after involvement in an unrestrained motor vehicle accident requiring prolonged extrication. Upon arrival to the emergency room, she was intubated, underwent emergent chest tube placement for flail chest, and resuscitated with fluids and blood products for hypovolemic shock. Radiography showed multiple fractures, liver lacerations, pulmonary contusions, shock bowel. On hospital day 1, acute renal failure and hypertension developed with systolic pressures as high as 180 mmHg systolic. Subsequent work up revealed persistent microhematuria and bilateral anterior renal devascularization with bilateral superior branch renal artery occlusion on reconstructed CT angiogram images from admission. Due to prompt improvement in renal function and the delay in identifying the renal vascular compromise, renal revascularization was not contemplated. At time of discharge, the patient’s creatinine was 0.7 mg/dl, however hypertension persisted despite treatment with metoprolol, clonidine and lisinopril. At 3 month post-discharge, the patient’s creatinine was 0.9 mg/dl, but blood pressures continued to be elevated on a regimen of nifedipine, lisinopril, and HCTZ.

This case is an example of traumatic bilateral segmental renal artery thrombosis causing poorly controlled hypertension. While renal failure may be transitory, obviating need for acute revascularization, all patients with renal artery occlusion must be monitored carefully for development of worsening hypertension. Further, the development of renal artery thrombosis from sudden deceleration injury to the vascular tree must be considered in trauma patients who develop acute renal failure, hypertension or hematuria.
PERCENTAGE HEMATOGONES BY FLOW CYTOMETRIC ANALYSIS IS LOWER IN PATIENTS WITH MYELODYSPLASTIC SYNDROME THAN IN CYTOPENIC PATIENTS WITHOUT MYELODYSPLASTIC SYNDROME

Raavi Gupta, M.D., Robert Hasserjian, M.D., William Rezuke, M.D., J. DiGiuseppe, M.D., John Hunt, M.D.

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

Introduction: Myelodysplastic syndromes (MDS) comprise a group of clonal disorders characterized by ineffective hematopoiesis which are traditionally defined by peripheral blood cytopenias and dyspoiesis involving myeloid, erythroid, and/or megakaryocytic cell lines. Diagnostic morphologic abnormalities are somewhat subjective, and may also be caused by medications, toxins or infections. Recently, increased apoptosis among B-cell precursors (hematogones, (HG)) has been reported in the bone marrow (BM) of patients with MDS. In the current study, we sought to determine if this increased HG apoptosis is manifested by a difference in HG percentage between MDS patients and patients with cytopenias due to other causes.

Design: Pathology databases from two institutions were searched for adult patients in whom myelodysplasia was a clinical consideration and whose BM samples were evaluated by flow cytometry. The HG percentage (as a fraction of nucleated BM cells) was determined using 4-color flow cytometric immunophenotyping and was compared between groups of patients with and without diagnostic features of MDS (as determined on the basis of clinical information, follow-up, morphology, and, when available, cytogenetics). Patients with indeterminate or equivocal findings were excluded. Because of differences in preparation and analysis, patient cohorts from each institution were analyzed separately.

Results: The BM HG percentage was significantly lower in patients with MDS compared with those without MDS for both cohorts of patients (p<0.00001 for institution 1, p=0.0001 for institution 2).

Conclusions: 1. In the patient cohorts at both institutions, the BM HG percentage in patients with MDS was lower than that in patients with cytopenias but without diagnostic features of MDS. 2. Because of overlap in the percentages of HG between these two groups of patients, this parameter alone cannot be used to establish a diagnosis of MDS. 3. However, in conjunction with morphologic, clinical and cytogenetic features, the HG percentage may be a useful ancillary parameter in distinguishing patients with MDS from those with other causes of cytopenias.
BEING CANDID ABOUT CANDIDEMIA FUNGAL ENDOCARDITIS AS A COMPLICATION OF TREATMENT FOR BACTERIAL ENDOCARDITIS

Gabrielle Graham, M.D., Xiao J. Liu, M.D.

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

This patient was a 32-year-old woman with an established history of IV drug abuse which resulted in recurrent endocarditis of the mitral valve and mitral valve replacement, also complicated by Hepatitis B and C and HIV. She presented with fevers, nausea, vomiting, HA, altered mentation, hypersonomolence to the ED. On evaluation she was hypotensive, nonverbal and displayed urinary and bowel incontinence, she was also found to have scattered petechial lesions throughout her body, which worsened visibly while in the ED. A subsequent work up revealed Methicillin Sensitive Staph. Aureus bacteremia (also found in CSF studies) with multiple CNS and extremity emboli. After being intubated in the ED, she was admitted to the MICU with respiratory failure, began treatment for sepsis (involving severe DIC) and remained in the MICU for 2 weeks until her acute episode resolved. She improved enough for transfer to the general medical floors and was maintained on IV Oxacillin for 6 weeks to treat bacterial endocarditis. The extensive soft tissue necrosis seen on admission progressed to involve her face and bilateral upper and lower extremities and she developed ischemic pain that required aggressive analgesia. Despite this, she continued to improve and was discharged for physical rehabilitation in good condition after a 2 month hospital stay. She remained very motivated and was had a positive outlook for recovery and return to her husband and young children. Three day post discharge she was found unresponsive by the rehab staff and was returned to the ED in florid sepsis. It was discovered at that time that there were 2 recent positive blood cultures despite (drawn on the day of discharge) for Candida, the results of which were inadvertently routed to the rehab facility. Once again, she was transferred to the MICU but had by then suffered severe myocardial insult (CK 4,555 and MB fraction 560). She died within 12 hours of her return to the hospital; the cause of death was fungal endocarditis.

Candida endocarditis is a direct consequence of candidemia. The most at risk population includes patients with prosthetic heart valves, those with indwelling central venous catheters, history of IVDA, persistent (prolonged) fungemia, immunocompromise (HIV, diabetes mellitus, malignancy, neutropenia, neonates), prolonged antibiotic exposure and valvular disease. Clinically, candida endocarditis is almost identical to bacterial endocarditis, with fevers, dyspnea heart murmurs (new or changes in chronic murmurs), heart failure. Gold standard of therapy is surgery however for patients who cannot undergo surgical resection of the affected valve, medical treatment options include amphotericin B formulation combined with flucytosine followed by life-long suppression with oral fluconazole (400 mg daily) is recommended by the IDSA guidelines. Long-term fluconazole therapy is recommended even when surgical resection has been performed because of the high relapse rate and need for repeated surgical intervention especially with patients that have prosthetic heart valve endocarditis. The patient above had a classic combination of factors for fungal endocarditis. Her demise was a result of an unfortunate break in the continuity of care but should however represent a valid teaching point.

POSTER PRESENTATION

American College of Physicians, MA Chapter, 2005
ACUTE ONSET OF CYANOSIS AND HYPOXIA IN A YOUNG HEALTHY HOSPITALIZED FEMALE

Kenneth Barnes, M.D.

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

Methemoglobinemia is a life-threatening condition characterized by the inability of hemoglobin to carry oxygen because the ferrous component of the heme molecule has been oxidized to a ferric state. The most common form, acquired methemoglobinemia, is caused by medications or chemicals that cause the rate of methemoglobin formation to exceed the rate of elimination. Common inciting agents include: nitrites, aniline, dapsone, phenazopyridine and topical anesthetics such as lidocaine and benzocaine.

An adolescent female was admitted for evaluation of fever, a productive cough and right lower quadrant abdominal pain. She denied an appreciable past medical history, medication use, and had no reported allergies or drug sensitivities. A clinical diagnosis of acute appendicitis was made and confirmed with radiographic imaging. She was taken to the operating room for a laparoscopic appendectomy where a gangrenous and suppurative appendix with a fecolith was removed. Post-operatively, she was placed on IV antibiotics, morphine and an NG tube was placed for slowly resolving abdominal distention with tenderness, nausea, vomiting and continued fever. On POD#2, her abdominal exam was improving, however she continued to have a productive cough and a severe sore throat. The patient was prescribed Benzocaine Spray for symptomatic relief which was left at the bedside allowing for self-medication.

Several hours later, she was noted to have steadily decreasing O2 saturations, despite normal blood pressure, heart rate, and respiratory mechanics. Clinically her skin was gray with the development of progressive deep circumoral cyanosis. Auscultation revealed bilateral breath sounds without wheeze, rhonchi or rales. Her saturations continued to decrease despite the use of 100% supplemental oxygen and a stat CXR revealed no abnormalities. She was able to follow simple commands; however her neurological status began to deteriorate. She was emergently transferred to the ICU and intubated. A stat ABG was obtained revealing chocolate-brown colored blood and the following results: 7.51/36/521/30. A methemoglobin level returned a value of 51% (normal < 1-2%). She received 100 mg of IV methylene blue and the methemoglobin levels rapidly resolved with subsequent extubation. The remainder of her hospitalization was uneventful.

Although rare, this case illustrates that acquired methemoglobinemia can be life-threatening and it should be considered in patients with cyanosis and hypoxia that is refractory to oxygen administration, particularly after administration of topical anesthetics.
THE CLINICAL UTILITY OF FETAL FIBRONECTIN TESTING IN TWIN GESTATIONS TO PREDICT PRETERM BIRTH

Emily Singer, M.D., Glenn Markenson, M.D., Fadi Bsat, M.D., Alison Lee, B.A.

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

Objective: To investigate the value of fetal fibronectin testing in twin gestations with symptoms of preterm labor, compared to its use in symptomatic singleton pregnancies.

Methods: This study consisted of a retrospective chart review from January 1, 2000 through June 30, 2004. All patients with twin gestations who presented with complaints of preterm labor, and had fetal fibronectin testing were reviewed. Also all singleton gestations that presented for evaluation of preterm labor and had fFN testing between Jan 1, 2000 and Dec 31, 2001 were reviewed. Only those patients with intact membranes, a cervical dilation less than 3cm, and a gestational age between 24.0 and 34.9 weeks at the time of testing were included. Deliveries induced for medical reasons such as preeclampsia or non reassuring fetal testing were excluded. Only the first test was included if a patient had fFN testing done more than once during the pregnancy. All samples were processed using the TLi system at Baystate Medical Center. The sensitivity, specificity, positive predictive value, and negative predictive value of fFN testing in singleton and twin gestations to predict delivery with 14 days of testing were calculated.

Results: A total of 433 singletons and 91 sets of twins met the inclusion criteria. Of the 28 sets of twins who tested positive for fFN, 21%(6) delivered in 14 days or less. The sensitivity and specificity for fFN testing in this population are respectively 75% and 74%. The positive predictive value was calculated to be 21% with a negative predictive value of 97%. A comparison with the singleton data is reviewed in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Sens (%)</th>
<th>Spec (%)</th>
<th>PPV (%)</th>
<th>NPV (%)</th>
<th>LR+</th>
<th>LR-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singletons</td>
<td>67</td>
<td>90</td>
<td>19</td>
<td>99</td>
<td>6.7</td>
<td>0.36</td>
</tr>
<tr>
<td>Twins</td>
<td>75</td>
<td>74</td>
<td>21</td>
<td>97</td>
<td>2.8</td>
<td>0.34</td>
</tr>
</tbody>
</table>

Delivered < 14 days From Testing

Conclusions: In twin gestations, fFN testing has similar negative predictive value as compared to singletons. The data suggests that in twins, fFN testing is as clinically useful for the evaluation preterm of labor as in singletons.
ACUTE MOTOR AXONAL NEUROPATHY—
A CURIOUS VARIANT OF GUILLAIN-BARRE
SYNDROME (GBS)
Mustapha Karanouh, M.D., Carmel Armon, M.D.
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

GBS is a well-known immune-mediated, acute demyelinating polyneuropathy. We recently encountered one of its lesser-known variants, Acute Motor Axonal Neuropathy (AMAN), in which motor axonal pathology predominates.

A 67-year old male with hypertension, hyperlipidemia, and right eye melanoma s/p radiation, developed over 5 days rapidly progressive paraesthesias and weakness. First, he reported tingling in his fingers then toes. The symptoms then developed into a weakness in his proximal>distal muscles, upper >lower extremities. He was unable to raise his arms above his head, and his gait became waddling; however, he did not have any breathing problems. He had completed 10 days’ treatment with antibiotics for upper respiratory tract infection symptoms in the form of cough with greenish phlegm. On admission, he had proximal muscle weakness in both upper and lower extremities, loss of tendon reflexes in upper extremities, and reduced ankle reflexes. The sensory exam and cranially innervated muscle strength were normal. CSF protein was 75 mg/dl with 2 WBC/mm3. CSF culture was negative. The EMG showed low or absent compound muscle action potential amplitudes in some upper extremity muscles, worse proximal, with normal conduction velocities and with F-wave latencies at the upper limit of normal or prolonged. Sensory studies were normal. The needle exam showed minimally increased insertional activity in some muscles, and reduced numbers of motor unit potentials firing, rarely large, polyphasic or with increased turns, in proximal>distal lower and upper extremity muscles. This was consistent with AMAN. CT of head, CXR, MRI of cervical spine, and serial levels of lead, mercury, and arsenic were all within normal. Lyme antibodies and urine porphyrins were negative.

The patient received IVIG and improved rapidly, initially in his distal muscles, especially in the lower extremities, then the proximal muscles. After 7 days, he was able to feed himself and walk to the bathroom with minimal assistance, and was then discharged to an acute rehabilitation center.

This case introduces us to a lesser-known variant of GBS. We should consider an immune-mediated mechanism in an acute onset axonal neuropathy, exclude alternative etiologies, and institute appropriate immune-modulating treatment.
CHLAMYDIA TRACHOMATIS AND TRACHOMA:  
PROTECTIVE AND DISEASE-ASSOCIATED HLA DRB1/DQB1 ALLOTYPES OF TANZANIAN VILLAGERS  

L. D. Bobo, M.D., Ph.D., M. Abbas, B.S., N. Berka, Ph.D.,  
G. Dunston, Ph.D., G. Bonney, Ph.D., V. Apprey, Ph.D., H. Mkocha, B.S.,  
Y-H. Hsieh, Ph.D., T.C. Quinn, M.D., S. West, Ph.D.  

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

Trachoma, caused by Chlamydia trachomatis, is the leading preventable cause of blindness in endemic nations. Of 700 million people, 29% are infected, with a projected 15 million blind by 2010. Prior studies indicate that some people clear infection with minimal disease, whereas others remain infected and develop severe disease, despite having similar epidemiologic characteristics. In keeping with the WHO initiative, “Get 2020”, we sought to identify protective HLA DR/DQ allotypes for prediction of T-cell epitopes suitable as vaccine candidates.

Two groups of subjects were included. The first (n=67), contained 15 children with documented infection at 3 time points and active disease, i.e., severe follicular inflammation (TIF), and 42 of their siblings and parents, negative for chlamydia and disease. The second group contained 159 women from 7 villages: 13.2% with trichiasis (TT), the severe sequelae to blindness, and 13% with chlamydia infection. Chlamydia negative/follicular trachoma (TF) (n=33) was defined as resolution of infection and active disease, with minimal residual disease. WHO simplified clinical grading score for trachoma severity classification was used. Chlamydia DNA from conjunctiva was amplified by PCR-EIA. Human DNA was purified from buccal mucosa by Qiagen method, and a 300 bp HLA-DNA fragment was amplified and multiplex-probed at low resolution with Luminex SSO bead technology. Single allele associations are presented. Co-associations of multiple HLA alleles with infection and disease variables are ongoing. Subject consent and research protocols were according to Johns Hopkins IRB guidelines. Odds ratio (95% CI), p<0.05 was considered significant.

DRB1*09 association with chlamydia+/TIF+ or TT+, vs. chlamydia-/disease- was p=0.03, OR 4.25 (95%:1.16-15.45), and p=0.026, OR 14.13 (1.7-101), respectively. DQB1*05 association with chlamydia+/TIF+ vs. chlamydia -/TIF+ was p=0.04, OR 0.12(0.01-0.14).

Preliminary data suggest that DRB1*09 is associated with severe disease and infection, while DQB1*05 is associated with resolution of infection accompanied by less severe residual disease.
PROSTAGLANDIN E2 LEVELS IN HUMAN CEREBROSPINAL FLUID FOLLOWING VALDECOXIB ADMINISTRATION

Jordan L. Blinder, M.D., Jordan G. Kupinger, M.D., Scott S. Reuben, M.D.

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

Introduction: Nonsteroidal anti-inflammatory drugs (NSAIDs) mediate nociception through inhibition of cyclooxygenase-2 (COX-2) at both peripheral and central sites (1). COX-2 is up-regulated following peripheral injury resulting in an elevation of prostaglandin E2 (PGE2) levels in the cerebrospinal fluid (CSF) (2). Thus COX-2 inhibitors that penetrate the blood-brain barrier may be more effective analgesics for postoperative pain (3). Valdecoxib, a selective COX-2 inhibitor, appears in human CSF within 1 hour of oral administration (4). Its effect on the production of PGE2 in human CSF has never been previously reported.

Methods: Infrainguinal revascularization is commonly performed using a continuous spinal anesthetic technique. After giving informed consent to this Institutional Review Board approved study, eleven patients were administered valdecoxib 40 mg orally 30 minutes prior to insertion of a 20-gauge lumbar spinal catheter. One ml of CSF and 5 mL of venous blood were sampled at 30, 60, 120, and 180 minutes after study drug administration. CSF and plasma concentrations of valdecoxib and PGE2 were assayed using high pressure liquid chromatography (HPLC).

Results: Eleven patients completed the study protocol. Patient demographics were evenly distributed: 65.6 ±10.8 yrs, 169 ± 8.3 cm, and 83 ± 5.9 kg. Mean CSF concentrations of PGE2 were: 21.2 ± 6.5, 12.2 ± 3.5, 2.4 ±1.9, and 0.2 ± 0.7 ng/ml at 30, 60, 120, and 180 minutes. Concomitant valdecoxib plasma levels (ng/mL) were: 197 ± 68, 395 ± 120, 407 ± 98, 410 ± 99 and CSF levels (ng/mL) were: 3.9 ± 0.9, 10.4 ± 1.9, 11.1 ± 1.8, and 10.9 ± 1.2 respectively.

