

11th Annual
Resident Scholarly Exchange Day

AGENDA

May 1, 2008

Harriman Hall Room 105

11:30 **Poster Set-Up by Residents**

12:00 **Welcome Reception**

12:30 **Welcome Address**

Roseanne C. Berger, MD

Senior Associate Dean for Graduate Medical Education

Buswell Fellowship Presentations

Facilitator: Teresa Quattrin, MD

*Chief, Division of Endocrinology/Diabetes, Women and Children's
Hospital of Buffalo, Associate Professor of Pediatrics
Chair, Buswell Fellowship Committee*

Gen Suzuki, MD, PhD

Cell Based Cardiac Repair in Ischemic Cardiomyopathy

Ashwani Rajput,

Targeting Survival Signaling in Metastatic Colorectal Cancer

1:45 **Keynote Address**

Research Lessons Learned: Sustaining the Momentum

Susan S. Baker, MD, PhD

*Professor of Pediatrics, Co-Director Digestive Diseases and
Nutrition Center*

2:15

Poster Discussion Rounds with Faculty Researchers

Scholarly Exchange Day Faculty

Dr. Susan Baker

Professor of Pediatrics, Co-Director Digestive Diseases and Nutrition Center

Dr. Chester Fox

Professor of Clinical Family Medicine

Research interests - Primary Care Practice Based Research, Quality Improvement Research, Chronic Kidney Disease, Use of Health Information technology to improve care.

Dr. Vasanth H. Kumar

Assistant Professor of Pediatrics, UB & WCHOB

Research interests - Developmental lung biology; oxidant injury; infection & inflammation

Dr. Lucy Mastrandrea

Assistant Professor of Pediatrics

Dr. Andrew Symons

Vice-Chair for Predoctoral Education, UB Department of Family Medicine

4:00

General poster viewing

UB residents, fellows, faculty, alumni & hospital communities welcome!

5:15

Award Presentations - Roseanne C. Berger, MD

Thomas F. Frawley Research Award

Scholarly Exchange Day Award

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#1. LCP Condylar Plates: Does filling the screw hole at the fracture site alter plate biomechanics?

Jesse Affonso, MD - PGY 3 in Orthopaedics

Additional Authors: Thomas Duquin, MD

Faculty Mentor: Dr. Lawrence Bone, Orthopaedics

Type of Research: Basic

Purpose of Study: The relative indications for locking plates continue to expand.

These relatively long plates often have large areas of empty screw holes. When these rigid, fixed angle devices fail, it is often from fatigue failure many months after the initial surgery. We have observed several cases where locking plates used for distal femur fractures have failed at an empty proximal screw hole. This biomechanical study investigates whether having a screw filling the empty proximal hole altered the plate biomechanics

Method: 1.3 cm supracondylar osteotomies were created in 8 Sawbones femurs.

These were next plated with the Synthes LCP condylar plates. 2 study groups were examined: 4 specimens with a locking screw at the osteotomy site and 4 without. The groups were subjected to cyclical axial load via an MTS machine and displacement was measured across the osteotomy site before and after the load was applied. The groups were then subjected to a cantilever force until plate failure.

Summary of Results: Displacement in millimeters was measured across the

osteotomy site for all specimens for a given applied load. A force of 100 Newtons and 1000 Newtons was applied before and after each specimen underwent an axial load of 1500 Newtons for 10,000 cycles. For all applied loads, having a screw at the osteotomy site resulted in less displacement across the site ($p < 0.05$). The displacements across the osteotomy sites for 100N pre-cycle were 0.191mm with a screw and 0.257mm without, at a pre-cycle 1000 N force the displacement was 0.787mm with a screw and 0.927 without, at a 100N force post-cycle the displacement was 0.202 with a screw and 0.411 without, and finally at 1000N post-cycle the displacement was 1.591 with a screw and 2.810 without a screw. We also observed that on average it took 60,930 cycles of cantilever bending at 1000N to break a plate with a screw at the osteotomy site versus 29552 cycles without a screw ($p = 0.11$).

Conclusion: Having a screw at the osteotomy site did significantly alter plate biomechanics. There was less displacement across the osteotomy site for a given axial load. In addition we observed that the number of cycles to plate failure increased when a screw was at the osteotomy site. Clinically, having a stiffer, stronger construct may be beneficial. A stiffer construct may reduce non-union rates by minimizing motion at the fracture site. Finally, having a stronger construct would make the plate less likely to undergo fatigue failure. In the future, perhaps filling the empty screw holes with a cap will help create these stronger constructs.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#2. 2523] Targeting BH3-Domain Anti-Apoptotic Proteins with GX15-070 Decreases DNA Synthesis, Induces Cell Death and Sensitizes Rituximab-Sensitive and Resistant Non-Hodgkins Lymphoma Cell Lines to the Anti-Tumor Activity of Chemotherapy Agents

Naheed Alam, M.B.B.S - PGY III, Internal Medicine, SOCH

Additional Authors: Francisco J. Hernandez-Ilizaliturri, Arshad Iqbal, Scott Olejniczak, Joy Knight, Myron S. Czuczman

Faculty Mentor: Francisco J. Hernandez-Ilizaliturri, Roswell Park Cancer Institute

Type of Research: Basic

Purpose of Study: GX15-070 is a potent pan-bcl-2 inhibitor with known activity against chronic lymphocytic leukemia (CLL) cells and mantle cell lymphoma (MCL) cell lines, currently undergoing phase I, II testing. Bcl-2 over-expression is associated with chemotherapy resistance and correlates with a poor clinical outcome in diffuse large B-cell lymphoma. We have already demonstrated that acquisition of rituximab resistance is associated with deregulation of BH3-domain pro- and anti-apoptotic proteins. This leads to concomitant resistance to multiple chemotherapy agents. Targeting BH3-domain anti-apoptotic proteins with GX15-070 is an attractive strategy to potentially overcome acquired biologic and/or chemotherapy resistance.

Method: We studied the effects of GX15-070 in a panel of rituximab-sensitive (RSCL) and rituximab-resistant cell lines (RRCL). Resistant clones were generated by chronic exposure of Raji, RL or DHL-4 cells to escalating doses of rituximab with (4RH) or without (2R) human complement. Functional assays (e.g. ADCC and CMC assays) demonstrated a significant decrease in rituximab sensitivity in RRCL. In addition, resistance to chemotherapy agents (CDDP, doxorubicin, vincristine, etc.) was demonstrated in RRCL. Lymphoma cells were exposed in vitro to GX15-070 (0 to 20mM) with or without CDDP (0 to 10mM) or Doxorubicin (0 to 1mM). Following a 24 and a 48 hour period of drug exposure: induction of apoptosis and the percentage of viability was determined by flow cytometric analysis, Western blotting and trypan-blue staining techniques. In addition, changes in DNA synthesis and cell proliferation following drug exposure were performed using standard [3H]-thymidine incorporation assays. GX15-070 induced a dose-dependent cell death and decrease in DNA synthesis in all the cell lines tested (both RSCL and RRCL). Up to 75% of cell death was observed in all cell lines exposed to 20mM of GX15-070. Anti-tumor activity was seen even at the lowest tested dose of GX15-070 (2mM, 20-25% death cells). Incubation of RSCL and RRCL with 2 or 5mM of GX15-070 induced synergistic cytotoxic and anti-proliferative effects when combined with CDDP and doxorubicin. The IC50 of CDDP and doxorubicin was decrease ten-fold by the concomitant in vitro exposure to GX15-070 in all cell lines tested, including RRCL.

Summary of Results: Our data demonstrates that GX15-070 is active against both RSCL and RRCL and augments the anti-tumor activity of chemotherapy agents.

Conclusion: These results strongly suggest that GX15-070 added to systemic chemotherapy is a potentially valuable and novel therapeutic strategy in the treatment of B-cell NHL.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#3. SPONTANEOUS PNEUMOMEDIASTINUM: RARE COMPLICATION OF COMMON DISEASE.

Wamiq Y. Banday, MBBS - PGY II in Internal Medicine

Additional Authors: Mohammad Tahir MBBS; Francis K. Augustine, M.D

Faculty Mentor: Dr. Howard Lippes, Internal Medicine

Type of Research: Other

Purpose of Study: Spontaneous pneumomediastinum (PM) is the presence of air in the mediastinum. It can be a presentation of life threatening illness which requires intensive monitoring and acute intervention or it can be of benign nature. It is rarely seen in patients with Diabetic Ketoacidosis. Knowing the pathophysiology and clinical course of pneumomediastinum in DKA is essential for proper management of these patients, in order to prevent further investigation and invasive procedures.

Method: A 25 year old female with history of stable childhood asthma, presented to our emergency department (ED) with lethargy, weakness and dyspnea. She started having intractable vomiting and dry heaves for five days followed by lethargy and weakness. She was seen by her primary doctor who prescribed albuterol inhaler and nystatin swish and swallow for oral thrush. Prior to arrival in ED her breathing became labored. In ED she was lethargic, BP of 108/59mmHg, pulse of 126/min regular, respiration of 28/min and temp 95.3 F (rectal). Mucous membranes were dry, decreased skin turgor, no respiratory wheeze; neck was full with lower neck creptations. Blood sugar was 732 mg/dl, K 2.9 mmol/L, ketonuria and ABG showed anion gap metabolic acidosis. WBC count was 29,300/ il with 8% bands. Chest X-ray showed thin line of radiolucency along the left heart border (figure1a) and non contrast CT scan chest confirmed pneumomediastinum (figure1b). Gastrograffin swallow was negative for esophageal rupture/leak (figure c)

Summary of Results: She was treated with intravenous insulin, fluids, K supplements and broad spectrum antibiotics. She was intubated for respiratory distress. Her DKA improved over next 24 hours and was extubated. During hospital stay she improved both clinically and biochemically. Repeat chest x-ray showed resolution of PM. Antibiotics were stopped following negative blood cultures. She was given diabetic education and discharged home on subcutaneous insulin.

Conclusion: Pneumomediastinum is rare pulmonary complication of DKA but its incidence is largely unknown. Kussmaul breathing together with repeated vomiting increases the intra-alveolar pressure, sufficient enough to cause alveolar rupture. The air dissects along the peribronchovascular sheath to the mediastinum and can extend upto the neck and subcutaneous tissue. Patients usually presents with chest pain and other signs and symptoms of DKA. Presence of pneumomediastinum in DKA may be alarming. However, treating DKA intensively and correcting acidosis will break kussmaul breathing with subsequent resolution of pneumomediastinum. Gastrograffin esophagogram will rule out Boerhave syndrome in such patients. However, intensive care monitoring is warranted if pneumopericardium, pneumothorax and/or pneumorrhachis is coexisting.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#4. ATRIAL DIPLOPIA

Ajaz Banka, MBBS - PGY I in Internal Medicine

Additional Authors: Wamiq Y. Banday, MBBS; Mohsin Chisti, MBBS ; Bruce Platt MD

Type of Research: Other

Purpose of Study: 40 year old white female presented to our emergency department with multiple episodes of acute onset of double vision in her left eye. She had vertical diplopia which was transient and lasted for 30 minutes. There was no loss of vision. This was associated with dizziness and mild headache. Patient had developed symptoms of breathlessness, wheezing and non-productive cough about 6 weeks back and was prescribed prednisone, azithromycin and omeprazole by her pulmonologist. Her symptoms got worse and now developed vomiting and exertional breathlessness. She denies any trauma, weakness, falls, urinary incontinence, weight loss or loss of consciousness. There was no paroxysmal nocturnal dyspnea, chest pain or palpitations. Rest of the review of system was negative. On examination her blood pressure was 131/99 mm of Hg, heart rate was 108/minute regular and oxygen saturation was 99% on room air. Neuro-ophthalmologic examination revealed visual acuity of 20/20 OU with normal near vision, color vision, and visual fields. There was no motor or sensory deficit. CVS examination revealed classical diastolic rumble in mitral area, basilar crepitation in lungs and bilateral pedal edema. Rest of the examination was benign. Her WBC count was 14.7 and EKG showing M-mitral waves in lead II. CT Scan of Head without contrast was normal. Transthoracic 2D Echo showed a wide-based non-pedunculated 5cms mass attached to the left atrium with partial prolapse into the left ventricle. Severe functional mitral stenosis was present with pressure gradient of 28 mm Hg. The left ventricular ejection fraction was 50 %.