Discussion: Patients administered valdecoxib 40 mg orally prior to surgery, demonstrated a significant rise in the CSF concentration of this NSAID within one hour. Subsequently, PGE2 levels in the CSF declined rapidly. The data strongly support the theory that inhibition of COX-2 expression in the CNS mediates analgesia by reducing PGE2 levels in the CSF.
CROSS-CULTURAL CARE: METASTATIC SQUAMOUS ESOPHAGEAL CANCER ASSOCIATED WITH KHAT CHEWING

Peter Butler, M.D., Lindsay Rockwell, D.O., Michael Rosenblum, M.D.

Departments of Internal Medicine and Hematology/Oncology
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Squamous esophageal carcinoma is a rare cancer with a high mortality rate. Its incidence remains relatively low (0.002%) in the United States. There are, however, geographic regions where it is more prominent, raising interesting questions regarding environmental, cultural and hereditary factors. Pathogenesis has been linked to multiple factors including smoking, alcohol use, mucosal injury, viral infection, achalasia, Plummer-Vinson syndrome and rare hereditary factors. The following case illustrates a culturally unique etiology.

A 31 year-old male Somali refugee presented with 2 months of worsening dysphagia, odynophagia, weight loss, poor appetite and malaise. Urgent fluoroscopic cine esophagram revealed a 4x8 cm polypoid circumferential mass in the thoracic esophagus. Endoscopic biopsy confirmed poorly differentiated invasive squamous carcinoma. CT revealed multiple parenchymal nodules in both lungs and several liver lesions representing Stage IV metastatic squamous esophageal cancer. Palliative endoscopic photodynamic therapy, tumor debulking and esophageal stent placement were performed over a three day period. After a short readmission for stent migration he declined any further intervention and was discharged home with hospice care.

Less than one percent of esophageal cancer is diagnosed in patients under 35 years of age. Our patient had used tobacco but denied previous dysphagia, caustic ingestion, alcohol use or any family history of dysphagia. He had, however, chewed Khat at least thrice weekly in Somalia and regularly as a refugee in Kenya. Khat (Catha edulis) is a shrub chewed for an amphetamine-like effect; its use is prevalent in East Africa and the Arabian Peninsula and is increasing in popularity. Two epidemiological studies have shown increased incidence of oral and gastroesophageal cancer in long-term Khat-chewers. Mechanisms of carcinogenesis are under investigation. Khat administration has been shown to decrease free radical scavenger activity in rats. A 2004 study examining the effect of Khat extract on a human cell line has shown dose-dependent cytotoxicity, genotoxicity and clastogenicity. Proposed mechanisms include inhibition of de novo RNA synthesis and direct free-radical mucosal damage from plant tannins. This case vividly illustrates the importance of cultural awareness, knowledge of associated customs and spiritual practices in providing healthcare to our increasingly international population.
MYELODYSPLASTIC SYNDROME WITH ISOLATED del(20Q): A DISTINCT CLINICOPATHOLOGIC ENTITY

Raavi Gupta, M.D., Vandita Johari, M.D., Robert Hasserjian, M.D.

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

Introduction: The cytogenetic abnormality del(20q) is a favorable prognostic feature in the International Prognostic Scoring System (IPSS) of myelodysplastic syndromes (MDS), but unlike the del(5q) cytogenetic finding, does not define a specific MDS entity. In our practice, we have noted cases of MDS with del(20q) which presented with thrombocytopenia and exhibited little morphologic dysplasia, mimicking immune thrombocytopenia (ITP).

Design: The aim of this study was to determine the clinicopathologic features of MDS cases with del(20q). We searched the pathology databases at two institutions over a 5-year period (2000-2005) for bone marrow samples from patients in which cytogenetics showed del(20q). After excluding cases of acute leukemia and myeloproliferative disease, we identified 11 cases from 9 unique patients. For comparison, we also retrieved a control group of 17 bone marrow samples obtained from adult patients with thrombocytopenia not related to MDS (12 ITP, 1 splenic sequestration, and 4 transient thrombocytopenias of unknown etiology). Three observers blinded to the diagnosis and cytogenetics results reviewed all 28 cases (bone marrow biopsies, aspirates, complete blood count results, and peripheral smears). The observers scored morphologic parameters and evaluated the likelihood of MDS for each case.

Results: The 9 patients with del(20q) included 7 males and 2 females with a median age of 73 years (range 58-83). Seven patients (78%) were thrombocytopenic at presentation and six patients (66%) were anemic; the anemia was normocytic and was typically mild (median hematocrit 36%, median MCV 89). One patient (11%) was neutropenic. On review by the blinded observers, a definitive diagnosis of MDS (refractory cytopenia with multi-lineage dysplasia) was rendered in only one case. All three observers favored a non-neoplastic process in 6 cases and one or more observers raised the possibility of MDS in the remaining 4 cases. Hematologic parameters were similar in the del(20q) and control groups, with the exception of a lower absolute neutrophil count in the del(20q) cases (p=0.019). There were no significant differences between the groups in bone marrow cellularity, megakaryocyte number, or dysplasia assessment in any lineage. Among the five del(20q) patients with at least 1 year of clinical follow-up, all patients are alive with stable cytopenias from 1.5 to 3.5 years after initial diagnosis. The one patient who died (11 months after diagnosis) died of concurrent lymphoma. No patients had transformed to acute leukemia after a median follow-up of 21 months.

Conclusions: MDS with del(20q) commonly presents with thrombocytopenia. At diagnosis, a mild normocytic anemia is also often present. There is a relative lack of morphologic dysplasia, which may lead to misdiagnosis as ITP. Most cases of MDS with del(20q) fall into the WHO category of MDS, unclassifiable, a group of diseases varied biologic behavior. The distinctive clinicopathologic features and indolent behavior in this small series suggest that MDS with del(20q) be classified as a discrete MDS entity with favorable prognosis. Cytogenetic studies in elderly patients with thrombocytopenia may be helpful in avoiding misdiagnosis of MDS with del(20q) as ITP.

POSTER PRESENTATION
United States and Canadian Academy of Pathology
February 2006, Atlanta GA
LEFT BUNDLE BRANCH BLOCK REVERSAL WITH L-TYROID ADMINISTRATION IN A HYPOTHYROID PATIENT

Duha Shaheen, M.D., David Ling, M.D., Maura Brennan, M.D.

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

Introduction: Bundle branch blocks usually reflect an intrinsic impairment of conduction and can be chronic or intermittent. Left bundle branch block (LBBB) is well-known to geriatricians since its prevalence increases with age. The authors report an unusual case in which a LBBB disappeared with treatment of profound hypothyroidism.

Case: A 73-year-old retired baker had no significant past medical history, took no medications and had not seen a physician in 10 years. He developed abdominal pain, nausea and vomiting, constipation, and dizziness. He fell and was brought to the Emergency Room where he was found to be hypothermic and hypotensive. He had no urine output and his abdomen was distended. Labs revealed leukocytosis, anemia, a normal adrenal axis and a lactate level of 9 with a TSH of 136. There was a LBBB on his ekg and an abdominal CT documented multiple aortic aneurysms. Intravenous L-thyroxine (12.5 mcg) was administered and he underwent exploratory laparotomy with resection of a necrotic segment of small bowel. Postoperatively, he improved and a repeat EKG showed left ventricular hypertrophy and septal and anterolateral myocardial ischemia. The LBBB was no longer present. Echocardiography showed severe hypokinesis of the septal wall.

Discussion: This patient disregarded his fatigue and constipation believing them to be a part of normal aging. In fact, the severe constipation due to his hypothyroidism led to bowel infarction. He had occult cardiovascular disease as well. Thyroxine repletion was clearly needed but even very gradual replacement challenged his coronary reserves. The cardiac sequelae of hypothyroidism are legion and include a decrease in cardiac contractility, bradycardia, ventricular premature beats, and more rarely ventricular tachycardia with a long QT interval. Our patient had a LBBB which was replaced with ischemic changes after administration of L-thyroxine.

Conclusions: A search of the literature fails to reveal previous reports of LBBB associated with thyroid disease. Geriatricians should be aware that conduction delays may be another cardiac complication of hypothyroidism. Administration of thyroid hormone increases myocardial oxygen demand which can induce arrhythmias or myocardial infarction in vulnerable older patients with diminished reserves. Very cautious dosing and close monitoring will decrease risk.
ASSESSMENT OF LEFT VENTRICULAR RADIAL CONTRACTION BY TISSUE DOPPLER VELOCITY IMAGING: A COMPARISON WITH 2D SPECKLE TRACKING STRAIN

Adrian Fluture, M.D., Lisa Massie, M.D., Xuedong Shen, M.D., Hany Aziz, M.D., M. Javed Ashraf, M.D., June Heideman, Denise Bienvenue, James Cook, M.D., Leng Jiang, M.D.

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

Background: Tissue Doppler imaging (TDI) by measuring time to peak velocity (PV) has been used to define left ventricular asynchrony. Our recent study has found time to end systolic velocity (EV) may better identify the peak myocardial contraction. A novel speckle tracking echocardiography (SP) has recently been introduced. By tracking the natural myocardial acoustic markers on gray-scale 2D images it provides accurate assessment of myocardial strain which has been validated with MRI and ultrasonicomicroscopy. We sought to compare the PV and the EV on TDI with the time to peak strain on SP, to further determine their comparability for assessing myocardial mechanical contraction.

Methods: Standard TDI and SP images were obtained on the parasternal mid LV short axis view in 24 patients who had normal ECGs and normal rest and stress echocardiograms. The time from QRS onset to peak strain on SP (SP-peak strain) was measured for the anteroseptal and posterior walls. PV and EV on TDI were measured on the corresponding segments. Linear regression and Bland-Altman plots with Pitman’s test were used for comparison.

Results: As shown in the table, there was significant correlation between TDI-EV and SP-peak strain for both anteroseptal and posterior walls, with an insignificant mean difference (p = .2-.3). However, TDI-PV correlated poorly with SP-peak strain and was much shorter.

Conclusions: For radial contraction, TDI-EV correlated significantly better than TDI-PV with SP-peak strain. The mean difference between TDI-EV and SP-peak strain is small and insignificant. Therefore, TDI-EV is a better measurement for assessing the time to peak left ventricular radial contraction.
Introductions: Cognitive and gait dysfunction are common and often irreversible in the elderly. The authors present a case of a demented woman whose longstanding and progressing motor deficits reversed following resection of a posterior fossa dermoid cyst.

Case: A 65-year old woman with a history of neck pain, anxiety and depression experienced four years of neurologic decline beginning with a loss of fine motor skills. This progressed to gait impairment, poor balance and coordination and increased rigidity. She also suffered cognitively. Short-term memory loss progressed to global memory impairment, dyscalculia, expressive dysphasia and disorientation. The patient was diagnosed with Alzheimer’s disease and told she might have Parkinson’s disease. A year prior to admission, a posterior fossa mass was discovered when a head CT was obtained to rule out an intracranial hemorrhage after a fall. The mass was unchanged on repeat imaging and felt to be an incidental, stable, congenital dermoid cyst. However, the patient’s neck pain intensified and felt to be an incidental, stable, congenital dermoid cyst. Biopsy confirmed the diagnosis of dermoid cyst. Following surgery, she had a remarkable recovery and soon was walking and moving her extremities well. Unfortunately, some mild spasticity and subtle disequilibrium remained and she did not improve cognitively. The patient was discharged for further rehabilitation.

Conclusions: This is the first time a dermoid cyst has been reported to cause Parkinsonism. Geriatricians need to know about this association. However, most importantly, this patient highlights the dangers of premature closure. She was almost sent home from the ER by staff who felt her age, psychiatric disease and existing "diagnoses" accounted for her presentation. This would have been a catastrophe.
EVAluation of the relationship between pAkt and Beta-catenin in infiltrating breast carcinoma

Reva Ricketts, D.O., Raavi Gupta, M.D., Sandra Camelo-Piraqua, M.D., Darius Arabadjief, M.D., Melissa Arabadjief, M.D., Sharon Marconi, B.S., Brooke Pacik, B.S., Christopher Otis, M.D.

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

Background: The phosphatidylinositol 3’ kinase (PI3K)/pAkt pathway is implicated in many aspects of tumor progression; including cell survival, invasion, and metastasis. Metastasis and invasion are complicated processes, which include cell dyshesion, migration and lymphatic and vascular invasion. The specific downstream effectors of pAkt that are involved in these processes have yet to be fully elucidated. Recent data has demonstrated that the PI3K/pAkt/I kappa B kinase (IKK) pathway positively regulates beta-catenin. Beta-catenin is an important transcription regulator, which is implicated in tumor angiogenesis and metastasis in various human carcinomas (Agarwal et al, Oncogene 2005). We aim to evaluate the relationship between pAkt and beta-catenin in infiltrating breast carcinoma. Expression of pAkt, beta-catenin, E-cadherin were evaluated in 210 cases of invasive breast carcinoma and correlated to lymph node metastasis.

Methods and Materials: Formalin-fixed, paraffin-embedded tissue from 210 (80 cases with lymph node metastasis and 130 cases without lymph node metastasis) cases of invasive breast carcinoma were retrieved from the archives the Baystate Medical Center, Department of Pathology. Eighteen tissue microarrays (TMAs) were created using a Beecher manual tissue arrayer. Five 8 mm cores were taken from separate areas of each tumor. The expressions of the following regulatory proteins were evaluated using immunohistochemical analysis: pAkt, Beta-catenin and E-cadherin (Cell Signaling Technology). Immunohistochemistry was performed on a Dako automated platform.

Results: The majority of cases were B-catenin positive regardless of pAkt expression. There was no significant difference between co-expression of pAkt and B-catenin in cases with lymph node metastasis (48%) or without lymph node metastasis (47%). pAkt expression was present in a slightly greater percentage of cases with lymph node metastasis as compared to those without lymph node metastasis (51% vs 46%).

Conclusions: Previous studies have demonstrated that the PI3K/pAkt /I kappa B Kinase (IKK) pathway positively regulates NF kappa B and beta-catenin in colorectal adenocarcinoma. In colorectal adenocarcinomas with constitutive activation of the PI3K/pAkt/IKK pathway, there is upregulation of genes involved in tumor angiogenesis and metastasis. Numerous studies have demonstrated that activation of the PI3K/pAkt pathway is associated with more aggressive tumors and increased chemoresistance. However, the results of this pilot study indicate the coexpression of pAkt, B-Catenin and loss of E-cadherin were not correlated with lymph node metastasis. This study does not implicate the PI3K/pAkt IKK pathway (associated with up regulation of beta-catenin) as a factor leading to lymph node metastasis in breast carcinoma.
SYMPTOMATIC RELIEF OF A MALE WITH CONSTRUCTIVE PERICARDITIS SUFFERING FROM ASCITES, SHORTNESS OF BREATH, AND FATIGUE WITH COMPLETE PERICARDDECTOMY

Warren Ho, M.D., Xiao Liu, M.D.

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

Introduction: Whereas restrictive processes such as amyloidosis are not usually curable, the diagnosis of constrictive pericarditis offers definitive treatment. Certain groups will still do poorly despite complete pericardectomy. I present a case of a 78 year-old Puerto Rican male with suspected tuberculous constrictive pericarditis and resulting valvular dysfunction with dyspnea, ascites, and fatigue significantly improved by complete pericardectomy.

Case History: A 78 year-old Puerto Rican male presented with 2 months history of progressive dyspnea on exertion, an eighteen pound weight gain, and increased abdominal girth. He had recently moved to the United States from Puerto Rico seven months ago. Worsening dyspnea and abdominal discomfort prompted him to be hospitalized for treatment. His past medical history was significant for known coronary artery disease, peripheral vascular disease, benign prostatic hypertrophy, and having a pacemaker placed one year ago for “irregular heart beats”, and a recent positive partial protein derivative skin test. He denied any history of radiation exposure, lymphoma or previous malignancy, recent or previous active tuberculosis, and recent travel history. His medications included protonix, digoxin, flomax, and lasix.

On exam, he was frail and pale in appearance. He had a temperature of 36.3 degrees Celsius, a heart rate of 70 beats per minute, a respiratory rate of 20 per minute, a blood pressure of 131/83, an oxygen saturation of 100% on room air, and a weight of 72.1 kg. There was jugular venous distention of greater than 8 cm, a pericardial "knock" on auscultation of the heart, bibasilar crackles on auscultation of the lungs, significant abdominal ascites with a positive fluid wave and shifting dullness, and 3+ lower extremity edema. No carotid bruits, periorbital wasting, lymphadenopathy, or organomegaly was appreciated. The remainder of the general physical exam was normal.

Labs included a hemoglobin of 10.3, hematocrit of 31.7 with 51% neutrophils and 33% lymphocytes, sodium 136, potassium 3.9, chloride 103, BUN 13, creatinine 1.0, glucose 80, INR 1.4, TSH 4.70, AST 17, ALT 12, total bilirubin 1.7 with a direct of 1.7 and indirect of 1.0, total iron 21, total iron binding capacity 451, ferritin 21, percent saturation of 5, and negative heme occult stools. Urinalysis showed no significant proteinuria or infection. Chest radiography showed a large right sided pleural effusion but no obvious pericardial calcifications.

He tested negatively for tuberculosis. A thoracentesis and paracentesis were performed to investigate the nature of his effusions and ascites. Both the effusion and ascetic fluid were transudative. CT showed severely thickened pericardial calcifications and abdominal ascites with mild mediastinal lymphatic inflammation (see figure 1).