Method:

Summary of Results: Successful open surgical removal of the mass was done.

Diagnosis of cardiac myxoma was confirmed histopathologically. Patient had uneventful post-op period. Her symptom resolved following surgery

Conclusion: Primary cardiac tumors are rare with an incidence of 0.001 % to 0.28 %.

Classic presenting manifestations include constitutional, obstructive, and embolic symptoms. However, neurological presentation is less common. Cerebral embolic events present with Multi-infarct dementia, hemi-plegia, paraplegia. These symptoms often occur before the onset of constitutional or obstructive symptoms. Retinal myxomatous emboli have been described and are usually associated with emboli to the ipsilateral middle cerebral artery and usually presents with amaurosis. Transient mono-ocular Diplopia as the presenting symptom of left atrial myxoma has been rarely described. Our patient had a classical diplopia which resolved following surgical resection of atrial myxoma.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#5. Encephalopathy with combined lithium- risperidone administration

Kamaljeet Boora, MBBS - PGY 3 in Psychiatry

Additional Authors: Dr. Xu, J Hyatt
Faculty Mentor: Dr. Park, Psychiatry
Type of Research: Other

Purpose of Study: Lithium-neuroleptics induced encephalopathy is a rare drug interaction. Here I am reporting a patient who developed reversible encephalopathy with lithium-risperidone combination.

Method: A single case report.

Summary of Results: A patient of bipolar disorder, who presented with manic symptoms with psychotic feature, started with a combination of lithium and risperidone. Within few days, the patient developed encephalopathy, which reversed upon discontinuation of lithium and risperidone.

Conclusion: Combining lithium and neuroleptic is useful in treatment of bipolar disorder. However, encephalopathy can be anticipated to result when lithium is used with high potency anti-psychotic such as haloperidol and risperidone and there are baseline EEG abnormalities.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#6. High dose octreotide acetate for management of gastrointestinal neuroendocrine tumors

Manpreet K Chadha, MBBS - PGY 5 in Medical Oncology

Additional Authors: M. K. Chadha, M. Javle, B. Kuvshinoff, J. Lombardo, T. L. Mashtare,
G. E. Wilding, R. V. Iyer

Faculty Mentor: Renuka Iyer, Medical oncology

Type of Research: Clinical

Purpose of Study: Somatostatin analogues are well tolerated and effective for symptom control in gastrointestinal neuroendocrine tumors (GI-NETs). At conventional doses of 20-30 mg monthly, Sandostatin LAR (S-LAR) may offer symptom and possibly disease control. We undertook a retrospective analysis to study the efficacy and tolerability of higher doses of S-LAR in GI-NETs.

Method: With IRB approval, medical records of all patients with GI-NET who received S-LAR between June 2002 to date at our institution were reviewed. Baseline patient demographics, tumor characteristics, response, survival, and treatments given were obtained. Categorical variables and continuous variables were summarized through calculation of simple proportions and medians, respectively. Overall survival was estimated using Kaplan-Meier method

Summary of Results: Thirty patients were identified in the defined period with GI-NET who received high dose S-LAR. Median age was 59 years (mean 59; range: 35-80 years) with 17 (56%) males and 28(93%) Caucasian. Primary tumor location was foregut- 11(37%), midgut-13 (43%), and unknown-6 (20%) with predominant histology of carcinoid (53%). Twenty-seven patients were symptomatic at the start of treatment with diarrhea being the most common symptom followed by abdominal pain, flushing, and palpitations. Median survival from time of diagnosis was 307.4 months (95% confidence interval -93.3 to 307.4 months). Patients received a median of 5 doses of S-LAR at conventional dose of 30 mg which was followed by gradual increase in dose for symptom control (12), radiological progression (9), both (7), or unknown (2). Median high dose S-LAR was 40 mg (range-40- 90 mg) with a median number of doses being 8.5 doses. No treatment related toxicities were seen. Upon progression, while on S-LAR either chemoembolization (n=6), sir-sphere embolization (n=1), interferon-alpha (n=8) or systemic chemotherapy (n=5) were used for disease control

Conclusion: S-LAR is well tolerated in conventional and higher doses and is a useful adjunct to treatment in patients with GI-NET for symptom and disease control. S-LAR at higher doses may delay the need for use of systemic therapies and impact both survival and quality of life in these patients.

Faculty Facilitators: Dr. Chester Fox
Dr. Lucy Mastrandrea

#7. HYPERHOMOCYSTEINEMIA PRESENTING AS RECURRENT MI: A CASE REPORT

Mohammad M. Chisti, MBBS - PGY I in Internal Medicine, SOCH

Additional Authors: Wamiq Y. Banday, MBBS ; Ajaz Banka, MBBS; Shais Jallu, MBBS; Mirza Shahrukh Baig, MBBS; R. Emerson, MD; I. Garbes, MD; Khalid J. Qazi, MD; A. Herle, MD; J. Bell-Thomson, MD
Type of Research: Other

Purpose of Study: Introduction Acute Myocardial Infarction in young age is uncommon. Re-current coronary events in native and/or graft vessel in the absence of modifiable risk factor makes genetic causes more likely. Hyperhomocysteinemia secondary to methylene tetrahydrofolate reductase (MTHFR) mutation is known genetic modifiable risk factor. But less often this entity is considered. We report a case of recurrent myocardial infarction (MI) in a 37 year old male who was initially treated with primary coronary intervention (PCI), coronary artery bypass graft (CABG) and aggressive medical therapy.

Method: 37 year old white male presented to our emergency department with severe , 9/10, typical chest pain radiating to left arm and neck for the last two hours. He had a history of recurrent MI within last three months and was treated with CABG, PCI and medical management. He has recently started smoking and his mother is also diagnosed with coronary artery disease (CAD). He was on aspirin, simvastatin, clopidogrel, niacin, metoprolol and pantoprazole. On examination his temperature was 97.1°F, pulse 87/minute, respiratory rate of 14/minute, BP 100/74 mmHg, oxygen saturation of 100% on room air. His physical examination was unremarkable. Chest X-ray was clear, EKG showed ST elevation in Lead I, aVL, V1, V2, V5 and V6. Labs showed WBC 12.6, HB 14.9gm/dl, HCT 35.9, Platelets 346. Cardiac enzymes showed CPK 539, CKMB 50.1, and Troponin 5.32. Patient was treated with IV heparin, nitroglycerin and integrillin. He became hypotensive and was subsequently put on balloon pump. Transthoracic 2D Echo revealed left ventricular ejection fraction of 45 -50 % with anteroapical akinesia, Coronary angiogram showed a thrombus within the native diagonal of the LAD system just after the anastomosis of vein graft to the diagonal. The diagonal graft was 100% occluded just at the level of the anastomosis. Extensive Coagulation work up showed blood homocysteine levels of 16.9 mmol/L and 16.7 mmol/L on repeated testing . Blood was sent for MTHFR mutation as well. Patient was diagnosed with hyperhomocysteinemia. Apart from other long term medications for MI , he was also put on Coumadin , Vitamin B6, B12 and Folic acid. Patient condition stabilized and was discharged home on day six with regular follow-up. He is now symptom free for the last five months.

Summary of Results:

Conclusion: Modifiable risk factors for CAD include high blood pressure, high blood cholesterol, smoking, obesity, physical inactivity, diabetes, and stress. When a patient presents with the typical features of CAD but do not have the modifiable risk factors, genetic causes should be considered. As our patient had multiple coronary events in the absence of major risk factors. It was necessary to look for other genetic causes. However in common practice we don't think of evaluating for the any modifiable genetic causes in young population. Gene mutation in MHTFR results in hyperhomocysteinemia which is an independent risk factor for CAD. It role in

atherogenicity is multifactorial. It causes oxidative stress on endothelial cells, causes oxidative damage to LDL and causes impaired receptor-mediated uptake of LDL. Blood levels of homocysteine above 14 mmol/L are considered to be elevated and the risk appears to increase with higher homocysteine levels. Genetic test for MHTFR is commercially available. Initiation of therapy with B12, folic acid, and B-6 tends to normalize homocysteine in 4-8 weeks.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#8. *The Effects of an Educational Intervention on House Staff GI Prophylaxis Prescribing Practices.*

James R Hereth, MD - PGY 4 in Med/Peds

Additional Authors: Thomas Maul, MD
Faculty Mentor: Michael Aronica, MD, Med/Peds
Type of Research: Clinical

Purpose of Study: The purpose of this study was to see if a small educational session along with a GI prophylaxis guidelines card would help decrease unnecessary prescribing of acid suppression medication to inpatients.

Method: For this study, we looked at the inpatient prescribing habits of Buffalo General House Staff during two separate 4 week modules. During the first 14 days of the module, the house staff was allowed to prescribe GI prophylaxis/GERD medication without intervention. This was the control period. After the first 14 days, a brief educational session along with distribution of guidelines cards was performed and house staff was made aware that all of their charts would be reviewed for the data. After each module was completed, all house staff charts were pulled and through Chi Square analysis looked at relationships between house staff prescribing before and after the educational intervention. Other relationships analyzed were incidence of nosocomial pneumonia in the prophylaxed, incidence of ulcers in the unprophylaxed the effect of age, hand epatic and renal status on prescribing practices.

Summary of Results: From the sample size of this study, it was shown that without educational intervention, house staff would prescribe GI prophylaxis to 21.5% of the inpatient population that did not fit prophylaxis criteria. After the educational intervention, noncompliance of following GI prophylaxis guidelines fell to 10% of the inpatient population. It was also shown that housestaff were overall more likely to over prescribe vs underprescribe prophylaxis in the inpatient setting.

Conclusion: There are several conclusions that can be made. The first is that house staff should be made better aware of current GI prophylaxis guidelines to help prevent unnecessary medication prescriptions and hospital cost. The second conclusion is that there are several prophylaxis guidelines that need to be clarified and further researched so as to further streamline and simplify identification of patients who meet the criteria. The third conclusion is that a small educational intervention in the inpatient housestaff setting can make a positive difference in patient care and overall healthcare costeffectiveness.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#9. *Staphylococcus Aureus* Colonization Patterns in Children without Soft Tissue Abscesses

January A Hill, MD - PGY 2 in Surgery

Faculty Mentor: Yi-Horng Lee, Pediatric Surgery

Type of Research: Clinical

Purpose of Study: Community-acquired *Staphylococcus aureus* soft tissue abscesses are associated with a high rate of rectal and skin colonization. While nasal colonization rate in the general population is well documented, rectal and skin colonization of *S. aureus* in healthy children have not been studied. We seek to characterize the *S. aureus* colonization pattern in children without soft tissue abscesses and to identify potential risk factors for colonization.

Method: After IRB approval, all patients between 0 and 18 YO undergoing elective or urgent general surgical procedures were approached for enrollment. Patients with neutropenia, diverting enterostomies, or undergoing emergent operations were excluded. With consent/assent, parents and patients (if possible) were interviewed to identify potential risk factors for *S. aureus* colonization. Nares, right thigh and rectum were swabbed under general anesthesia and cultured for *S. aureus*. Fisher exact test and logistic regression analysis were performed.