(continued on next page)
Discussion: Echocardiography confirmed findings indicative of increased filling pressures seen in constrictive states, such as diffuse mild to moderate valvular disease, diastolic septal bounce, bi-atrial enlargement and dilatation, and a preserved systolic ejection fraction. Cardiac catheterization and angiography confirmed equalization of diastolic pressures in the all cardiac chambers with the classic dip and plateau, or "square root sign," seen when the right and left ventricular diastolic pressure tracings are superimposed (see figure 2). No obstructive coronary disease was noted. Cardiology was consulted and recommended a pericardectomy. Surgery was performed without complications (see figure 3). No granulomatous features were noted on pathology and all acid fast and fungal tissue cultures were negative.

At 3 month follow-up, his dyspnea and ascites have significantly improved.

So what was the etiology? Though particularly uncommon in the United States secondary to immunizations, constrictive pericarditis has been seen quite frequently in endemic areas of the world. Although it will be difficult to identify a definitive cause at this point in his management, it is most probable that acute mycobacterial infection could still be the cause with his recent travel from Puerto Rico, despite having no definitive histological findings. Currently, I am in the process of obtaining old CT scans from Puerto Rico that can be very valuable in suggesting the time course of the disease. If, in fact, he did not have these pericardial calcifications prior to coming to the United States, it would suggest that a more fulminant process occurred, most likely active tuberculosis. It is especially important to note the fact that my patient did in fact have a pacemaker placed about one year ago. There have been case reports of acute pericarditis leading to constrictive disease secondary to iatrogenic tamponade caused by pacemaker or AICD placement. Idiopathic causes secondary to viral infection and other bacterial infections such as pneumococcus, streptococcus, and staphylococcus may also possibilities. Immunologic studies, such as anti-neutrophile antibodies and erythrocyte sedimentation rate are pending from our last follow-up visit to investigate vasculitis and connective tissue disorders such as systemic lupus erythematosis, rheumatoid arthritis, polyarteritis nodosa, and inflammatory bowel disease. While etiologic studies remain underway, it will be also particularly interesting to see if his valvular dysfunctions resolve.
IS THERE AN INCREASED INCIDENCE OF SEPSIS (SEP) ASSOCIATED WITH REMOVAL OF PERIPHERALLY INSERTED CENTRAL CATHETERS (PICCs) IN NEONATES 27-32 WEEKS GESTATIONAL AGE (GA)?

Melissa A. Woythaler, D.O., Kathleen M. Meyer, M.D., Robert W. Rothstein, M.D.

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

Background: PICCs pose a risk for SEP in premature infants. The National Nosocomial Infection Surveillance (NNIS) mean bloodstream infection (BSI) rate between January 2002 and June 2004 was 5.4 per 1,000 central line days for infants 1001-1500 grams. SEP concerns motivates early elective PICC removal. Anecdotal cases of SEP and clinical sepsis (CSEP) following elective removal are observed, however the association of SEP/CSEP following PICC removal has not been studied.

Objective: We hypothesize that elective removal of PICCs in premature infants is associated with an increased risk of SEP/CSEP in the 72 hours following removal.

Design/Methods: We retrospectively reviewed charts of infants born 27-32 weeks GA from 01/03-12/03 whose PICCs were electively removed. Of 78 infants screened, 13 were excluded as PICC removal was secondary to SEP, phlebitis, infiltration, malfunction, malposition or death. Of the remaining 65 infants, 45 had records reviewed, 3 were incomplete leaving 42 infants enrolled. A blinded neonatologist compared changes 72 hours before and after PICC removal for signs of SEP, including temperature (T) instability, hypotension, lethargy or irritability, respiratory distress or apnea, and feeding difficulties (FD). Lab evaluation (CBC, CRP, or blood culture (BC) and antibiotics (ABx) initiation were noted. SEP was defined as pure growth of pathogen from 1 BC. CSEP was defined as at least 2 signs or 1 sign with 1 abnormal lab study AND ABx initiation.

Results: Forty-two infants with GA 30 ± 0.25 weeks and birth-weight 1447 ± 54 grams had PICCs in for 12.5 ± 1.1 days, totalling 524 catheter line days (means ± SEM). Two of 42 infants had 2 clinical signs of SEP (apnea with T<97 F and FD with T>100.4 F) following PICC removal but ABx were NOT started. The incidence of both SEP/CSEP following PICC removal was 0 per 1,000 catheter days compared to a reported NNIS mean of 5.4 per 1,000 central line days prior to PICC removal. Of 8 patients originally excluded for reasons other than SEP, none had a (+) BC following PICC removal.

Conclusions: Elective removal of PICCs in premature infants 27-32 weeks GA is not associated with an increased risk of SEP/CSEP in the 72 hours following removal.
EFFECTIVENESS OF LETROZOLE FOR INDUCTIVE
OF OVULATION IN CLOMIPHENE CITRATE
RESISTANCE POLYCYSTIC OVARIAN SYNDROME
(PCOS) – A PILOT STUDY

Isaias C. Coelho, M.D., Sandra Hannigan, R.N., Daniel R. Grow, M.D.

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

Objective: In women with anovulatory infertility, the drug of choice has been clomiphene citrate (CC). However, the antiestrogenic properties of CC are responsible for side effects ranging from vasomotor symptoms to endometrial thinning. The second-line therapy, injectable gonadotropins, can lead to a markedly increased risk of multiple pregnancies and hyper-stimulated ovaries, especially in women with many antral follicles as with polycystic ovarian syndrome (PCOS). To avoid the aforementioned problems, several investigators have studied letrozole, an aromatase inhibitor, as an alternative for the treatment of infertility in PCOS women. Our objective was to test the effectiveness of letrozole for induction of ovulation in PCOS patients who have failed one more cycles of CC.

Material and Methods: Fourteen patients with a diagnosis of PCOS (2003 Rotterdam PCOS) who previously had failed treatment with CC were included in this study. CC failure was defined as no ovulation or failed endometrial development > 5 mm, with a dose of >100mg/day of CC menstrual days 3 through 7. Ultrasound monitoring started cycle day 12 and continued periodically until a dominant follicle was observed or until cycle day 20. HCG and IUI followed CC treatment. Patients with poor response to CC were offered the option of trying letrozole, given orally in a dose of 2.5mg/d on days 3-7 of the menstrual cycle followed by US examination, and intrauterine insemination (IUI) upon detection of one more follicles greater than 17mm in diameter. HCG was administered to trigger ovulation when at least one mature follicle (>17mm) developed, followed by timed intercourse or intrauterine insemination.

Results: The average age was 30.6±4.3yrs, the average BMI was 36.6±6.7 Kg/m², the average day 3 FSH was 5.1±1.5, and the average LH 8.8±4.8. With letrozole treatment, ovulation occurred in 11/14 (79%) of cycles versus 4/14 (29%) of cycles with CC (p=0.0027). The mean endometrial thickness was 9.2mm with letrozole versus 6.1 with CC (p=0.0044). Using Letrozole, the mean number of follicles developing/cycle was 1.5, the average follicle size was 23mm. Pregnancy was achieved in 1 letrozole patient (7.1%).

Conclusions: Oral administration of the aromatase inhibitor letrozole is effective for induction of ovulation in CC resistant PCOS. Ovulation rate was 80%, with 1.5 mature follicles/cycle. Endometrial thickness was satisfactory.
IS LUPUS A PERIOPERATIVE CARDIAC RISK FACTOR?
Amit Saxena, M.D., Donna Mercado, M.D.
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Introduction: Premature coronary heart disease (CHD) has emerged as a major cause of morbidity and mortality in patients with systemic lupus erythematosus (SLE). Overall, SLE patients have a 5-6-fold increased risk of CHD. This risk is especially pronounced in younger women in whom the CHD incidence may be >50-fold. The resulting CHD may be significant enough to represent a risk for perioperative cardiac events.

Case: A 45 year old African-American woman with history of SLE for more than 20 years presented to the hospital for right total hip replacement because of severe avascular necrosis. Her past medical history was notable for end stage renal disease secondary to lupus nephritis and membranous glomerulonephritis in the past. She had been on dialysis very transiently and had then received a successful cadaveric transplant. She had been on chronic immunosuppression with prednisone, cellcept, and prograf, and had done well up until hospitalization for surgery. Her cardiovascular risk assessment revealed CHD risk factors of HTN and obesity, but no true perioperative cardiac risk factors as defined by the ACC/AHA guidelines. She had a borderline functional capacity because of the limitations in movement from her joint symptoms. She had never felt anginal or heart failure symptoms in the past. On postoperative day one, she had several hours of asymptomatic hypotension with a systolic pressure in the 80’s which was unresponsive to multiple fluid boluses and a blood transfusion. She had no chest pressure, chest pain, CHF, diaphoresis, lightheadedness, or nausea. An EKG showed nonspecific changes in the inferior leads, and a Troponin T was elevated at 0.2 ng/ml. An echocardiogram showed a new inferobasal wall motion abnormality, and her clinical picture was felt to be consistent with a postoperative myocardial infarction.

Discussion: SLE is a multisystem autoimmune disease with a strong female predilection. Cardiovascular morbidity and mortality is a frequent complication, particularly in females aged 35-44 years. The mechanisms underlying this increased risk are not fully understood. Certain traditional risk factors, such as hypertension and diabetes mellitus, are more common in SLE patients than in the general population. These factors do not, however, completely account for the increased cardiovascular risk; factors such as renal impairment, increased homocysteine levels and early menopause probably have an additional role. In addition, several factors more specifically related to SLE are proposed to be of importance, including chronic inflammation, antiphospholipid antibodies and therapy, especially corticosteroid use which has been shown to accelerate CHD. Lipid abnormalities may play a major role in increasing cardiovascular risk in SLE patients; these are characterized by elevated triglycerides, and reduced levels of high-density lipoprotein cholesterol (HDL-C) and apolipoprotein (Apo) A-I.

Researchers have recommended a more aggressive approach to risk factor management based on viewing SLE as a CHD equivalent condition. In this context, a significant proportion of SLE patients (approximately 30%) would require statins and the majority should be treated with daily aspirin prophylaxis. Treating SLE as a CHD equivalent raises the necessity of more vigorous preoperative cardiac assessment in such patients.

In summary, there is a need to redefine the approach to risk-factor management in SLE patients. Like diabetes mellitus, SLE should be considered a coronary heart disease equivalent condition when managing patients perioperatively.
VALDECOXIB PHARMACOKINETICS IN HUMAN CEREBROSPINAL FLUID

Jordan L. Blinder M.D., Jordan G. Kupinger M.D., Scott S. Reuben, M.D.

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

Introduction: Surgical trauma results in increased expression of COX-2 in both the peripheral and central nervous system (1). COX-2 inhibitors that better penetrate the blood-brain barrier are potentially better analgesics by preventing the development of central sensitization (2). The rate of penetration from blood to CSF should be considered as an important determining factor in elucidating the optimal timing for pre-emptive analgesia. The goal of this study was to assess the time and degree of penetration of valdecoxib into the CSF.

Methods: Anesthesia for infrainguinal revascularization is commonly preformed using a continuous spinal technique. After IRB approval and giving informed consent, eleven patients having continuous spinal anesthesia were given valdecoxib 40 mg orally, 30 minutes prior to insertion of a 20-G lumbar spinal catheter. One ml of CSF was sampled at 30, 60, 120, and 180 minutes. Simultaneous 3 ml venous blood samples were obtained. Plasma and CSF concentrations were assayed using high-pressure liquid chromatography (HPLC).

Results: Eleven patients completed the study protocol. Patient demographics were evenly distributed: 65.6 ± 10.8 yrs., 169 ± 8.3 cm, and 83 ± 5.9 kg. Mean CSF concentrations were 3.9 ± 0.9, 10.4 ± 1.9, 11.1 ± 1.8, and 10.9 ± 1.2 ng/ml at 30, 60, 120, and 120 minutes. Corresponding plasma levels were 197 ± 68, 395 ± 120, 407 ± 98, and 410 ± 99 ng/ml.

Discussion: Patients administered valdecoxib 40 mg orally, developed therapeutic plasma drug levels within 30 minutes and peaked within 60 minutes. A parallel rise in CSF levels was seen. The data suggest that significant perioperative analgesia can be expected within one hour of oral administration. Furthermore, the early and high penetration of valdecoxib into the CSF suggests a central mechanism of action for this NSAID.

ASTROBLASTOMA MASQUERADING AS ECLAMPSIA
Todd Capizzi, M.D., Peter Butler, M.D., Michael Rosenblum, M.D.
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Presentation: A 23 year old Russian female, primigravida, recently emigrated from Chernobyl, Ukraine, presented at 37 weeks gestation to her community hospital with a five day history of intermittent severe headaches, accompanied by hot flashes, nausea and vomiting. The patient had no significant past medical history, and denied visual changes or prior headaches. Initial workup revealed elevated liver function tests, proteinuria, and normal vital signs. She was transferred to our facility for management of suspected preeclampsia. On hospital day one, she complained of continued headache and nausea, later in the day she vomited and her speech became garbled. She rapidly became unresponsive, with a period of drooling and snoring lasting fifteen minutes. Emergent cesarean section was successfully performed. Postoperatively, the patient had a brief period of unresponsiveness, felt to be secondary to oversedation with Fentanyl. On post operative day one, the patient had an episode of tonic/clonic activity, followed by flaccidity, positive Babinski, clonus, and Glasgow Coma Scale of three. She was transferred to the ICU for close monitoring and intubated for airway protection.

Evaluation/Treatment: A CT scan of the head was obtained which revealed a left frontoparietal mass measuring 7.1 x 4.9 x 5.7 cm, with an associated 1.2 cm midline shift. Therapy with Mannitol, Dexamethasone and Phenytoin were initiated after neurosurgical consultation. She underwent an urgent frontotemporal craniotomy with near total resection of the tumor. The patient was asymptomatic and neurologically intact post operatively, and was discharged home five days later. She received a full course of external beam radiotherapy concurrent with Temozolomide chemotherapy as an outpatient. Histopathology revealed an astroblastoma.

Discussion: Astroblastomas are an extremely rare form of neuroepithelial glioma, accounting for only 0.45-2.8% of all primary gliomas. Most present before age 40, usually arising in the cerebral hemispheres. They are richly vascular, well defined, homogeneous, often cystic tumors. Presenting signs and symptoms relate to cortical dysfunction (i.e. hemiparesis/seizures/personality changes). There is a wide spectrum of clinical evolution, from slowly developing to rapidly progressive; likely related to the variation in anaplasticity of the tumor. Association with radiation exposure has not been documented. The mainstay of treatment is surgical resection. Chemotherapy and radiotherapy have been used adjunctively, although the rarity of this tumor hampers studies of efficacy for these modalities.
EFFECTS OF SELECTED LUBRICANTS ON THE THINPREP PAP TEST: CYTOMORPHOLOGY AND UNSATISFACTORY RATE

Rukmini Modem, M.D., Liron Pantanowitz, M.D., Roxanne Florence, M.D., Maryann Hornish, Karen Russett, Robert Goulart, M.D.

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

Introduction: ACOG guidelines recommend lubricants be avoided when obtaining a Pap test. However, lubricants may be used with plastic specula or to minimize patient discomfort. Prior studies of lubricant effects on cervical cytology have been largely limited to conventional Pap smears. Our aim was to study the effects of lubricant on the morphology and cellularity of liq-uid-based (ThinPrep®) Pap tests, as identified within a large hospital-based laboratory setting.

Methods: A total of 100 consecutive unsatisfactory ThinPrep Pap tests were tracked (5-month period) in the division of cytopathology at Baystate Medical Center (BMC). Half (n=50) of the tests were received after the mailing of Cytyc Corporation and BMC-to-physician educational letters, requesting lubricants be avoided if possible while obtaining a Pap test. In addition, the rate of all Pap tests with lubricant present (partially obscuring lubricant and unsatisfactory squamous cellularity secondary to lubricant) were compared in the pre-mailing (group 1) versus post-mailing (group 2) patients.

Results: Vials with lubricant contained clusters of white precipitate, which on Papanicolaou-stained ThinPrep slides was pink-purple and granular, frequently adherent to clumped epithe-lial cells. Glacial acetic acid wash had no beneficial effect. Lubricant was detected in 59 cases, representing 0.35% of group 1 tests and 0.21% of group 2 tests. Unsatisfactory Pap tests in Group 1 accounted for 0.73% of 6,843 Pap tests evaluated, in which 20% were unsatisfactory due to lubricant. Group 2 unsatisfactory Pap tests represented 0.31% of 16,342 Pap tests, in which 16% were unsatisfactory due to lubricant. The slight reduction in unsatisfactory cases due to lubricant was significant (p<0.025). Lubricant was observed in Pap tests of older patients (mean 55, range 17-90 years), when compared to the age of all patients (mean 40, range 12-95 years) evaluated in the 5-month study period (p <0.001).

Conclusions: Lubricant material may adversely interfere with the cytologic preparation and interpretation of ThinPrep Pap tests, leading to an unsatisfactory specimen in a subset of these patients. Although lubricant may mimic blood, glacial acetic acid wash has no beneficial effect. On average, contamination of Pap tests with lubricant was seen in older patients, and in our experience, clinician education did appear to reduce the prevalence of this finding. As corroborated in letters distributed by the Cytyc Corporation in August 2004 and April 2005, the interference is associated with a subset of lubricant products on the market. Examples of non-interfering lubricants currently available are also listed, with their respective medical supply distributors.

POSTER PRESENTATION
American Society of Cytopathology Meeting
November 2005, San Diego CA
SUCCESSFUL IMMUNIZATION WITH INTRADERMAL HEPATITIS B VACCINE ALLOWS USE OF HBsAg+ DONOR KIDNEYS FROM THE U.S. DONOR POOL

Andrea Hsia, M.D., Gregory Braden, M.D.