Summary of Results: 100 children were enrolled. There were 35 □Š: 65□%. Eleven were < 36 MO (mean age 82.4 □} 72.2 months), 76 were Caucasians, 90 were outpatients or hospitalized for < 24 hours, and 46 reported antibiotic use for >24 hours within the last 6 months. 22 nasal swabs, 2 thigh swabs and 1 rectal swab tested positive for *S. aureus*. No risk factors were identified for nasal, thigh or rectal colonization of *S. aureus*.

Conclusion: Skin and rectal *S. aureus* colonization rates are low in children without soft tissue abscesses; nasal colonization rate in our study population is comparable to existing data in literature.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#10. Thoracic Back Pain in a Tennis Player

Michael R Jordan, MD - PGY 4 in Sports Medicine/Family Medicine

Faculty Mentor: Rajiv Jain, M.D., Sports Medicine

Type of Research: Other

Purpose of Study: Case Study: 56-year old male began having pain in his mid-back over two months while playing tennis. Patient describes the back pain as worse with laying down, and often awakens him from sleep. No saddle anesthesia, incontinence, or radiations. Patient went to China in May of 2007 and developed a febrile illness with diarrhea. This forced him to return back to the United States prematurely and spontaneously resolved. Patient took a five day course of Prednisone one week prior to the initial visit, along with Feldene, with some improvement in pain. No known trauma, previous injury or surgery. Pt otherwise is at his baseline state of health.

Method: Past Medical History is non-contributory, immunized for tuberculosis. Pt is an emigrant from Hungary in 1987. He has one alcoholic beverage per month, and is a non-smoker. He has been a dentist for thirty-two years and lives with his wife. Review of Systems is otherwise negative. Physical exam is negative, except for point tenderness along T6-T7 spinous processes.

Summary of Results: Differential diagnoses include DJD thoracic spine, thoracic osteomyelitis/diskitis, thoracic spondylosis, thoracic disk herniation, spondylolithesis, annular tear, vertebral facet pain, Potts disease, metastatic carcinoma, primary carcinoma, AAA, multiple myeloma. Tests ordered included a CBC and ESR, which were normal. X-ray revealed sclerosis vertebrae T6-T7, and an MRI revealed T6-T7 discitis/osteomyelitis.

Conclusion: Vancomycin was started, which was later switched to oral antibiotics (Zyvox), as the patient did not want prolonged PICC line treatment. Patient completed 8 weeks of the therapy, and his pain improved a great deal within two weeks.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#11. Post CABG Atrial Fibrillation - Identification Of High Risk Patients And Efficacy Of Standard Prophylactic Therapy

Muhammad F Khan, MBBS - PGY 2 in Internal Medicine (CHS)

Additional Authors: Muhammad A Khan MBBS, Mohammad Tahir MBBS

Faculty Mentor: Aravind Herle, Cardiology

Type of Research: Clinical

Purpose of Study: Atrial fibrillation/atrial flutter (AF) is the most common complication of coronary artery bypass grafting (CABG). AF have been reported in up to 40 percent of patients in the post-operative period and contributes significantly to the morbidity, cost and length of stay. The purpose of this study is to evaluate the predictability of these arrhythmias in a community hospital setting using previously identified risk factors.

Method: This is a retrospective study of consecutive patients undergoing CABG during 1 year period. Patients who developed new onset AF after the surgery were designated as cases and those who did not, as controls.

Summary of Results: 53 of 231 (23%) patients undergoing CABG developed AF during post-operative period. Cases tended to be older than controls ($p < 0.01$). Statistically significant differences were observed in 2 groups in terms of history of (h/o) smoking ($p=0.03$), h/o AF ($p < 0.01$), size of left atrium ($p=0.03$), h/o CHF ($p=0.01$), elevated BNP ($p=0.03$). No statistically significant difference was observed in terms of gender, race, h/o hypertension, h/o COPD and PR interval. In terms of pre-op medications, 35 of 53 (66%) cases were on beta blockers as compared to 87 of 177 (49%) of control ($p=0.02$).

Conclusion: In this limited study, we identified age, smoking, h/o AF, enlarged left atrial size, h/o CHF and elevated BNP as predictor for development of AF after CABG. Percentage of cases receiving beta blockers was more than that of controls, but no causal relationship can be established because of multiple confounding factors.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#12. INHIBITION OF HYALURONAN SYNTHASE-3 DECREASES COLON CANCER CELL GROWTH IN VIVO

Eric C Lai, MD - PGY 2 in General Surgery

Additional Authors: Rahul Singh MD, Yali Zhao, MS, Gillian Howell PhD, Ashwani Rajput MD

Faculty Mentor: Dr. Kelli Bullard Dunn, Surgical Oncology

Type of Research: Basic

Purpose of Study: Introduction: Hyaluronan (HA) and its biosynthetic enzymes (hyaluronan synthases; HAS1, -2, and -3) have been implicated in cancer growth and progression. We previously have shown that HAS3 is upregulated in metastatic SW620 colon cancer cells, and that HA mediates anchorage-independent cellular growth in vitro, a correlate of tumor growth in vivo. We hypothesized that inhibition of HAS3 expression SW620 cells would decrease tumor formation in a mouse model of primary tumor growth.

Method: Methods: HAS3 expression was inhibited by transfection with customized small interfering RNA (siRNA). Decreased HAS3 expression was confirmed by RT-PCR. Transfected cells were then injected into the flanks of nude mice. Tumors were measured and volume was calculated; mice were euthanized after 35 days, and tumors were dissected and weighed.

Summary of Results: Results: RT-PCR confirmed that SW620 cells transfected with siRNA against HAS3 expressed less HAS3 than cells transfected with a scrambled siRNA sequence (band intensities were 0.65 ± 0.06 in HAS3 silenced cells vs. 1.21 ± 0.05 in HAS3 scrambled cells; $p=0.0024$). Tumor volume was significantly decreased in HAS3 silenced tumors after day 13 (figure). HAS3 silenced tumors weighed less than HAS3 scrambled tumors (mean weight of HAS3 silenced tumors was 0.83 ± 0.15 grams vs. 2.19 ± 0.37 grams in HAS3 scrambled tumors; $p=0.0030$).

Conclusion: Conclusion: Inhibition of HAS3 expression in SW620 colon cancer cells decreased subcutaneous tumor growth in mice. These data support the contention that HAS3 is a critical factor in colon cancer cell growth.

Faculty Facilitators: Dr. Lucy Mastrandrea
Dr. Vasanth Kumar

#13. Medical Student Pathways to Research and the Role of Preventive Medicine

Allen J Leavens, MD - PGY 3 in Social & Preventive Medicine

Additional Authors: Shauna Lawless, MD; Margaret Eberl, MD, MPH; Annette Sunga, MD, MPH;
Carl Li, MD, MPH

Faculty Mentor: Carl Li, MD, MPH, Department of Social & Preventive Medicine

Type of Research: Other

Purpose of Study: During the 1980's, the number of clinician-scientists began decreasing. While some renewed interest in clinical research has been observed in recent graduates, insight on how medical students perceive research careers remains limited. Preventive Medicine physicians are quite frequently involved in clinical research, and those in the field may be a prime resource to better educate medical students about the importance of such work. Therefore, an assessment was developed to gauge attitudes and knowledge of first-year medical students about careers involving biomedical research and Preventive Medicine.

Method: A self-administered, cross-sectional survey was given to first-year medical students at SUNY-Buffalo to obtain information on demographics, educational background, and future career plans. Several questions also assessed knowledge about General Preventive Medicine residencies and careers. Frequencies and cross-tabulations were run to explore the data, along with Chi-square tests to compare categorical variables.

Summary of Results: An 85% response rate (n=115) was achieved. Older students were more likely than their younger colleagues to plan to conduct research as a physician in practice (p=.024). Gender, race, and family income were not associated with future research plans. Students who reported being involved in research prior to medical school were more likely to plan to do research in their future careers (p=.002). A majority (76%) of students felt that introduction to research mentors would make clinical research more appealing. Only 42% of students were aware that there is a residency program in General Preventive Medicine.

Conclusion: Early exposure of younger medical students to clinical research in a Preventive Medicine module and use of appropriate mentors may be important factors for maintaining a steady supply of physician-scientists.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#14. Chronic Administration of Phenobarbital Leading to Absent Uptake on Hepatobiliary Scintigraphy

Hong-biao Liu, MD PhD - PGY 3 in Nuclear Medicine

Additional Authors: Yu-qing Zhang, MD, PhD, *Gregory D. Mitton MD and Sami Fakir, MD

Faculty Mentor: Hani Nabi, Nuclear Medicine

Type of Research: Other

Purpose of Study: A 99m Tc-di-isopropyl iminodiacetic acid (DISIDA) hepatobiliary scan demonstrated absence of hepatic uptake in a two-year old male treated with phenobarbital for one month in the intensive care unit (ICU).

Method: A two-year old African American male was initially admitted into ICU because of blood stool and infection. During the process of pathogenic investigation, DISIDA scan was performed. Surprisingly, there was no radioactivity in the hepatobiliary system and gastrointestinal tract in the standard and 24-hour delayed sequential imagines. Only homogenous distribution in bilateral kidney and bladder was observed. Then the patient was investigated under a series of check-ups, such as abdominal ultrasound and CT. There was still no clear evidence to show the illustration of this DISIDA scan finding. Further, attention was focused on the possible toxicity of medications to hepatic cells. Following major medications were utilized recently, which included phenobarbital, antibiotics, furosemide and total parenteral nutrition (TPN). Phenobarbital drew the attention due to its possible toxicity to liver even though phenobarbital could enhance the sensitivity of DISIDA scan in the short-term setting through inducing the expression of cytochrome P-450.

Summary of Results: Absent hepatic uptake secondary to the toxicity of phenobarbital has not previously been described.

Conclusion: Phenobarbital is regarded as the possible candidate to cause the toxicity to liver even though phenobarbital could enhance the sensitivity of DISIDA scan in the short-term setting through inducing the expression of cytochrome P-450.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#15. *Harmonic Scalpel*

Farshad Mansouri, MD - PGY 6 in Colorectal Surgery

Additional Authors: Bryant Butler, Molly Moore, Meliton Silva

Faculty Mentor: Dr. Bryan Butler, Colorectal Surgery

Type of Research: Clinical

Purpose of Study: In the current field of surgery the surgeon has multiple options on method of ligation of major vessels. The purpose of this study was to assess the ability of the harmonic scalpel in ligating major vessels when used during various colorectal procedures.

Method: One hundred and fifty-nine colorectal surgical procedures were retrospectively reviewed. Variables included which vessels were ligated and the method in which they were ligated. Four methods of ligation were studied: Harmonic clip technique, clips plus Harmonic ligation, Ethicon Endocutter 45 mm stapler with a vascular load, and clamp and tie. Patient age and gender were also documented. End points include estimated blood loss, drop in hemoglobin >2gm/dl, need for transfusion, return to OR for bleeding, and post operative hematoma not requiring a return to the OR.

Summary of Results: Results: Fifty of the 159 patients (31%) studied underwent the harmonic clip technique. The mean age was 62 (24 – 84). Twenty were male (40%) and 30 were female (60%). Twenty-seven patients (54%) had a drop in hemoglobin > 2 gm/dL, with a total of 34 units transfused (0.2 units / patient). Their average estimated blood loss (EBL) was 143 cc. Twenty-nine of the 159 patients (18%) studied underwent the clips plus Harmonic technique. The mean age was 68 (39 – 92). Seventeen were male (59%) and 12 were female (41%). Fifteen patients (52%) had a drop in hemoglobin > 2 gm/dL, with a total of 5 units transfused (0.17 units / patient). Their average EBL was 160 cc. Fifteen of the 159 patients (9%) studied underwent the Ethicon Endocutter stapler technique. The mean age was 60 (35 – 81). Five were male (33%) and 10 were female (66%). Eleven patients had a drop in hemoglobin > 2 gm/dL, with a total of 3 units transfused (0.2 units / patient). Their average EBL was 137 cc. Sixty-five of the 159 patients (40%) studied underwent the clamp and tie technique. The mean age was 64 (31 – 92). Thirty-one were male (48%) and 34 were female (52%). Twenty-seven patients (41%) had a drop in hemoglobin > 2 gm/dL, with a total of 34 units transfused (0.5 units per patient). Their average EBL was 207 cc.