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

A 51 year-old man with mesangiocapillary glomerulonephritis was followed for eight years by his nephrologist and eventually required renal replacement therapy. Due to the fact that the patient was the sole breadwinner in the family, possessed limited financial resources to support hemodialysis, and harbored strong emotional reactions against a lifetime of hemodialysis, the option of renal transplant was provided. Since there were no immediate family members who could donate a kidney, his wife, who was HBsAg+ / HBeAg-, agreed to the donation. Since the patient himself was HBsAb- as well as HBCab-, the patient received monthly intramuscular Engerix for three successive months beginning in May 2000. Despite intramuscular Engerix, the patient developed no seroconversion, and intradermal Engerix was subsequently administered every two weeks for six months starting September 2000. By the fourth month of intradermal Engerix, the patient became HBsAb+ and transplantation proceeded August 2002 after a booster intramuscular Engerix was given to the patient prior to transplantation. Despite receiving cellcept and tacrolimus following kidney transplantation, the patient has persistently remained HBsAg-/HBsAb+ with serotiters consistently above 10mIU/ml for the past three years. In addition, the patient has had normal liver enzymes, no evidence of hepatic failure, and renal function remains stable with a serum creatinine of 1.3 mg/dl three years post transplantation.

Currently, the United Network of Organ Sharing does not advocate transplantation of HBsAg+ donor kidneys into non-hepatitis b immune patients. However, some research has demonstrated safe and successful outcomes after non-immune recipients are seroconverted with vaccination or hyperimmune gammaglobulin prior to renal transplantation. If a non-immune transplant recipient is not properly vaccinated prior to transplantation of HBsAg+ kidneys, adverse consequence such as graft rejection, loss of allograft, fulminant hepatic failure, and ultimately death may occur. Our case demonstrates that transplantation of hepatitis b positive kidneys may successfully occur in the United States if a proper vaccination scheme is followed and seroconversion occurs. In addition, our case demonstrates that successful renal transplantation of hepatitis b infected kidneys into a non-immune recipient is safe and prevents unnecessary disposal of successfully transplantable organs provided recipients are vaccinated and undergo seroconversion.

INDICATORS OF FAILURE OF A SELECTIVE
NONOPERATIVE APPROACH TO TRAUMATIC EPIDURAL
HEMATOMAS IN CHILDREN: A 15-YEAR EXPERIENCE

Gregory T. Banever, M.D., Kevin P. Moriarty, M.D., Richard A. Courtney, M.D.,
Barry F. Sachs, M.D., Stanley H. Konefal, M.D., Patricia Letourneau, R.N.,
Thomas C. Banever, M.D.

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

Objective: Traumatic epidural hematomas are rare but critical injuries in the pediatric population. This study sought to investigate the presentation, selective nonoperative management, and outcomes of children with these life-threatening traumatic intracranial lesions.

Methods: After obtaining IRB approval, a retrospective search of the trauma registry at a Level 1 trauma center was conducted. The records of all patients less than 18 years old sustaining epidural hematomas from January 1990 until April 2005 were studied. Neurosurgeons were involved in the care of all patients, and employed clinical judgment in selecting which were sufficiently stable for observation.

Results: During the study period, there were 46 children who sustained traumatic epidural hematomas. The average age was 9.2 years old (range 5 days to 17 years), with 33 males and 13 females. The mean GCS on admission was 13, and the mechanisms of injury included fall (39%), bicycle accident (24%), motor vehicle collision (15%), struck with object (13%), and pedestrian hit by car (9%). Management consisted of observation in 23 cases, immediate operative drainage in 16, and delayed surgery after failed observation in 7. The length of stay for patients who failed nonoperative management was longer than those drained immediately (12.6 vs. 5.7 days, p=0.016). Observed patients stayed an average of 4.4 days. Midline shift on initial CT was seen in 14 of 16 patients taken immediately to surgery, compared to only 2 of 7 patients who failed observation and 2 of 23 patients that were successfully observed. The presence of additional intracranial injuries (e.g. contusion) correlated significantly with failure of nonoperative management (5 of 9 patients required surgery, p=0.01). There were no deaths, and only 3 patients had neurological sequellae requiring rehabilitation hospital placement.

Conclusions: The risk of significant morbidity and mortality in pediatric patients sustaining epidural hematomas is great, but can be minimized with appropriate management. A selective nonoperative approach is feasible, but patients with midline shift or additional intracranial injuries are at high risk for failure of nonsurgical management.

POSTER PRESENTATION
Eastern Association for the Surgery of Trauma, January 2006, Orlando FL
CIRCULATORY COLLAPSE DURING TRIS-
HYDROXYMETHYL-AMINOMETHANE (THAM)
TREATMENT OF ETHYLENE GLYCOL-RELATED
SEVERE METABOLIC ACIDOSIS

Alireza Vaziri, M.D., Paul Jodka, M.D.

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

Presentation: A 48 year old female presented to our institution after having been found unresponsive at home. Her medical history was unremarkable except for a prior suicide attempt. On arrival she was comatose, diffusely cyanotic and required urgent endotracheal intubation for respiratory distress. Initial laboratory values included an ABG measurement (pH 6.64, PCO2 38, PaO2 95), lactate level of 14.3, serum osmolality of 347, osmolar gap of 52, no detectable serum alcohol level and negative urine toxicology screen. In the ICU she was treated with Fomepizole and hemodialysis for presumptive toxic alcohol ingestion. Prior to initiation of these therapies she was started on THAM (2 mmol/kg infusion set to be given over 60 minutes) for severe metabolic acidosis. Approximately 20 minutes into the THAM infusion the patient’s blood pressure dropped abruptly from previously normal values and she required vasopressor therapy. A subsequently placed pulmonary artery catheter provided data suggestive of mild cardiac contractile dysfunction and significant vasodilation. During her further ICU course she remained comatose. She developed extensor-posturing 60 hours after admission and her head CT (normal on admission) showed extensive bitemispheric non-hemorrhagic infarction along with focal hypodensities in the caudate nuclei and the pons. Care was withdrawn, she died 4 days after admission. Admission ethylene glycol (EG) level was subsequently found to be 179 mg/dL.

Discussion: Signs, symptoms, diagnosis and treatment of significant EG ingestions have been previously described. We used THAM for initial acidosis correction in this case given the elevated lactic acid level and theoretical concerns regarding sodium bicarbonate use in this setting. Information exists suggesting a vasodilator effect of THAM in experimental brain injury and cardiac arrest models, but human brain injury data seems to suggest a neutral hemodynamic profile with a potentially salutary effect of THAM on intracranial pressure. Other causes of vasodilation in this case seem unlikely, i.e. there was no evidence of infection, temperature dysregulation, adrenal dysfunction, or other obvious drug effects. It is possible that serious EG toxicity (apart from brain injury or pH considerations) predisposes to vasodilation with THAM use. To our knowledge, this is the first report of significant vasodilation-mediated hypotension related to THAM use in humans.
KNOWLEDGE OF ABORTION METHODS BY ADOLESCENTS
Mandy S. Coles, M.D., Laura P. Koenigs, M.D.

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

Background: A sexually active eighteen year-old female presented with a four-day history of vaginal bleeding and cramping. Urine pregnancy test was positive. After the exam she reported taking four little white pills from a friend so she would not be pregnant, prior to onset of bleeding. Further questioning revealed that the pills were misoprostol 200 mcg. While there is a good deal of pediatric literature addressing the topic of emergency contraception (EC), there is scant research on medical abortion (MAB) in this population.

Objective: The purpose of this study is to determine knowledge and use of MAB, as compared to EC, in adolescent females.

Design/Methods: Anonymous surveys were distributed to adolescent females in a local alternative educational center for pregnant and parenting adolescents, a local high school health clinic, and local pediatric offices. At the time of abstract submission, 12 surveys have been collected and analyzed; an additional 50 surveys are pending collection and analysis.

Results: Respondents were predominantly Latina/Hispanic (83%) pregnant or parenting adolescents participating in a GED program, with a mean age of 18 (16-20) years old. Ten adolescents (83%) had heard of EC and five (42%) had personal experience: two (17%) knew someone who had used EC; three (25%) had used EC. In comparison, only four adolescents (33%) had heard of MAB: two (17%) knew someone who had a MAB; none had a MAB. Of the seven adolescents (58%) who either knew someone or themselves had used either EC or had a MAB, more than half were unsure of the differences between the two medications.

Conclusions: Awareness and knowledge of EC is more widespread when compared with MAB in our population of at risk adolescent females. It is concerning that, even among adolescents whom have personal experience with either method, there seems to be a poor understanding of the differences between medication that prevents implantation and medication that induces an abortion. Thus our data supports the need for further education of contraception and abortion methods for adolescent females.
DEPRESSION WITH PSYCHOSIS MASQUERADING AS DELIRIUM

Eileen Kehoe, M.D., Maura Brennan, M.D., Samuel Borden, M.D.

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

Introduction: Depression is common in elders and often coexists with dementia and other psychiatric disorders. It can present atypically in older patients with cognitive impairment as the predominant feature. The authors report an unusual case of a younger, high functioning geriatric patient who presented with psychosis.

Case Report: A 65 year old African American male became confused in the week prior to admission. He came to both his PCP and the ER with shifting somatic complaints. He wandered out of his home, became agitated and paranoid and was brought to the hospital. He complained of fatigue and insomnia. The patient lived with his wife of 17 years and was soon to retire from his full time job as a machine operator. His physical exam was normal and his MMSE was 28/30. He was thought to be delirious and had an extensive medical work-up which was unrevealing. This included an EEG, an LP, CT and MRI imaging of the brain, Lyme serology, prion protein testing and toxicology screening along with the usual bloodwork, cultures and a CXR. His confusion worsened and he became more delusional and paranoid. He developed catatonia with waxy flexibility and was diagnosed with major depression with psychotic features and transferred to the psychiatry unit. At the time his MMSE had declined to 20/30.

Discussion: There is a complex relationship between depression and dementia. Patients improve when depression remits but some cognitive impairment often remains. Over time many depressed patients progress to frank dementia. Depression with cognitive impairment may represent a prodromal predementia state since these patients have such a high rate of progression to dementia.

Conclusions: This patient had no known preexisting cognitive impairment, was high functioning and only 65 years old. It was surprising that his depression presented atypically with confusion. Thus, the medical team initially suspected delirium and diagnosis and treatment was delayed. Depression is a harbinger of cognitive decline in elders; this has practical and clinical implications. Further research is needed to determine if early detection and treatment of depression decreases the risk of subsequent dementia. Geriatric depression causes enormous suffering, is underdiagnosed, adds to caregiver burden, increases costs, and often precipitates institutionalization. It is important for geriatricians to screen for depression even in those who appear to be delirious.
IS THERE A ROLE FOR LOW TIDAL VOLUME VENTILATION TO PREVENT ALI/ARDS? 
SURVEY OF TIDAL VOLUMES AND INCIDENCE OF ALI/ARDS IN VENTILATED PATIENTS

M. Tidswell, M.D., J.S. Steingrub, M.D., K. Kozikowski, J.L. Govoni, A. Shah, M.D.

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

Rationale: Although low tidal volume ventilation improves outcome in patients with lung injury, it is not known whether low tidal volumes (Vt) can prevent development of lung injury. One retrospective study found higher Vt (>6 mL/kg) was associated with increased likelihood of ALI [Gajic, et al., CCM 2004]. We describe our experience with patients at risk for ALI.

Methods: Survey of current Vt selection, incidence of ALI, and time to ALI in intubated patients admitted to one Med/Surg ICU during 2 months in 2005. Data was obtained on 75% of all patients ventilated >24 hours. Presence of bilateral infiltrates and P/F ratio <300 in ventilated patients defined ALI. We collected highest and lowest daily Vt settings until patients met ALI definition.

Results: In 84 patients, on initial day of ventilation, mean highest Vt was 10.0 ± 2.4 mL/kg IBW, and mean lowest Vt was 8.5 ± 2.1 mL/kg IBW (range 4.6 to 17.6 mL/kg). The majority of patients were admitted via the emergency room. Risk factors for lung injury included: pneumonia, sepsis, aspiration, trauma, multiple transfusion, and pancreatitis. Sixty six patients had a risk factor for ALI, and ALI occurred in 40 patients (61% of patients with a risk factor). ALI was identified within 4 hours in 28 patients (70% of ALI) and within 24 hours in a total of 33 patients (83%). Median time to ALI was 8 hours.

Conclusions: A large proportion of intubated patients developed ALI/ARDS rapidly. We found that low Vt were not routinely used in patients on the initial day of ventilation. A clinical trial could be performed to evaluate the impact of low Vt in patients with identified risk factors for ALI.
INDUCTION OF APOPTOSIS IN THE ABSENCE OF P53: IMPLICATIONS FOR CHEMOPREVENTION OF ER-NEGATIVE BREAST CANCER

M.H. Lee, S. Ganai, Z.R. Barnard, H.S. Mason, R.B. Arenas

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

Mutations of p53 cause an imbalance of regulatory controls leading to breast cancer and downregulate the expression of estrogen and progesterone receptors, hence complicating cancer treatment. High levels of estrogen, 12-lipoxygenase (12-LOX), oncogenic Ras proteins, and cyclooxygenase-2 (COX-2) have been associated with cancer by increasing cell proliferation while decreasing programmed cell death or apoptosis. Prior studies reveal an inverse relationship between COX-2 and p53 expression. We are evaluating chemopreventive agents that target estrogen receptor (ER) negative breast cancer utilizing a p53 mutated mouse model. Overproduction of estrogen and prostaglandins has been associated with ER-negative breast cancer in these mice. The evolution of ER-negative breast cancer from ER-positive breast tissue may involve pathways mediated by aromatase and later by COX-2. We hypothesize that inhibition of COX-2 and aromatase leads to an increase in apoptosis providing protection against ER-positive breast cancer. Fourth mammary glands of 8-week old wildtype and p53-null females were sustained in tissue culture for four days in the presence or absence of estrogen and progesterone. Several agents were tested for their potential chemopreventive properties: COX-2 and 12-LOX inhibitors, selective estrogen receptor modulator (SERM), aromatase inhibitor, farnesyltransferase (Ras) inhibitor, or a control medium. On the fourth day, the mammary glands were irradiated to induce DNA damage and mimic tumor development. The glands were then harvested and apoptosis was quantified by fluorescent TUNEL. Our results show that an increase in apoptosis by Tamoxifen, the COX-2 inhibitor NS-398, as well as farnesylthiosalicylic acid, requires the presence of hormones but is independent of p53 status (p<0.05). The 12-LOX inhibitor Baicalein increases apoptosis only in p53-null mammary glands (p<0.05). The most effective chemoprotection is from a combination of NS-398 with a phytochemical compound, Rhodiola, known to suppress tumor growth (p<0.05). In conclusion, mammary gland apoptosis in p53 mutated mice may be influenced by the inhibition of several important pathways implicated in breast cancer. Agents influencing this increase in apoptosis may serve as chemopreventive agents for ER-negative breast cancer.
NEW ONSET SEIZURE IN A PATIENT WITH ESRD–AN UNUSUAL PRESENTATION OF INFECTIVE ENDOCARDITIS

Eileen Kehoe, M.D., Mihaela Stefan, M.D.

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

Patients receiving long-term hemodialysis (HD) are a unique population with regard to the risk of bacteremia and subsequent infective endocarditis (IE). Thrice-weekly circulatory access is necessary to perform HD treatment and consequently an increased risk of bacteremia, and potential development of IE.

50 year old male with history of hypertension and ESRD, secondary to Ig A nephropathy, was transferred to BMC from his HD center due to new onset seizure activity while undergoing hemodialysis treatment. He also had a fever of 102 F when the tonic-clonic activity started. This was the patient’s first report of seizure activity with no prior personal or family history. At admission patient was febrile at 103.9 F, with full recovery from post-ictal state.

Following further investigations, the only positive findings were leukocytosis with neutrophilia and mild electrolyte abnormalities. A non-contrast head CT and Electro-encephalogram were normal. An astute physical exam during the course of his hospitalization discovered a new diastolic ejection murmur of aortic insufficiency, with no other clinical evidence IE. Blood cultures returned positive for methicillin sensitive staphylococcus aureus. The source of the bacteremia was thought to be the arterio-venous fistula dedicated to HD. Transthoracic and transesophageal echocardiography showed vegetation of aortic valve with perforation and aortic regurgitation. MRI/MRA of the head revealed a small sub-acute infarction to the left parasagittal precentral gyrus likely due to embolic lesion to the left middle cerebral artery from aortic valve vegetation seeding. The patient remained stable throughout hospitalization, with no signs or symptoms of heart failure or any further neurological complications.

Discussion: Neurological complications occur in approximately 30 percent of all patients with infective endocarditis and are associated with an increased risk of mortality. Of these complications, cerebral embolism is the most common. Our patient was unique with new onset seizure being the first clinical manifestation of infective endocarditis. Based on MRI brain imaging showing evidence of embolic aneurysm from aortic valve lesion, seizure activity was most likely secondary to embolization. Other causes of seizure activity were felt to be less likely in view of findings. Clinicians should more readily suspect IE in the vulnerable HD population, who present with fever and any neurological manifestation, as early diagnosis will have a great impact on the patient’s prognosis.
PHOSPHO-mTOR (MAMMALIAN TARGET OF RAPAMYCIN) EXPRESSION IN BENIGN, PROLIFERATIVE AND MALIGNANT EPITHELIAL LESIONS OF THE BREAST

Sandra Camelo-Piragua, M.D., Reva Ricketts, D.O., Darius Arabadjief, M.D., Melissa Arabadjief, M.D., Raavi Gupta, M.D., Brooke Pacik, B.S., Sharon Marconi, B.S., Christopher Otis, M.D.

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

Background: Mammalian Target of Rapamycin (mTOR) is a serine-threonine kinase of the cellular phosphatidylinositol 3-kinase (PI3K) pathway. This pathway is activated by various receptor tyrosine kinases as well as estrogen receptors. The PI3K/pAkt pathway is known to inhibit apoptosis and to promote cell survival. mTOR is a principle downstream target of PI3K/pAkt, and is associated with tumorigenic properties. mTOR mediates some of its actions through the downstream effector p70S6K. Rapamycin is a specific mTOR antagonist resulting in cell cycle arrest in G1 phase. In early clinical trials Rapamycin as well as its analogs have demonstrated impressive growth inhibitory effects. It is hypothesized that the phospho-mTOR (the phosphorylated activated form of mTOR) is increased in breast carcinoma compared to benign epithelial changes.

Design: Formalin-fixed, paraffin-embedded tissue from 253 cases were retrieved from the department files at Baystate Medical Center. Ten cases were benign lesions including adenosis, ductal hyperplasia without atypia, apocrine metaplasia; 31 cases ductal carcinoma in situ (DCIS), 208 infiltrating ductal carcinoma (IDC), 3 infiltrating lobular carcinoma (ILC) and 1 medullary carcinoma (MC). Tissue microarrays were created using a Beecher manual tissue arrayer. Five 0.8 cm cores were taken from each lesion. The expression of phospho-mTOR and its downstream regulator p70S6K (Cell Signaling Technology) was studied by immunohistochemistry on an automated DAKO platform.

Results: Phospho-mTOR expression is present in 15.4% (32/208) cases of IDC, 48.4% (15/31) cases of DCIS, 100% (1/1) cases of MC, 0% cases of ILC (0/3) and 0% (0/10) in benign lesions of the breast. 8/48 (16.6%) of positive phospho-mTOR cases were also positive for p70S6K.

Conclusions: Phospho-mTOR is not expressed in benign lesions of the breast. However, phospho-mTOR is present in a subset of (15.4%) cases of IDC and almost half (48.4%) of DCIS cases. This high percentage of DCIS cases associated with expression of phospho-mTOR suggests that phospho-mTOR may be involved in the development, maintenance or progression of DCIS. mTOR expression is associated with response to Rapamycin and its analogues by inhibiting cell cycle proliferation. These findings suggest that further evaluation of phospho-mTOR expression and associated regulatory proteins may provide new treatment strategies for DCIS.
ACUTE TRANSVERSE MYELITIS (ATM) IN AN ELDERLY WOMAN

Gabrielle Graham, M.D., Rosette Odulio, M.D.

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

Introduction: Spinal cord dysfunction is a potentially devastating condition for anyone. Acute transverse myelitis (ATM) is most common in younger patients but can occur at any age. Geriatric patients are particularly at risk for functional decline and complications. The authors report a case of ATM in an older lady who fortunately did well once the diagnosis was made.

The Case: An 86 year old female from a nursing home presented with 5 days of fatigue, diffuse myalgias, confusion, neck pain and right sided weakness leading to complete hemiparesis. She denied any recent trauma, fever, chills, weight loss, night sweats, viral illness, sick contacts or neck stiffness. Her past medical history was notable for hypothyroidism, mild vascular dementia, anemia, poorly controlled hypertension, cervical stenosis, cervical laminectomy, TIAs, an atonic bladder, a stable meningioma, osteoarthritis, hearing impairment, anxiety disorder and major depression. Her physical exam revealed only right sided flaccidity and diffuse globular thyromegaly. Sensation and cranial nerves were intact. Plain films of the neck and contrast and non-contrast CT of the brain and cervical spine were unrevealing. Thus hemorrhage, neoplasm, worsening cervical stenosis and trauma were ruled out. She was treated with antibiotics for a UTI and begun on low dose aspirin for possible worsening of her cerebrovascular disease. An MRI of the brain and c-spine finally yielded the answer. T2 hyperintense lesions from C1 to C5 documented an acute inflammatory process and suggested the diagnosis of acute transverse myelitis (ATM). CSF studies can verify the diagnosis but the patient refused an LP. Due to involvement of the phrenic nerve roots on imaging her respiratory function and tidal volumes were closely monitored. She was treated with pulse high dose IV steroids and rapidly improved.

Discussion: ATM is the development of isolated spinal cord dysfunction over hours or days in patients without a compressive lesion. It is most common in children and young adults. Inflammatory myelitis is usually due to either inflammatory autoimmune demyelinating myelopathies such as neuromyelitis and multiple sclerosis or one of more than 40 different types of viral encephalomyelitis. In children and young adults with ATM those with moderate symptoms and smaller MRI lesions often are due to multiple sclerosis. Severe cases with extensive MRI lesions sometimes with associated meningitis often have a viral cause. However, older patients usually develop ATM due to vascular disorders. Autopsies of ATM cases frequently show necrosis or perivascular inflammation similar to lesions seen in older patients with white matter disease.

Conclusions: The diagnostic work-up for acute spinal cord dysfunction should include a detailed history and spinal and cerebral MRI and CSF studies if possible. Older patients with vascular risk factors may be particularly prone to the late onset type of ATM. Elders may have diagnosis delayed if symptoms are attributed to age or other concomitant disease processes. As in this case, geriatric patients can respond quickly to appropriate therapy thereby minimizing the risk of death and functional decline. Geriatricians need to have a heightened awareness of ATM.

(continued on next page)
RESIDENCY PROFICIENCY IN CESAREAN SECTION

Steven Schneider, M.D., Fadi Bsat, M.D., Glenn Markenson, M.D.

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

Objective: The purpose of this study was to examine cesarean section (C/S) operative proficiency measures between PGY1 and PGY2 residents. In addition, we sought to determine if improvement occurs in these measures over the academic year.

Methods: Approval for the study was obtained from the institutional review board. In order to compare operative proficiency between PGY1 and PGY2 residents, all C/S between July 2002 and December 2004 were reviewed. Measures of operative proficiency included time from the initial skin incision to skin closure (operative time), and estimated blood loss (EBL). Those cases involving a PGY1 or PGY2 were identified. A comparison was made between the two groups regarding operative time and EBL. These results were also compared to C/S when there was no resident involvement (attending only). Next, we compared the proficiency of PGY1 and PGY2 residents starting to perform C/S early in the academic year. This was enabled by a corresponding change in the residency training program in 2003. Comparisons were performed in operative proficiency between the PGY1 and PGY2 groups for deliveries that took place in July 2002 (PGY2 group) and July 2003 (PGY1 group). Lastly, operating time and EBL for C/S for each quarter of the academic year were tabulated for PGY1 residents and PGY2 residents to examine changes over time.

Results: From July 2002 to December 2004, there was no difference in mean operating time for PGY1 (53 minutes) compared to the PGY2 (52 minutes). However, the operating time for both resident groups was longer than the attending only cases (38 minutes P < 0.05). The EBL was slightly decreased in the PGY1 residents compared to the PGY2 residents (763 cc versus 794 cc P < 0.05). There was no difference in operating time or EBL during the first month of the academic year between the groups (operative time for PGY1 residents in July 2003 was 56 minutes, PGY2 residents in July 2002 was 57 minutes). As noted in the table there was a decrease in operating time and blood loss as the academic year progressed.

<table>
<thead>
<tr>
<th>Operative time (minutes)</th>
<th>First Quarter</th>
<th>Second Quarter</th>
<th>Third Quarter</th>
<th>Fourth Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGY1</td>
<td>53</td>
<td>49*</td>
<td>49*</td>
<td>51</td>
</tr>
<tr>
<td>PGY2</td>
<td>54</td>
<td>52</td>
<td>50*</td>
<td>46*</td>
</tr>
<tr>
<td>EBL (ml)</td>
<td>821</td>
<td>841</td>
<td>724*</td>
<td>714*</td>
</tr>
<tr>
<td>PGY1</td>
<td>830</td>
<td>788</td>
<td>757*</td>
<td>729*</td>
</tr>
<tr>
<td>PGY2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*denotes significant difference compared to the first quarter values p < 0.05

Conclusions: There is no clinical difference in proficiency measures between PGY1 and PGY2 residents. However, in attending only C/S, operating time is significantly reduced. Starting C/S training in the first or the second year of residency did not impact either operating time or EBL. There was a decrease of operative time and blood loss for both PGY1 and PGY2 resident groups over the academic year.
CADASIL: PREMATURE COGNITIVE DECLINE IN A 35 Y/O WOMAN

Arnulfo Deray, M.D., Maura Brennan, M.D., Victoria Peters, M.D.

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

Introduction: Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL) is a generalized small-vessel disease caused by a mutation in the NOTCH3 gene on chromosome 19. It causes repeated ischemic attacks leading to subcortical vascular dementia. The authors report a case of a young woman referred for geriatrics evaluation because of an unusual pattern of cognitive deficits who proved to have CADASIL.

Case: A 35 year old female had a history of Von Willebrand’s Disease and chronic migraines with aura. She also described intermittent numbness and tingling in her hand and face on the left along with tunneling of vision, slurring of speech and unsteadiness. Attacks occurred about twice weekly. She was followed by a neurologist for these symptoms. Other relatives had similar problems and her family history was striking. Her mother was positive for the NOTCH3 mutation associated with CADASIL although the patient herself had tested negative. She was an unemployed hairdresser who smoked but denied alcohol or illicit drug use. She denied difficulties with any of her ADLs or IADLs. Her physical exam was unremarkable and her MMSE was normal. However, the clock drawing test documented visuospatial impairment. An abnormal brain MRI revealed multiple T2 hyperintense lesions in the frontal, temporal, subcortical and periventricular white matter consistent with CADASIL and a skin biopsy confirmed the diagnosis. Serial imaging showed progressing disease. She became depressed and was begun on an SSRI.

Discussion: Overall, migraine occurs in approximately 30% of CADASIL patients. Ischemic strokes are the most frequent presentation with 85% of symptomatic individuals developing TIA’s or strokes. Cognitive deficits have been observed in at least one third of symptomatic patients and decline can begin even before the first TIA. It often presents as a decline in working memory, executive function, and mental speed. Prior to age 35, there is no significant cognitive impairment but by age 65, two thirds of patients with CADASIL are demented. This reaches 90% by the time of death. This raises the question of whether antidementia medications should be initiated early. There is some evidence of a positive role for cholinesterase inhibition in vascular dementia. However, drug treatment for CADASIL which is a slowly progressing disease has not been studied; currently the treatment for CADASIL patients is mainly supportive.

Conclusions: In many communities, geriatricians serve as the dementia experts. Thus, they may well be referred younger patients with early cognitive decline. It is important for geriatricians to be more aware of CADASIL as a potential cause of impairment in this group. Geriatricians will also need to guide patients and families in planning for the future, preserving quality of life and maximizing safety. For example, the common pattern of deficits in the disease raises concerns about the need to evaluate driving safety early. Finally, research is needed to see if drug treatment can slow the decline of patients suffering from CADASIL.


POSTER PRESENTATION
American Geriatric Society Meeting, May 2006, San Antonio TX
DOsing Difficulties with DTIs in Critically Ill Patients

Archan Shah, M.D., Raquel Belforti, D.O., Thomas Higgins, M.D., Gary Tereso, Pharm.D.

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

Objective: To demonstrate dosing adjustment difficulties of Direct Thrombin Inhibitors (DTIs) in critically ill patients. Design: Case descriptions Setting: MICU in a tertiary care hospital.

Patients: Two patients with heparin-induced thrombocytopenia (HIT) receiving DTIs. Case I: A 52 year gentleman admitted following aspiration and ARDS was started on therapeutic heparin for right femoral vein DVT. 3 days later platelet count dropped 55%; HIT was considered and HIPA screen sent. With chronic hepatitis C infection and normal renal function, lepirudin at 0.15mg/kg/hr rate was started. PTT prolonged to >200 within 8 hours necessitating discontinuation of lepirudin. PTT decreased to 58 after 52 hours. Lepirudin was restarted at 0.11 mg/kg/hr, but PTT was 79 within 4 hours and bleeding from the oropharyngeal cavity and lower respiratory tract was noted. Lepirudin was stopped again; PTT declined to 48 after 77 hours, and was restarted at 0.05 mg/kg/hr. After 55 hours, the patient rebled from the oropharyngeal cavity, with PTT measuring 57. The PTT normalised after 146 hours. Case II: A 79 year man admitted from a nursing home with pneumonia required ventilatory support. He was started on heparin for bilateral lower extremity DVT. 5 days later, platelet count dropped 75%; HIT was considered. Due to pre-existing renal failure, Argatroban 2.7 mcg/kg/min was initiated with a target PTT 55-75. PTT increased to 102 after 6 hours on Argatroban and decreased to 65, 13 hours after stopping drug. Argatroban was restarted at 1.15 mcg/kg/min but the PTT was 159 within 5 hours. Thus Argatroban was stopped again. Liver function was monitored throughout this period and was unremarkable.

Discussion: Argatroban has a half-life of 50 minutes as compared to 90 minutes for Lepirudin, hence their effects should clear 12-24 hours after the last dose. This was not seen in either patient. DTIs do not bind to albumin extensively. Unavailability precluded testing for antihirudin antibodies, seen in 40-74% patients receiving Lepirudin beyond 4 days. However, this seems unlikely as our patient received lepirudin for <96 hours.

Conclusions: Dose-response of DTIs may be unpredictable in critically ill patients. Altered circulatory time or excretion, interaction with concomitant drugs and sepsis with altered protein C physiology may be factors.
Introduction: Pain following lower limb amputation is a significant problem among amputees (1). Unrelieved acute pain results in increased medical expenditures and is a significant predictor for chronic pain syndromes (2). Phantom limb and stump pain have been reported in up to 85% of amputees and is usually resistant to a wide variety of medical treatments (1). Peripheral nerve transection results in an afferent nociceptive barrage that initiates spinal cord hyperexcitability with expansion of the receptive fields of dorsal horn neurons that respond to the nearest intact afferents (3). These neuroplastic changes are believed to be responsible for the development of post-surgical phantom limb and stump pain. It is believed that regional anesthesia, by preventing the establishment of central sensitization, may play a significant role in reducing the incidence of both acute and chronic pain following surgery (4). The perineural administration of clonidine, an alpha-2 agonist, has been shown reduce mechanical hypersensitivity by modulating local cytokine expression (5). The goal of the present study was to examine the analgesic efficacy of administering bupivacaine and clonidine at the site of injury following lower extremity amputation.

Methods: 20 patients undergoing lower extremity amputation received a perineural injection of 10 mL 0.25% bupivacaine and clonidine 100 mcg at the time of exposure of the sciatic nerve [for above the knee amputation (AKA)] or posterior tibial nerve for [below the knee amputation (BKA)]. For comparison, we reviewed a consecutive cohort of lower extremity amputations who received no perineural injection (n=20). Patients underwent either general or spinal anesthesia. Pain scores (NRS) from 0-10, vital signs, and sedation scores were recorded every 4 h for 72 h following surgery. Morphine 2 mg IV every 5 min in the PACU and oxycodone 5-10 mg po every 4 h PRN was administered for a NRS>3. One year after surgery, patients were contacted by telephone to determine the incidence of phantom and stump pain.

Results: There were no differences in demographics, duration or type of surgery, anesthetic technique, or incidence of diabetes between the two groups. Patients receiving bupivacaine/clonidine infiltration reported lower NRS (1.3 ± 0.6) and oxycodone use (10.3 ± 3.1 mg) on POD #1 compared to no infiltration (5.4 ± 2.7) and (51 ± 28 mg) respectively. There were no differences in pain scores or analgesic use on POD #2-3 between the two groups. The incidence of phantom pain (n=17; 85% vs n=18; 90%) and stump pain (n=6; 30% vs n=6; 30%) were similar between the bupivacaine/clonidine infiltration and no perineural injection groups respectively.

(continued on next page)
Discussion: The perineural infiltration of bupivacaine and clonidine reduces the incidence of acute pain in the immediate postoperative period but does not reduce the incidence of either phantom or stump pain following lower extremity amputation. It is possible that these analgesics need to be infused over a sustained period of time postoperatively to effectively reduce the incidence of chronic pain.

References:
2. Anesthesiology 2000;93(4):1123-33
AN UNUSUAL CAUSE OF NECK PAIN AND RADICULOPATHY: CANDIDA ALBICANS DISKITIS AND CERVICAL SPINE OSTEOMYELITIS

Victor Korang, M.D., Oren Brody, D.O., Mihaela Stefan, M.D., Sarah Haessler, M.D.

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

Cervical vertebral osteomyelitis constitutes a small fraction of all cases of vertebral osteomyelitis. The vast majority of cases are bacterial, although mycobacteria constitute a small proportion of cases in endemic areas. Fungal vertebral osteomyelitis is less common. Fewer than 75 cases have been reported in American and British journals. The nonspecific nature of presenting complaints requires a high index of suspicion to make the correct diagnosis.

A 44 year old male injection drug abuser with history of hepatitis B & C presented to the emergency room from jail complaining of 3 weeks of neck pain, associated with several days of increasing numbness and weakness in his right upper extremity. He denied systemic symptoms and was afebrile. Clinical signs of cervical radiculopathy and tenderness of the neck were present. HIV and Purified protein derivative tests were negative. Leucocytosis was absent, ESR and C-reactive protein were 87mm/hr and 1.6mg/l respectively. MRI revealed diskitis and osteomyelitis of C4/5 with anterior epidural and paraspinal phlegmon. Blood cultures obtained prior to initiation of antibiotics remained negative.

Ceftriaxone and vancomycin were initiated empirically. Over the ensuing 72 hours the patient experienced worsening pain and neurological deficits including right-sided hemiparesis. He was taken to the operating room for incision, drainage and biopsy for culture and histologic examination. Cultures grew Candida albicans. He was switched to fluconazole 400 mg orally per day. Despite treatment, he had unremitting pain. Cervical spine X-rays revealed increasing loss of height, and worsening angulation of C4 on C5. Alignment and stability were restored via corpectomy and fusion. Post-operatively, he had marked functional improvement and was discharged to a rehabilitation center with plans for a minimum of 6 weeks of antifungal therapy.