Conclusion: When compared to other methods, the harmonic scalpel has proved itself to be a safe and efficient method of sealing and ligating major vessels.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#16. Normative Spleen Size in Tall Healthy Athletes: Implications for Safe Return to Contact Sports after Infectious Mononucleosis

Ryan McCorkle, MD, MPH - PGY 3 in Emergency Medicine

Additional Authors: Dietrich Jehle MD,FACEP, Heidi Suffaletto, MD

Faculty Mentor: Dr. Heidi Suffaletto and Dr. Dietrich Jehle, Emergency Medicine/Sports Medicine

Type of Research: Clinical

Purpose of Study: Infectious mononucleosis most frequently affects teenagers and young adults who commonly participate in competitive sports. Splenic rupture is a serious and potentially lethal complication of this illness. One marker for resuming competition is return to normal spleen size, but "normal" parameters are based on average sized populations. Earlier studies have suggested a proportionally larger spleen size in taller individuals, but concrete data is not available. The purpose of this study is to help establish normative parameters of the spleen by ultrasonography in tall athletes.

Method: This prospective cohort observational study compared ultrasound measurements of spleen size in pre-participation physicals for athletes at University of Buffalo, Erie County Community College, University of Texas at Tyler and Austin College between 08/06-01/07 with ultrasound measurements of "normal sized" historical controls from the literature. Healthy male athletes who were at least 6 feet 2 inches (188 cm) in height and healthy female athletes at least 5 feet 7 inches (170 cm) tall were selected for potential enrollment. Exclusion criteria were less than 18 years of age, pre-existing splenomegaly, infectious mononucleosis in the past 3 months, history of splenectomy, or inability to sign written consent. Statistical analysis was used to determine the sample distribution by descriptive statistics (mean, standard deviation, and variance) and a one sample t-test was used to compare measurements in tall male and female athletes with historical measurements in the average height population. Statistical significance was defined as $p < 0.05$.

Summary of Results: Enrollment consisted of 66 subjects who met inclusion criteria. No individuals were subsequently excluded or lost to follow up. Mean height was 192.26cm (SD +/-6.52) for males, 176.54 cm (SD +/-5.19) for females. Mean splenic measurements for all subjects were 12.19 cm (SD +/-1.45) for spleen length, 8.88 cm (SD +/-0.96) for spleen width, 5.55 cm (SD +/-0.76) for spleen thickness. The study mean for spleen length was 12.192 cm (95% C.I. 11.835, 12.549) and population mean was 8.94 cm (two tailed t-test, $p < 0.01$).

Conclusion: In this population of tall athletes, normal spleen size is significantly larger than the normal size for the average individual. This information is very important in order to make the correct clinical management decisions regarding safe return to contact sports in tall athletes with splenomegaly due to infectious mononucleosis.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#17. A Simple Amiodarone Protocol for Post Operative Prophylaxis Against Atrial Fibrillation after Lung Resections.

Baher B Maximos, MD, MS - PGY 4 in Surgery

Additional Authors: Sai Yendamuri, MD, April Proefrock, RN, Todd Demmy, MD

Faculty Mentor: Chukwumere Nwogu, MD., Thoracic Surgery, RPCI

Type of Research: Clinical

Purpose of Study: Background: Atrial fibrillation (AF) is associated with increased morbidity and cost following lung resections.

Method: Methods: One hundred and fifty four patients underwent lung resections at Roswell Park cancer institute between November of 2006 and September of 2007. An Amiodarone atrial fibrillation prophylaxis protocol was initiated in May of 2007. A retrospective review of our prospective database was used to assess the post-operative AF rate in this patient cohort, before and after the initiation of the amiodarone protocol.

Summary of Results: Results: Before the protocol initiation, the rate of development of AF in the post-pneumonectomy group was 37.5%, while the rate of development of AF in the post lobectomy group was 15.6% After the protocol initiation, the rate of development of AF in the post-pneumonectomy group was 14.3% ($p = 0.30$), while the rate of development of AF in the post lobectomy group was 4.7% ($p = 0.14$).

Conclusion: Conclusions: Amiodarone is a simple, safe, and effective method of post-operative prophylaxis against AF following lung resections. Further data collection will permit confirmation of the statistical significance of our preliminary findings.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#18. Reassessing physical disability among US medical students

Demetrius L Moutsiakis, MS - PGY 3 in Epidemiology

Faculty Mentor: Thomas Polisoto, MD, Physical Medicine & Rehabilitation

Type of Research: Other

Purpose of Study: To re-assess the prevalence of physical disability among graduating medical students.

Method: An electronic, mail and telephone survey will be sent to the offices of student affairs of the 123 accredited US medical schools. The questionnaire seeks to ascertain the number of students with and without disability who graduated between 2000 and 2007.

Summary of Results: Preliminary results indicate a prevalence of 0.23% for graduating medical students over the 8 years under study. That prevalence is about the same as the previous study conducted over a 4 year period. Thus, the actual incidence per year over the year 2000 to 2007 appears to be 1/2 that seen between 1987 and 1990.

Conclusion: Since the passage of the Americans with Disabilities Act in 1991, the incidence of graduating medical students in the US with disabilities seems to have fallen by half.