Clinicians often empirically treat spinal infection without clear evidence of the causative agent, decreasing the microbiologic yield at time of tissue biopsy and culture. Identification of the causative agent is essential, and treatment should be delayed until a microbiologic diagnosis is made. If percutaneous spinal biopsy cannot be obtained, open biopsy should be performed, especially when the patient is not improving. Clinicians should be alert for unusual pathogens such as Candida albicans when treating patients with a history of injection drug use.
EMPLOYING STATISTICAL PROCESS CONTROL (SPC) CHARTING TO EVALUATE MENOPAUSAL SYMPTOMS IN WOMEN ENROLLED IN A CLINICAL TRIAL OF A COMPLEMENTARY INTERVENTION

Lindsay E. Rockwell, D.O., Grace Makari-Judson, M.D., Ruth Barham, Wilson C. Mertens, M.D.

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

Background: Menopausal symptoms such as hot flashes are challenging to measure and compare, as there is considerable inter- and intra-patient variability as well as a trend toward fewer and less severe symptoms over time without intervention.

Objective: To determine the patterns of hot flash number and severity reported by individuals enrolled in a randomized, placebo-controlled study of acupuncture employing SPC charts, and to evaluate the effectiveness of these charts in describing differences between study interventions.

Methods: Patients with continuing, severe hot flashes and no change in pharmacological intervention were accrued to a clinical trial randomly allocating subjects to either 1) a 4-week observation period followed by a 7-week acupuncture intervention followed by a 7-week ”sham” intervention, or 2) the same approach with the interventions reversed. Individual measures (IM) SPC charts for hot flash frequency and severity were created for each patient, and out-of-control findings were noted for 1) intervention 1 compared to observation, and 2) intervention 2 compared with intervention 1.

Results: Results for each patient were confirmed to be normally distributed. IM-SPC charts effectively revealed significant differences between the observation and interventions, noting patterns of both improvement and deterioration in patients as they progressed between study phases. Accrual to the study continues, and consequently study arms remain blinded.

Conclusions: Use of SPC charts to measure frequently-reported, highly-variable patient data may allow comparative studies to be performed with smaller target patient accrual. Such charts also allow for differing patterns of individual patient experiences to be more clearly described, in contrast to conventional approaches which adopt a mean of results across a sample.
AN HIV-POSITIVE ELDERLY WOMAN WITH A MALIGNANT PERIPHERAL NERVE SHEATH TUMOR

Rosette Odulio, M.D., Maura Brennan, M.D.

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

Introduction: Advances in HIV therapy have increased life expectancy in HIV-infected people. They are now living long enough to become geriatric patients. In 2001, 2.5% of HIV patients were over the age of 60 years and this proportion continues to rise. The risk of malignancies is increased in the HIV population. The authors report a case of an HIV positive elder on highly active antiretroviral therapy (HAART) who developed a mediastinal malignant peripheral nerve sheath tumor (MPNST).

Case Presentation: The patient was a 69 year-old Hispanic female with HIV infection diagnosed 10 years ago on HAART. She had diabetes mellitus, hypertension, hypothyroidism, COPD and depression. She presented with a 2 week history of dyspnea on exertion, right shoulder pain, fatigue, anorexia, weight loss and difficulty swallowing. On physical exam, the patient was chronically ill-appearing and cachectic. Her neurologic exam was non-focal but she had prominent veins along her neck and upper chest without cervical or axillary lymphadenopathy. An MRI of the chest showed an 8.2 x 7.5 cm anterior mediastinal tumor compressing the right subclavian vein, superior vena cava and trachea. She had multiple biopsies of the mass documenting MPNST. The patient eventually died despite a course of radiation therapy.

Discussion: MPNST is a very rare neurogenic tumor. It affects both sexes equally; the usual patient is in the third or fourth decade of life. It is associated with neurofibromatosis and schwannomas and usually occurs in the posterior mediastinum. There are only 2 previously reported cases of elders with thoracic neurogenic tumors and these were associated with concomitant lipoma and lung cancer. This case is very unusual in the age of the patient, the absence of the usual associated conditions and the location in the anterior mediastinum. To our knowledge, this is the first reported case of an HIV-infected elder with MPNST. It is not known if there is a direct association of MPNST with HIV infection in elders. It is possible that geriatric HIV patients may prove to have a different pattern of malignancies than younger patients or even that antiretroviral drug selection may alter their propensity to develop specific cancers. Further research on the increasing number of geriatric HIV patients is needed to investigate these unanswered clinical questions.

References:
SEVERE LEFT VENTRICULAR DYSFUNCTION MIMICKING ACUTE MYOCARDIAL INFARCTION
Duha Shaheen, M.D., Kevin Hinchey, M.D., Maura Brennan, M.D.
Department of Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Introduction: Angina and myocardial infarction can present atypically in older patients and congestive heart failure is so prevalent in elders that it should be considered a geriatric disease. The authors report a case of an older man whose LV dysfunction improved as cardiac ischemia abated.

Case: An 84 year diabetic male was admitted with severe hypoglycemia due to worsening renal insufficiency and poor appetite. Blood glucose normalized but his hemoglobin declined to 7 and an abdominal CT showed a retroperitoneal bleed. He was transfused and stabilized. Two days later he went into pulmonary edema and required a Lasix drip. The patient’s situation was grave; he declined any invasive interventions. Echocardiography revealed an ejection fraction (EF) of less than 20% with severe LV hypokinesis (a decrease from 55% a week earlier) suggestive of anterior wall myocardial infarction. However, cardiac enzymes did not rise, there were no ECG changes and the patient improved. One week later a repeat echo showed an EF of 35%.

Discussion: The diagnosis of an acute MI relies upon the history, electrocardiogram, and cardiac enzymes. Although not routinely performed for diagnosis, echocardiography is an accurate, non-invasive test that can detect myocardial ischemia. A 2003 task force of the American College of Cardiology and the American Heart Association recommended the use of echocardiography to diagnose suspected ischemia or infarction not evident by standard means. In some patients, transient ischemia leads to a period of dysfunction after the restoration of flow, called stunning. In other cases persistent, asymptomatic ischemia produces LV dysfunction that mimics nonischemic causes of heart failure; this is called hibernating myocardium. In hibernation, resting blood flow is low, whereas in stunning resting flow is normal but maximal blood flow is reduced.

Conclusions: Impaired left ventricular dysfunction in elders with coronary heart disease is not always irreversible. This is particularly important for geriatricians to recognize since older patients may not present with the classic symptoms of angina. Research is needed to determine if earlier recourse to echocardiography can improve geriatricians’ detection of myocardial ischemia. Since stunned and hibernating myocardium remains viable, LV function may improve markedly. If ischemia is recognized and treated effectively outcomes for frail older patients should improve.
CUSTODY CONCERNS: PARENTAL WILLS IN AN INNER-CITY PEDIATRIC CLINIC

Mathew H. Baldasaro, D.O., Cheryl D. Tierney, M.D., M.P.H.

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

Background: It is generally accepted that parents should make end of life plans that help ensure appropriate care of their children in the event of their own deaths. However, the number of parents who have actually performed this task is unknown. Such preparations may be even more important in an inner-city as crime rates are high, and many children live in single-parent homes.

Objective: Specific aims of this study were (1) to identify the proportion of parents/guardians attending our pediatric clinic who have a will or guardianship, (2) to assess parental desire for information, and (3) to identify predictors of readiness to complete a will or guardianship.

Design/Methods: 109 questionnaires available in English and Spanish were distributed to parents/guardians bringing children to our pediatric clinic.

Results: 98 questionnaires were completed and analyzed. The age range of responders was 16-70 years with a mean of 31.6 (SD=9.2). 56% of responders identified themselves as a single parent and the most common ethnicity was Hispanic (72%). 5% of responders had completed a will or guardianship, while 26% of parents revealed they would not want their child going to the other parent in the event of their own death. Being uninformed about wills decreased with greater parental age from a rate of 63% for 16-19 year olds, to 36% for 20-29 year olds, 21% for 30-39 year olds, 14% for 40-49 year olds, and 0% for 60 year olds and older (MH 2, p<0.01). 72% of responders would like free information about wills and guardianships. Having been in a serious accident predicts both having completed a will or guardianship and readiness to complete one in the next 30 days (Fisher’s Exact Test, p=0.02 and 0.03 respectively).

Conclusions: While only a small percentage of parents have a will, the majority of parents would like more information to be provided by their pediatrician. The importance of this is emphasized by the fact that a significant percentage of parents would not want their child going to the other parent in the event of their own death. Our data suggest that younger parents are less informed about wills, are pre-contemplative, and thus represent a potential target group for a simple information-based intervention. However, our data also suggest that parents who have been in a serious accident are more ready to complete a will and thus represent a target group for an action-based intervention such as providing them with a legal action kit.

ORAL PRESENTATION
Eastern Society for Pediatric Research, March 2006

POSTER PRESENTATION
Pediatric Academic Societies, May 2006
ACUTE HEMODYNAMIC CHANGES DURING DROTRECOCIN ALFA (ACTIVATED) (DTAA) INFUSION IN SEPTIC SHOCK

J. Thomas, M.D., A. Shah, M.D.
Departments of Critical Care and Internal Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

**Introduction:** In the phase III trial demonstrating the benefit of DTAA in severe sepsis (PROWESS), average cardiovascular SOFA scores over days 1-7 and days 1-28 were significantly lower in patients treated with DTAA. Also, DTAA patients had a more rapid recovery of mean arterial pressure during days 1-7 of the trial. In other studies, healthy subjects receiving DTAA had less endotoxin-induced hypotension when compared to placebo (1).

**Hypothesis:** The purpose of our retrospective observation was to identify measurable acute hemodynamic responses to DTAA during routine use as therapy for patients with septic shock.

**Methods:** Mean arterial pressure (MAP), vasopressors and dosage were recorded in patients that had a period of at least 30 minutes DTAA interruption during the infusion period. Vasopressor use was scored by cardiovascular SOFA and Cumulative Vasopressor Index (CVI) to compare hemodynamic changes when number of vasopressors or dosages was adjusted. The CVI scores each vasopressor independently and provides the aggregate of scores of all vasopressors used. The range for CVI is between 1 and 20.

**Results:** For 13 patients with septic shock treated with DTAA, initiation of DTAA was associated with a decrease in MAP of 2% to 14%. During the infusion period, interruption and restart of DTAA resulted in an increase in MAP of 8% to 18% (p=0.12). Although there were absolute changes in vasopressor requirements following interruptions in DTAA infusion, we did not observe changes in the CVI scores.

**Conclusions:** These results suggest that acute interruptions of DTAA infusions in patients with vasopressor dependent septic shock may be associated with changes in MAP and vasopressor requirements. Further investigations are needed to determine whether sepsis associated shock is acutely improved with DTAA infusion.

**References:**
UTERINE PERFORATION AND SMALL BOWEL INCARCERATION: SONOGRAPHIC AND SURGICAL FINDINGS

Suzanne G. Shulman, Carrie L. Bell, Frederick E. Hampf

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

Uterine perforation rarely complicates a first trimester surgical abortion, but perforation resulting in vascular or intra-abdominal organ damage may require surgical intervention. The index of suspicion for uterine perforation needs to remain high when a patient presents with abdominal/pelvic pain after an abortion, as the sonographic appearance of the uterus can be variable over time.

Introduction: Uterine perforation during a first trimester surgical abortion is a rare occurrence that may go undetected at the time of the procedure. Ultrasound is generally the first imaging modality used to examine the patient presenting emergently after an abortion. We present the case of a patient with acute abdominal pain two days after a first trimester surgical abortion, with uterine perforation and abnormal uterine contents initially suggested by ultrasound, and small bowel incarceration validated at surgery.

History: A 36 year-old woman presented to the emergency department two days after a first trimester surgical abortion, complaining of nausea, vomiting, and severe crampy abdominal pain since the procedure. There was minimal vaginal spotting. She was G9P6036, and a nine-week intrauterine pregnancy had been documented by ultrasound prior to the procedure. The patient was otherwise healthy. Vital signs demonstrated a temperature of 99.2 °F (37.3 °C) and a pulse of 85 beats per minute. Abdominal examination revealed a softly distended abdomen and audible bowel sounds, with suprapubic and left lower quadrant tenderness. Pelvic examination revealed a closed cervix, cervical motion and uterine tenderness, and guarding. Adnexal structures were unable to be palpated. Laboratory findings were significant for a mildly elevated white blood cell count of 12.1x10³/mm³ and a b-hCG of 7,222 MIU/mL. A pelvic ultrasound was performed in the radiology department at the request of the gynecologic consultants.

Imaging Findings: Initially, a transabdominal ultrasound of the pelvis was performed (Figs. 1a-1b). A retroverted uterus was demonstrated. Adjacent to bowel loops, a defect in the uterine wall was seen at the fundus. Tubular-shaped irregular tissue was seen within the endometrial cavity, with a small echoic focus suggesting the presence of air. An abnormally increased amount of echogenic free fluid was seen in the cul-de-sac.

Transvaginal ultrasound of the pelvis was then performed for further evaluation (Figs. 2a-2b). Bright, serpiginous, fluid-filled tubular structures were seen within the endometrial cavity. Adjacent material of increased echogenicity was suggestive of fat. Using Color Doppler, no blood flow was seen in these structures. No peristalsis was seen in the intrauterine contents.

Radiological interpretation at the time of ultrasound examination was most suspicious for uterine perforation with abnormal uterine contents versus retained products of conception.
Operative Findings: The patient was taken to the operative suite due to the possibility of uterine perforation. Laparoscopy followed by laparotomy demonstrated a defect in the uterus containing an incarcerated loop of small bowel (Fig. 3) and mesenteric fat. Macroscopically, the entrapped bowel appeared dusky after reduction. Eighteen centimeters of small bowel was resected. The pathology report described extensive transmural congestion and focal acute serositis consistent with incarceration.

Discussion: This case report highlights a delayed presentation of uterine perforation after a first trimester surgical abortion, where pelvic ultrasound suggested uterine perforation with abnormal intrauterine contents versus retained products of conception. Retrospectively examined, our pelvic ultrasound images depict fluid-filled tubular structures with adjacent echogenic material, which were shown intraoperatively to be incarcerated small bowel with mesenteric fat. In our review of the literature, there have been two case reports citing uterine perforation with bowel involvement after a first trimester surgical abortion, but none specifically describes the sonographic appearance of incarcerated bowel as a consequence of uterine perforation 1,2. Thus, to our knowledge, these images represent a novel depiction of uterine perforation with small bowel incarceration. Although this patient received appropriate treatment quickly, complete recognition of the findings might have allowed a more certain sonographic diagnosis.

First trimester surgical abortion (as opposed to prostaglandin medical abortion) is one of the most frequently performed procedures in the United States; 853,485 procedures were performed in 20013. The risk of morbidity and mortality from this procedure is demonstrably low. Bartlett et al. reported an overall death rate of 0.7/100,000 procedures using a data set from 1988-19974. In a large study evaluating morbidity secondary to first trimester surgical abortion, Hakim-Elahi et al.5 reported minor complications managed as an outpatient in 1,438 of 170,000 procedures (0.846%), including mild infection, re-suctioning on day of procedure or subsequent re-suction, cervical stenosis, cervical tear, underestimation of gestational age, and convulsive seizure after local anesthesia. Major complications requiring hospitalization after a first trimester surgical abortion (121 of 170,000; 0.071%) included incomplete abortion, sepsis, uterine perforation, vaginal bleeding, inability to complete abortion, and combined (heterotopic) pregnancy. In an attempt to identify factors potentially leading to uterine perforation, Grimes et al.6 determined that the level of training was the strongest statistically significant risk factor for perforation. Other factors increasing the risk of perforation were increasing gestational age and having one or more prior delivery, as is the case in the patient presented here.

In the emergently presenting patient, ultrasound is the preferred diagnostic modality, but it should be recognized that the normal appearance of the uterus after a first trimester surgical abortion can be quite variable. A small number of imaging studies have documented the appearance of the uterus after a first trimester surgical abortion 7-9. Dillon et al.7 performed short-term follow-up with ultrasound to qualitatively evaluate the uterine cavity after a first trimester surgical abortion in 19 asymptomatic patients. In this study, 59% of patients had a varying amount of intrauterine material, initially appearing hyperechoic and then later iso- or hypoechoic. No material seen resembled retained fetal parts or placental material. The time
for the return of the endometrial stripe to baseline appearance was variable, ranging from 1 day to 14 days. Similarly, another larger study by Bar-Hava et al.8 examined the appearance of the uterus of 74 women who had undergone a first trimester surgical abortion within one week of the procedure. Only 23% of patients demonstrated reversion to a thin endometrial stripe; 50% displayed a thick endometrial stripe (7-19 mm) and 27% an endometrial stripe >20 mm or with very irregular echogenicity >14 mm. These investigators also described a trend toward hyperechoic endometrial contents earlier in the week versus hypoechoic contents later in the week, presumably due to liquefying endometrial contents. The appearance of endometrium after the first menstrual period reverted to normal in all patients. Patient demographics such as gravidity or date of first trimester abortion did not correlate with the appearance of the uterus. Finally, MRI has been utilized to assess the endometrial cavity after a first trimester surgical abortion9, but this is not routinely performed on an emergent basis.

First trimester surgical abortion is a commonly performed procedure in this country. While complications are rare, they can range from mild to severe, as described above. It is important to recognize that the short-term appearance of endometrial contents after a first trimester surgical abortion is quite variable, and an earlier presentation may demonstrate relatively more hyperechoic material than a later one. In our case report, our imaging findings are very different from those described by authors imaging the uterus after uncomplicated abortions. Knowledge of the typical appearance of the uterus after a first trimester surgical abortion is clearly helpful in recognizing an abnormal pelvic ultrasound; knowledge of the appearance of bowel incarceration in the uterine cavity should lead to a more specific diagnosis.

References:
**Figure Legends:**

1a-b. Transabdominal pelvic ultrasound images demonstrate a retroverted uterus (UT) adjacent to the urinary bladder (BL) with adjacent fluid-filled bowel (SB) closely apposed to an interrupted uterine wall (*). A tubular structure is seen within the uterus. A small amount of anechoic free fluid (FF) is seen in the cul-de sac. Linear echogenicity (arrow), consistent with the appearance of gas, is adjacent to the abnormal intrauterine tubular structure.

2a-b. Transvaginal pelvic ultrasound transversely demonstrates multiple tubular structures containing anechoic fluid within the uterine cavity (UT). Sagittally, echogenic material (arrowheads), suggesting the presence of fat, is adjacent to the intrauterine tubular structure.

3. Intraoperative photograph demonstrates a defect in the anterior myometrium of the uterus (UT) at the level of the left round ligament (RL), through which small bowel (SB) has become incarcerated.
A LONG BATTLE BUT AN EASY DEATH: THE IMPORTANCE OF END-OF-LIFE CARE FOR BOTH OLDER PATIENTS AND MEDICAL HOUSE STAFF

Alireza Vaziri, M.D., Maura Brennan, M.D.

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

Introduction: Advance care planning is often overlooked in the United States and palliative care skills are not emphasized in the training of medical residents. This situation is particularly perilous for geriatric patients and can result in both poor educational outcomes and an increased burden of suffering for older Americans. The authors report a case of an elderly man who taught his team the importance of goal setting and open discussion at the end of life. He showed his physicians the joy and professional satisfaction that comes from caring well for the dying.

Case History: A sweet-natured 78 year old retired pastor presented to the hospital after a month of diarrhea, weight loss, abdominal discomfort and malaise. He had a complex medical history which included recent bowel ischemia; he was on chronic hemodialysis for ESRD. The team suspected vascular insufficiency. He was rehydrated and admitted but within 3 hours he lost all pulses to his left foot. An angiogram showed an occlusion of the popliteal artery. The medical team discussed the options with him and suggested vascular surgery or possible amputation. The patient had a strong faith, excellent family support and did not fear death. He was confident that the right decision was to allow death without pursuing surgery but he had severe pain in the ischemic leg. The team titrated narcotics carefully, treated his diarrhea and arranged a hospice referral. The patient became pain free and remained alert and able to pray and interact with loved ones. His children were very supportive and wished to bring the patient home but feared they could not meet his care needs. With help from hospice and social work, problems were resolved and the patient ended his days peacefully among family in his own home. Before he left, he expressed his deep gratitude to the house officers for their respect, compassion and clinical skill. After his death, an autopsy was declined due to financial constraints.

Discussion: Medical house staff can find it frustrating to care for the dying. They remember the times when patients and families were unrealistic about clinical realities or patients died either suffering or overly sedated. However our patient reinforced the professional satisfaction that medical residents can derive from providing superb care at the end of life. Symptoms, financial and psychosocial strains can impede a good death but often can be overcome with communication, teamwork and skillful drug management. The authors believe that medical residencies should place more emphasis on palliative medicine; in only this way will the full needs of geriatric patients be met.
A CASE OF SPONTANEOUS SUBDURAL HEMATOMA CAUSED BY VP SHUNT DRAINAGE FOR NORMAL PRESSURE HYDROCEPHALUS

Carmel Celestin, M.D., Maura Brennan, M.D.

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

Introduction: The differential diagnosis and management of cognitive decline are core professional skills for geriatricians. Normal pressure hydrocephalus (NPH) is often sought as a "reversible" or improvable cause of dementia. The authors report a case of a patient who developed bilateral subdural hematomas as a complication of shunt placement.

Case: A 78 year old male with "Alzheimer's dementia" had worsening confusion, a progression of urinary incontinence and increasing difficulty with gait. He was admitted to the hospital for agitation. A head CT documented NPH and a VP shunt was placed in hope of improving the patient’s mobility. Shortly before a rehab transfer the patient fell and developed a stable, small subdural hematoma. One month later, the patient (who had not fallen since discharge) had worsening lethargy, confusion, and a shuffling gait. Imaging revealed new large bilateral subdural hematomas and early herniation. The patient was treated with evacuation and drainage and subsequently did well and returned to the nursing home. The neurosurgeon felt that the subdural hematomas were a complication of shunt placement and due to overdrainage of CSF.

Discussion: Bridging veins span the space between the surface of the brain and the midline sagittal sinus (into which they drain). Normally these vessels are not under any tension because the brain-to-sinus distance is small. As the volume of the brain decreases, the distance of its outer surface from the inner surface of the skull grows; this increases the stretch on the veins. At some critical tension the veins rupture. This usually causes a subdural hematoma but can also result in bleeding into the epidural or intraventricular spaces. The greater the degree of hydrocephalus prior to shunting, the greater the increase in distance over which the bridging veins will be stretched following placement of a shunt when the ventricular volume decreases. This complication of VP shunting occurs in 4-23% of cases.

Conclusion: Patients and families must be informed of this possible complication when deciding whether to proceed to shunting especially in patients with a large degree of atrophy or a high risk of bleeding or falls. Geriatricians need to have a heightened awareness of this potentially devastating outcome of shunting. Spontaneous subdural hematoma should be part of one's differential diagnosis when a patient with a history of VP shunting develops rapid changes in gait, cognition or level of consciousness. There should be a low threshold to reimage even in the absence of any trauma.
LOST IN TRANSLATION?
William Ortiz, M.D., Kevin T. Hinchey, M.D., Michael J. Rosenblum, M.D.,
Sandra Bellantonio, M.D.
Department of Geriatric Medicine
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

Purpose: To compare the amount and quality of data obtained from a geriatric patient (pt) by a bilingual MD to that of an English speaking (ES) MD with a trained interpreter. Previous studies demonstrate miscommunications occur when utilizing untrained interpreters. There are no published reports of the differences in health data obtained by a physician and a trained interpreter compared to a bilingual provider during an interview with an older patient.

Methods: Two separate interviews with a 72 y/o Puerto Rican (PR) pt. were videotaped. The first interview was conducted by a bilingual PR geriatric fellow. An ES internist with additional geriatric training and a trained interpreter performed the 2nd interview. An ES patient was used as a control. Clinicians were to obtain a medical history, med list, MMSE, GDS, functional status and health care proxy data. A panel of 12 bilingual and ES experts viewed the tapes comparing the amount and quality of data obtained and was asked to comment on voice, emotion and body language nuances.

Results: The amount and quality of data obtained was similar, the ES MD/trained interpreter interview took twice as long to complete, while the control interviews were similar for each provider. The panel noted subtle differences during the interpreter-facilitated interview: The ES MD used the 3rd person and although, he touched the pt.'s arm, the pt. maintained eye contact with the interpreter rather than MD and kept his arms folded in front of him. He was more demonstrative with the bilingual MD; however, his answers were more succinct. He gazed downward when asked about continence and dressing through the interpreter. The interpreter facilitated interview had the form of an open discussion. The body language indicated he was less comfortable with the use of an interpreter. The pt. felt that the bilingual MD was preferable because of the comfort, simplicity and ease of understanding.

Conclusions: The amount and quality of data obtained through a trained interpreter is similar to data obtained by a bilingual MD interviewing an older PR pt. but takes significantly longer. Review of sensitive issues may be limited by the use of an interpreter because of time, culture and 3rd party involvement. Further research will focus on family members as interpreters, gender and age of interpreters to assess impact of what may be gained or lost in translation during a geriatric assessment.
CREUTZFELDT JACOB DISEASE AND MYASTHENIA GRAVIS PRESENTING AS DELIRIUM IN AN OCTAGENARIAN

Venkata R. Kodali, M.D., Maura Brennan, M.D., Todd Capizzi, M.D., Donna Mercado, M.D., George Baquis, M.D., Benjamin Liptzin, M.D., David L. Longworth, M.D.

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

Introduction: Delirium in an elder is one of the most common reasons for referral to a geriatrician. Evaluation and treatment is usually straightforward. The authors report the first case of CJD complicated by myasthenia gravis, depression, vascular injury and a variety of other medical problems.

Case: An 87 year old woman with mild memory deficits became more confused and depressed over four months. Her abilities varied dramatically at different times; she was admitted to medicine and psychiatry several times in a matter of weeks. At first she was thought to be delirious from dehydration, UTI, depression and intermittent atrial fibrillation. However, confusion recurred despite treatment. Her past medical history included hypertension and lid retraction surgery for cosmetic purposes. When admitted she was afebrile and grossly disoriented. She stared, pointed at the ceiling and called out letters of the alphabet. Myoclonus of the right arm and ptosis of her eyelids were present. She failed an empiric trial of anticonvulsants. An exhaustive evaluation was unrevealing. Electrolytes, CBC, ESR, TSH, glucose, RPR, urine studies, tox screen, CXR and LFTs were normal. Contrasted head CT and MRI studies showed brain atrophy and bilateral white matter disease with extensive, nonspecific subcortical signals from the basal ganglia, thalami, pons and medulla. Three EEGs (with video monitoring) were abnormal but nondiagnostic. Acetylcholine receptor antibodies were positive revealing myasthenia gravis (MG). Multiple lumbar punctures were initially unrevealing; CSF was negative for CMV, EBV, Herpes Simplex, Eastern Equine Encephalitis, West Nile Virus and JC polyoma virus; finally, prion protein proved to be positive documenting CJD. Of note, the family reported she had never been in the military or eaten raw meat.

Conclusions: This patient had a rapid cognitive deterioration with myoclonus of only the right arm and lacked the classic EEG features of CJD. The authors hypothesize that her MG may have limited the myoclonus and that the MG and her preexisting vascular injuries complicated analysis of the EEGs. The authors believe this to be the first report of coexisting MG and CJD. Though rare, CJD must be considered in the differential diagnosis of anyone with rapid cognitive decline regardless of age. Further research into a possible relationship between MG and CJD may also be warranted.
ADVERSE OUTCOMES OF GERIATRIC ABDOMINAL SURGICAL PATIENTS AT HIGH RISK FOR DELIRIUM: OPPORTUNITIES FOR IMPROVEMENT IN CARE

S. Ganai, K.F. Lee, A. Merrill, M.H. Lee, S. Bellantonio, M. Brennan, P. Lindenauer

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

Background: Postoperative delirium is associated with an increased risk of complications, mortality, prolonged hospitalization, and discharge to long-term care facilities. This study identifies a subset of geriatric patients undergoing abdominal surgery with at-admission risk for delirium and examines their postoperative outcome with appraisal for opportunities to improve health care delivery.

Methods: A retrospective review was conducted on 228 consecutive patients >70 years old undergoing major abdominal surgery. Eighty-nine patients met inclusion criteria for having ≥3 of the following validated at-admission risk factors for delirium: cognitive deficit, visual impairment, dehydration, and severe illness. Clinical correlates of adverse outcome and the presence of defined suboptimal care were analyzed.

Results: Patients had a mean age of 79 ± 6 (SD) years and length of stay of 12 ± 7 days. Postoperative delirium occurred in 60%, death in 20%, and prolonged length of stay (≥14 days) in 32% of patients. In multivariate analysis, independent predictors of delirium included preoperative functional and nutritional status; predictors of mortality included the former and glycemic control; and predictors of prolonged length of stay included postoperative albumin level and complications (p<0.05). Suboptimal care was identified in the following clinical areas: malnutrition, use of precipitative medications, inappropriate bedrest, uncontrolled pain, and glycemic control.

Conclusions: The subset of geriatric patients identified with at-admission risk for delirium has significant postoperative morbidity. The adverse outcomes are associated with key clinical factors, some of which are preventable. The data suggest opportunities for optimizing care in specific areas not currently emphasized in surgical practice.
A MULTICENTER STUDY OF TWO MAGNETIC RESONANCE SPECTROSCOPY TECHNIQUES IN INDIVIDUALS WITH HIV DEMENTIA

Ned Sacktor, M.D., Richard L. Skolasky, M.A., Thomas Ernst, Ph.D., Xiangling Mao, Ph.D., Ola Selnes, Ph.D., Martin G. Pomper, M.D., Linda Chang, M.D., Kai Zhong, Ph.D., Dikoma C. Shungu, Ph.D., Karen Marder, M.D., M.P.H., Dean Shibata, M.D., Giovanni Schifitto, M.D., Linda Bobo, M.D., Ph.D., Peter B. Barker, D.Phil.

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

Purpose: To evaluate single-voxel proton magnetic resonance spectroscopy (SV-MRS) and magnetic resonance spectroscopic imaging (MRSI) metabolite results in individuals with HIV dementia.

Materials and Methods: Twenty HIV-positive (HIV+) individuals underwent SV-MRS (TE 35 msec) and MRSI (TE 280 msec). Results were stratified according to serostatus, dementia severity, psychomotor speed performance, and functional impairment.

Results: HIV+ individuals with psychomotor slowing had an increased myoinositol/creatine (mI/Cr) ratio (0.63 vs. 0.45) in the frontal white matter using SV-MRS and an increased choline (Cho)/Cr ratio (1.88 vs. 1.41) in the mesial frontal gray matter using MRSI compared to HIV+ individuals without psychomotor slowing. Using MRSI, subjects with HIV dementia also had a decreased N-acetyl aspartate (NAA)/Cho ratio (1.55 vs. 2.53) compared to HIV+ individuals without cognitive impairment in the mesial frontal gray matter. Both techniques detected metabolite ratio abnormalities associated with abnormal functional performance.

Conclusions: SV-MRS and MRSI offer complementary roles in evaluating individuals with HIV dementia. Short TE SV-MRS measures mI, which may be elevated in early HIV dementia, whereas MRSI provides wider spatial coverage to examine specific regional changes.

These results were presented at the 2001 American Academy of Neurology Annual Meeting.
THE RISKS OF LIPOTOURISM: OUTBREAK OF M. ABSCESSUS WOUND INFECTIONS IN U.S. RESIDENTS WHO HAD COSMETIC SURGERY PERFORMED OVERSEAS

E. Yoko Furuya, M.D., Armando Paez, M.D., Arjun Srinivasan, M.D., Robert Cooksey, M.D., Michael Augenbraun, M.D., Miriam Baron, M.D., Karen Brudney, M.D., Phyllis Della-Latta, M.D., Concepcion Estivariz, M.D., Staci Fisher, M.D., Mary Flood, M.D., Pamela Kellner, Carmen Roman, Mitchell Yaks, Don Weiss, M.D. M.P.H., Eric V. Granowitz, M.D.

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

Context: Many US residents engage in lipotourism whereby they travel to other countries to undergo cosmetic surgery. Mycobacterium abscessus is a rapidly growing mycobacterium that can cause postsurgical wound infections.

Objective: To describe an outbreak of M. abscessus wound infections in returning US travelers following cosmetic surgery performed in the Dominican Republic.

Design, Setting and Patients: Case series of returning US travelers who developed M. abscessus wound infections following cosmetic surgery performed in the Dominican Republic between May 1, 2003 and July 1, 2004.

Main Outcome Measures: Demographics, clinical presentations, treatments, and outcomes of patients with M. abscessus infection.

Results: A total of 20 returning US travelers with M. abscessus postsurgical soft tissue infections were identified. Eight of these patients had matching M. abscessus isolates as determined by pulsed-field gel electrophoresis. The 8 patients were residents of Massachusetts, New York, or Rhode Island who underwent cosmetic surgery at the same clinic in the Dominican Republic. All were previously healthy Hispanic females (range 19-58 years) who underwent abdominoplasty; four also had liposuction and 3 also had breast surgery. Symptoms first developed 2-18 weeks post-procedure (median 7 weeks). Only 2 of the 8 patients were correctly diagnosed on initial presentation. Most patients presented with painful, erythematous, draining subcutaneous abdominal nodules. Seven patients underwent drainage procedures. Six patients received a combination of antibiotics that included a macrolide plus either cefoxitin, imipenem, amikacin, and/or linezolid; two received clarithromycin monotherapy. All but 1 patient were cured after a median of 9 months of therapy (range 2-12 months). The source of the outbreak was not identified.

Conclusions: An outbreak of M. abscessus infection among returning US lipotourists highlights the risks of traveling to developing countries for medical procedures.
SEVERE REACTION TO CHEMOTHERAPY IN A PATIENT WITH DIHYDROPYRAMIDINE DEHYDROGENASE DEFICIENCY

Abid Mahsud, M.D., Javeed Ashraf, M.D.

Departments of Internal Medicine and Cardiology
Baystate Medical Center/Tufts University School of Medicine, Springfield, MA

64 years old female with stage IV carcinoma caecam with extensive peritoneal and hepatic metastasis was admitted with sore throat, nausea, fatigue and abdominal pain seven days after she had been started on palliative chemotherapy in the form of oral capcitabine (5fu prodrug). Clinical exam revealed fever, generalized erythematous rash, inflamed oral and pharyngeal mucosa with multiple oral ulcers and tender palmar and plantar erythema. Chemotherapy was stopped and she was treated with i/v fluids, antibiotics and entiemietics. After an initial improvement one week later she developed febrile pancytopenia and bilateral bronchopneumonia. She received appropriate treatment and her blood counts improved but she remained weak unable to eat and drink because of painful pharyngitis and esophagitis. A few days later she developed exfoliative dermatitis and encephalopathy with confusion but CT brain did not reveal any thing. During the subsequent days her level of confusion gradually deteriorated and four weeks after admission she died. DPD deficiency (Dihydropyramidine dehydrogenase deficiency) was expected in view of severe reaction to capcitabine and patient was tested for it and she turned out to have the DPD deficiency.

Discussion: DPD is an essential enzyme for the metabolism of 5 fluorouracil and related chemotherapeutic agents and in case of deficient patients toxic levels of chemo agents can accumulate and can have a very deleterious affect on the immune mechanism resulting in severe morbidity and even mortality. DPD deficiency is rare (<1/1,000 of the population) and routine testing is not performed prior to commencing 5 fu -based chemotherapies. DPD testing can be carried out on nucleated WBC or on parafin -embedded tumour tissue. The toxicity after 5fu based chemotherapies can be profound and requires aggressive supportive therapy to allow marrow and mucosal recovery. Furthermore 5 fu therapy is obviously contraindicated in patients with DPD deficiency and family members need to be tested for the deficiency if they need 5-fu based chemotherapy for any malignancy that they develop in their lives because it is believed that this defect can be Autosomal dominant in character.
A CASE OF MULTIPLE SCLEROSIS....OR IS IT?
Thabo Kenosi, M.D., Emilio Melchionna, M.D.

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

A 61 year old female presented with 3 week history of progressive paraparesis and lower extremity numbness preceded 6 weeks prior with symptoms of a burning sensation in the posterior thoracic area. Paresis and sensory loss began in the right lower extremity and over 2-3 weeks progressed to the left lower extremity. A comprehensive workup began with CSF analysis and MRI brain/spinal cord. CFS analysis was normal including absence of oligoclonal bands and normal IgG index Brain, MRI revealed 2 small T2/FLAIR lesions in the deep white matter MRI of the spinal cord revealed increased T2 and FLAIR signal extending linearly from T4-T9 segments. Multiple sclerosis was high on differential list and Treatment was initiated with Beta Interferon and then high dose pulse parenteral steroids. Parapresis improved over 6 months at which time the patient was ambulating unassisted .Although patient initially improved, her course over the proceeding 24months was characterized by five relapses involving the cervicothoracic spinal cord. Clinically these were characterized by Paraparesis, sensory symptoms and sphincter dysfunction with partial recovery over several months (patient remained clinically free of optic neuritis). MR imaging revealed new enhancing lesions in the thoracic spinal cord, brainstem and extensive T2 /FLAIR demyelinating lesions in the brain. Subsequent workup included serum testing which revealed the presence of NMO-IgG antibody; a novel antibody which selectively binds to elements of associated with CNS capillaries, pia and sub-pia. The presence of this antibody is considered highly specific (91%) for Neuro myelitis optica- Devic’s disease- and it distinguishes neuromyelitis optica from multiple sclerosis(1).
ASSESSING RISK FACTORS FOR THE DEVELOPMENT OF CRPS FOLLOWING FASCIECTOMY FOR DUPUYTREN’S CONTRACTURE

Sung Hwang, M.D., Scott S. Reuben, M.D.

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

Introduction: The development of complex regional pain syndrome (CRPS) is not an uncommon complication after fasciectomy for Dupuytren’s disease with a reported incidence as high as 40% (1). We have previously reported that there is a higher incidence of CRPS in patients undergoing general anesthesia (GA) compared to axillary block (2). We analyzed additional risk factors that may contribute to CRPS following Dupuytren’s surgery under GA.

Methods: 106 patients undergoing surgery for Dupuytren’s contracture under GA were included in this study. Postoperatively, all patients were enrolled in a hand therapy program three times per week for 6 weeks. Patients were evaluated in the pain management center for the presence of CRPS based on the IASP diagnostic criteria (3). Univariate comparisons between patients with or without CRPS were performed by performing a chi-square test or Fisher exact test where appropriate. All perioperative predictors identified in the univariate analysis were included in a multivariate logistic regression analysis.

Results: There were 40 (38%) smokers, 31 (29%) diabetics, and 32 (30%) females. Postoperatively, 25 patients (24%) developed CRPS. The incidence of CRPS was significantly higher in those patients with increased perioperative pain (VAS (0-10), 5.2 + 1.1 vs. 3.9 + 0.8) prolonged tourniquet time (97+ 18 min. vs. 68 + 9 min.), female gender (M:F 9:16 vs. 65:16) and history of smoking (21(84%) vs. 19(23%)).

Discussion: The development of CRPS following Dupuytren’s surgery is not uncommon. Multiple risk factors including anesthetic technique, female gender, prolonged tourniquet time, and increased perioperative pain may result in a higher incidence of this pain syndrome following Dupuytren’s surgery.

Adult Onset Still’s Disease (AOSD) is an uncommon systemic inflammatory disorder of unknown etiology. The diagnosis is difficult as there are no pathognomonic symptoms or specific laboratory abnormalities.

A 38-yo man with psoriatic arthritis, presented with high fever, sore throat, evanescent skin rash, and worsening arthralgia. Symptoms were initially considered a drug reaction secondary to Naprosyn which was started for arthralgia. As his symptoms continued, an extensive work-up for fever of unknown origin (FUO) was pursued. He was started on a 2 week-course of broad spectrum antibiotic with no improvement. Chest, abdomen and head CT, lumbar puncture, cardiac ultrasound, multiple blood cultures were negative. Abnormal laboratory values included neutrophilic leukocytosis, and elevated liver enzymes. Acalculous cholecystitis was diagnosed and a laparoscopic cholecystectomy was performed. His symptoms persisted unchanged after surgery and he also lost 25 pounds. Transferred to our hospital the diagnosis of AOSD was entertained due to his symptoms being compatible with Yamaguchi’s criteria and a very high Ferritin level (25000 ng/ml). Nonetheless, the work-up to comply with the exclusion criteria was completed. EBV, Parvo virus, HIV, CMV, hepatitis, Ehrlichiosis and vasculitis serology were all negative. Treatment with prednisone and salicylates lead to a rapid improvement of his symptoms.

AOSD is an exclusion diagnosis, which implies a large number of needless investigations. Our patient had 4 of the major and 3 of the minor criteria. The diagnosis was postponed as the worsening arthritis was considered in the context of psoriatic arthritis. The patient went through numerous tests, had multiple presumptive diagnoses and an unnecessary cholecystectomy. The impressive Ferritin level in the presence of compatible symptoms lead us to the diagnosis.

Yamaguchi’s criteria yield 96.2% sensitivity and 92.1% specificity, however, an exclusion process is needed. As AOSD is a rare disease, the physician’s awareness of this disease’s symptoms is crucial for diagnosis.
THE INCIDENCE OF IRON DEFICIENCY ANEMIA IN FEMALE RESIDENTS

Asmi F. Alam, M.D., Clarice Staves, M.D., Philippa Sprinz, M.D.

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

Background: Iron lacks the glitter of gold, or the sparkle of silver, but it outshines both in biological importance. Iron deficiency is the most common cause of anemia not only in the U.S., but worldwide. The etiology can be related to blood loss and diet. Residency, in particular, has a disruptive effect on lifestyle routine and eating habits that may affect general nutritional status and well being. Female residents have the added variables of parity and menses.

Objective: To determine if there is an increase in the incidence of iron deficiency anemia in female residents throughout their training.

Design/Methods: Baseline CBC, ferritin, TIBC and iron levels were obtained from each subject upon initiating residency, and then at yearly intervals. A questionnaire to assess race, parity, diet, and call schedule was distributed with each blood draw. A total of 26 female residents were enrolled, 11 were followed over the course of 3 years, 5 were followed for 2 years and 10 were followed for 1 year.

Results: Overall, there was no significant increase in the incidence of iron deficiency anemia in female residents throughout their training. Of the 11 subjects followed over 3 years, 1 subject was noted to have a transient Fe deficiency anemia which resolved spontaneously during residency, 1 subject was noted to have both sickle cell trait and thalassemia trait with baseline anemia and was therefore excluded from the study, while the remaining 9 failed to develop anemia. CBC and iron studies for 5 subjects followed over 2 years were essentially unchanged. The results of the 10 subjects followed over one year are pending. There were 13 Caucasian subjects, 1 African, 1 Haitian, 4 South Asian, 2 East Asian, 1 Persian, 3 Hispanic, and 1 Greek. The results from the questionnaire indicated nulliparity for all 26 subjects and decreased consumption of iron rich foods during call months [table 1].

Conclusions: Although, one might speculate that the changes in nutritional status and lifestyle experienced during residency may lead to Fe deficiency anemia, this was not substantiated by our findings. This speaks to the resilience of female residents.

<table>
<thead>
<tr>
<th></th>
<th>Hemoglobin</th>
<th>MCV</th>
<th>Ferritin</th>
</tr>
</thead>
<tbody>
<tr>
<td>nml values</td>
<td>14 (12) g/dl *</td>
<td>90 (78) fl *</td>
<td>10-120 ng/ml</td>
</tr>
<tr>
<td>baseline</td>
<td>13 g/dl</td>
<td>89.6 fl</td>
<td>32 ng/ml</td>
</tr>
<tr>
<td>% 1 year</td>
<td>1.1% increase</td>
<td>0.04% increase</td>
<td>7.0% decrease</td>
</tr>
<tr>
<td>% 2 years</td>
<td>1.6% decrease</td>
<td>3.1% decrease</td>
<td>18.9% increase</td>
</tr>
</tbody>
</table>

* Mean (-2 STD)

ORAL PRESENTATION
Eastern Society for Pediatric Research, March 2006
Exercise induced Bronchoconstriction (EIB) is defined as bronchial hyper responsiveness after exercise. The symptoms often reported are chest tightness, cough, wheezing, shortness of breath, and chest pain with, and/or after exercise. Asthma is defined as airway hyper responsiveness, inflammation, and obstruction. The symptoms of asthma are similar to those mentioned above for EIB. EIB has been noted in children with asthma and also in otherwise healthy children without a diagnosis of asthma, yet the GINA management strategy of 2002 does not recognize EIB as a separate entity. The apparent conflict in opinion has led to the treatment of EIB as an entity separate from asthma.

Our questions in this study are: 1) Are the criteria or asthma met in EIB?, 2) What percentage of patients visiting a pulmonologist office with exercise induced respiratory symptoms have true asthma?, 3) Is there a way to differentiate, by history, physical or testing, which of those will have asthma?

This study is a retrospective chart review of 63 patients who visited a pulmonologist office with exercise induced respiratory symptoms as their chief complaint. Data regarding those patients' age, sex, height, weight, initial spirometry (including spirometry post beta 2 agonist use), family history, patient history, and pertinent social/environmental risk factors was collected. The data was then analyzed for similarities.

Asthma was defined by spirometry results and/or a positive methacholine challenge.

Out of 63 patients 39 were female and 24 were male. They were predominantly Caucasian. The patients were divided into two groups: those who met the diagnostic criteria for asthma and those who did not. Forty-four patients met the diagnostic criteria for asthma (70%) vs 19 patients who did not (30%). Both groups had an average age of 13 years. The group with abnormal spirometry was 63% female and 37% male, and the group with normal spirometry was 58% female and 42% male. There was no statistically significant difference in personal or family history of atopy, environmental smoke or pet exposure, obesity, or physical exam findings between the two groups. A similar age and sex distribution was noted in both groups.

The conclusion of this study was that a significant percentage of patients referred to a pulmonologist office with only exercise induced respiratory symptoms have true asthma by spirometry and/or methacholine challenge. No difference was noted between the groups with abnormal spirometry versus the group with normal spirometry regarding age, sex, personal or family medical history, environmental exposures, obesity, or physical exam findings.
Excerpt from Submitted Chapter

ROLE OF BRONCHOSCOPY IN THE INTENSIVE CARE UNIT

A. Shah, M. Tamm, P.N. Chhajed

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

Introduction: Gustav Killian, the "father of bronchoscopy", first performed bronchoscopy in 1897 to examine the airways and remove an aspirated pork bone from the right main bronchus using a rigid endoscope. Chevalier Jackson of Philadelphia later modified the rigid bronchoscope (RB) in 1904 by adding a direct ocular mechanism, suction tube, and tip illumination.

In the late 1960s, Shigeto Ikeda introduced the flexible fibreoptic bronchoscope for clinical use. Since its introduction in 1967, the use of the flexible bronchoscope (FB) rapidly has become widespread for various pulmonary disorders, and presently is one of the most useful modalities, for mainly diagnostic and some therapeutic purposes.

The common pulmonary conditions seen in the intensive care unit (ICU) include pneumonia (community-acquired and nosocomial), pulmonary edema (carcinogenic and noncardiogenic), pulmonary hemorrhage, thromboembolic disease, primary and metastatic lung cancer, drug and radiation-induced lung injury, and others, including connective tissue disorders.

Because critically ill patients may be too unstable to move safely, diagnostic procedures that can be performed in the ICU at bedside are preferable to those that involve transport to remote sites. The versatility and the easy portability of the FB enable the performance of fibreoptic bronchoscopy (FOB) easily and safely at the bedside. In addition, in contrast to RB, FOB offers enhanced visualization of the distal bronchi and averts the need for general anesthesia and operating room resources. The FB therefore is considered an essential diagnostic and therapeutic instrument in the care of patients admitted to the ICU. According to the estimation of Tobin et al., as many as 98% of all bronchoscopic procedures are performed using the FB, and most bronchopists have never been trained in the technique of RB.

The RB sometimes is preferred especially as the primary therapeutic and diagnostic tool in massive haemoptysis and large foreign body aspiration. With the advent of new therapeutic modalities such as the neodymium, yttrium-aluminium-garnet (Nd-YAG) laser, endobronchial stenting, cryotherapy, and so forth, the RB increasingly is being used in patients with respiratory failure secondary to endobronchial obstruction or extrinsic compression of the bronchus. Rigid bronchoscopy, when used in the FB is unavailable or when a mature tracheal stoma is present in a spontaneously breathing patient. High-risk patients and those who require bronchoscopic lung biopsies (BLB) probably still should undergo the procedure in the operating room because of the risk of bleeding and tension pneumothorax (especially with positive-pressure ventilation.)

More than ever, the use of bronchoscopy in ICU should be fully discussed depending on the diagnostic and therapeutic purpose and the disadvantages of the this procedure on patients in a critical condition. The choice of instrument, rigid or flexible endoscope, depends on the age group, the ventilatory condition and mainly on the type of intervention, though both instruments may be comple-
lementary. Certain interventional procedures can be done only with rigid endoscopes, which also guarantees adequate ventilation through the entire procedure, whereas the flexible bronchoscopes can be useful for diagnostic purposes and bronchial lavage in the intubated patients. The choice of anaesthesia depends upon the procedure, however, general anesthesia is necessary for rigid bronchoscopy and certain interventions (laser endoscopy)8

References
PURPLE URINARY CATHETER AND BAG SYNDROME IN A NONAGENARIAN

Venkata R. Kodali, Ankur Sandhu

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

Introduction: Quantity and color of urine is routinely inspected when reviewing patients. Discolored urine is a clinical sign that indicates investigations. We report a case of benign but dramatic appearing urinary catheter/bag, which can mislead to unnecessary investigations. Case Report: A 94 year-old woman presented with vomiting and dehydration for 2 weeks. Past Medical History: Type 2 DM, Barrett’s Esophagus, CAD, CVA. History and examination revealed her presentation. Abnormal labs: Creatinine=180micromol/L (55-110), Urea=11.4mmol/L (2.5-7), Alkaline Phoshatase=173IU/L (35-138). Work up confirmed primary bronchial carcinoma with adrenal and cerebellar metastases. Urinary incontinence warranted an indwelling catheter. She had drained clear urine but two weeks later, we noticed purple discoloration of both the catheter and bag (Illustration). The patient had no symptoms/signs of UTI. Renal function normalised with hydration. Urinalysis: phosphate crystals, pH = 9 and heavy growth of Proteus mirabilis.

Discussion: Asparagus, senna, rhubarb and beetroot, food colors and medications, Liver disease, Melanomas, Black Water Fever (Malaria), Ochronosis, Nocturnal Haemoglobinuria, Porphyrinurias, Rhabdomyolysis, Hartnups disease and homocystinuria are the well known causes of discolored urine. Indole from tryptophane is converted to indoxyl sulphate in the liver and this is excreted in urine. Citrobactor koseri, E-coli, Enterobactor, Klebsiella, Morganella morganii, Proteus, Provendencia and Pseudomonas produce indoxyl sulphatase/phosphatase, which metabolise indoxyl sulphate to indigo (blue) and indurubin (red), these pigments merge to give purple colour in strongly alkaline environments. PUCBS is uncommon but seen more frequently in elderly catheterised patients, as they tend to have alkaline urine and higher urinary indoxyl sulphate. Our patient had strongly alkaline urine making it vulnerable to growth from sulphatase/phosphatase producing gram-negative bacteria, which was identified as Proteus mirabilis.

Conclusion: Despite how shocking PUCBS may look to the naked eye, aggressive treatment is unnecessary in asymptomatic patients. We would like to highlight this alarming appearing but benign bedside sign that should not lead to unnecessary investigation and treatment by the medical and nursing staff.
ULTRASOUND-GUIDED BREAST INTERVENTIONS: ACCURACY OF BIOPSY TECHNIQUES AND APPLICATIONS IN PATIENT MANAGEMENT

Suzanne G. Shulman, M.D., David E. March, M.D.

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

Ultrasound (US) provides a versatile approach for guiding biopsies and other breast interventions. The wide availability, real-time capability, technical improvements, and increasing user experience have greatly expanded the role of US-guided interventions in the diagnosis and management of breast disease. This article reviews the accuracy of US-guided fine-needle aspiration biopsy (FNAB), automated core biopsy, and vacuum-assisted biopsy. Some of the more specialized procedures that reflect the growing role of US-guided interventions in patient management will also be discussed.

For the large majority of patients with suspicious breast lesions, studies have shown that biopsy removing a smaller tissue volume than is typically obtained surgically is sufficient to establish a reliable histological diagnosis. This conclusion has coincided with advances on other fronts, including the development of new biopsy equipment and technological improvements in US that enhance its ability to characterize and guide interventions of breast lesions. This progress has provided the basis for growth in the use of US-guided breast biopsies and other interventional procedures.

The amount of tissue removed during biopsy can significantly affect the accuracy of histological diagnosis. Removal of insufficient tissue may result in a false-negative diagnosis or in histological underestimation, which occurs when core biopsy reveals an atypical lesion that is upgraded to carcinoma at surgical excision, or an in-situ carcinoma that is upgraded to invasive carcinoma at excision.* Removal of a larger tissue volume than is required for accurate diagnosis may undermine some of the advantages over surgical biopsy that are offered by these techniques.

This article will review the accuracy of the current biopsy techniques. In addition, examples of US-guided interventions and their role in patient management will be discussed.

“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