Faculty Facilitators: Dr. Vasanth Kumar
Dr. Andrew Symons

#19. Labor Induction in women with unfavorable Bishop score: A comparison of intrauterine Foley catheter with concurrent oxytocin infusion versus Prostaglandin E2 (Cervidil)

John D Nguyen, M.D. - PGY PGY-4 in Obstetrics and Gynecology

Faculty Mentor: Anthony Pivarunas, D.O., Obstetrics and Gynecology

Type of Research: Clinical

Purpose of Study: determine the efficacy of combination intrauterine foley balloon and concomitant Pitocin for labor induction versus Prostaglandin E2 (Cervidil) in the induction of women with unfavorable cervix.

Method: Women who presented for induction of labor at Sisters of Charity Hospital with Bishop score less than 6 were assigned to receive either foley balloon and concomitant Pitocin protocol or Prostaglandin E2 protocol. Primary outcome was time from start of induction to vaginal delivery. Secondary outcomes were cesarean delivery rates, incidence of chorioamnionitis, Apgar scores at 1 and 5 minutes, and tachystole, hyperstimulation, use of epidural, meconium, endometritis, NICU admission, and finally the total financial cost of an induced delivery. Patients who were chosen to the Foley group received a 16F Foley catheter, which were inserted by resident house staff under visualization of the cervix by sterile speculum examination. After proper placement was ensured, the catheter balloon was inflated with 30 mL of sterile normal saline solution. Traction was applied to the catheter until the balloon was taut against the internal cervical os. The catheter was then taped with traction to the inner thigh of the patient until spontaneous expulsion. If this did not occur, the catheter was deflated and removed after 12 hours. Pitocin was started concomitantly at 2 mU/min and titrated by 2mU/min every 15 min to a maximum dose rate of 20mU/min. At which time the cervix would be evaluated by resident house staff for dilation, and/or the need to increase Pitocin dose above 20mU/min. Patients who were chosen to receive Prostaglandin E2 (Cervidil) would have the induction agent inserted into the posterior fornix of the vagina and remain there for the duration of 12 hours. At which time, the cervix would be evaluated by resident house staff for dilation and removal of the insert.

Summary of Results:

Conclusion:

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#20. Hand Assisted Laparoscopic Colectomy: Analysis of 208 Cases. A Single Surgeons Experience

Rikesh T Parikh, MBBS - PGY 1 in Surgery

Additional Authors: Bashir Attuwaybi MD, Naveen Ballem MD

Faculty Mentor: Bryan Butler MD, Colorectal Surgery

Type of Research: Clinical

Purpose of Study: The purpose this study was to evaluate a single surgeon's experience with hand-assisted laparoscopic colectomies(HALC) for various colorectal diseases.

Method: A retrospective analysis of 208 consecutive patients who underwent(HALC)between Aug.2000&Aug.2006. Procedures performed include HALC:sigmoidectomy(S),right hemicolectomy(RH),low anterior resection(LAR),total colectomy(TC),left hemicolectomy(LH),&transverse colectomy(TRC).Outcome measures included operative time(min),estimated blood loss(EBL(ml))length of stay(LOS(days)),return of bowel function(days),conversion to open,postoperative complications and parental analgesia(days).Subgroup analysis was performed on perioperative variables and surgical technique.All data reported as mean±SEM,t-test was used to compare differences between subgroups and variables.

Summary of Results: 208 patients were analyzed:114 females&94 males(63.48 ± 0.97 yrs of age(range 26-93 yrs). The study group were categorized by disease and HAL procedure performed(n):cancer(117), diverticulitis(75), IBD(4(3UC&1Crohns disease)), colovesical fistula(3), dysplastic polyps(2), rectal prolapse(2), colonic inertia(2),AVM(2), &carcinoid(1). HALC(S=89), (RH=82), (LAR=18), (TC=12), (LH=6)&(TRC=1). Perioperative parameters independent of type of HALC performed included operative time(162.83 ± 5.18), EBL(118.80 ± 6.9), LOS(3.94 ± 0.34), return of bowel function(1.53 ± 0.05), & parental analgesia (1.49 ± 0.09). Conversion to open was seen in 3 of 208 cases a rate of 0.03%.2 of which were seen in HALC(S) and 1(RH).A total of 6 complications,anastomotic leaks,ileus,abscess and death (n=3,1,1,1respectively).Complications were seen more commonly in the cancer group.When comparing HALC(S)vs HALC(RH) operative time and EBL were significant variables($p < 0.0001$ & < 0.0001)with (S)resections taking over 1 hr longer(113vs186min)with more blood loss (133vs83ml).(TC)were associated with lengthier hospital stays,more IV pain medication and longer returns to bowel function. HAL(RH) were the fastest to perform(113.05) and the lowest EBL(83ml).(LH)vs(RH)showed no difference in return to baseline function($p 0.47$).No statistical difference was seen regarding LOS, parental analgesia,&return bowel function vs the different procedures irrespective of disease.

Conclusion: HALC is safe,effective,and reproducible.Operative times and EBL vary depending on left or right sided resections.LOS,IV analgesia and return of bowel function are not influenced by the type of procedure performed.

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#21. Effective Catheter Length For Needle Thoracostomy

Daniel P Shand, MD - PGY 3 in Emergency Medicine

Additional Authors: Scott Wander, Anthony Billittier, James Woytash, Dianne Vertes, Jonricka Malone,
Mark Rutecki, Thomas Lamb, Amanda Waby

Faculty Mentor: Jeff Myers, DO, Emergency Medicine

Type of Research: Clinical

Purpose of Study: To determine the most effective needle length that should be used to perform needle thoracostomy of a tension pneumothorax.

Method: Chest wall thickness was measured on a convenience sample of 142 cadavers evaluated by the Erie County Medical Examiner (Buffalo, NY). During the autopsy, prior to incision into the chest wall, a 3.5 inch (8.82 cm) spinal needle was inserted to the hub through the second intercostal space along the midclavicular line. The skin was incised and ribcage opened by standard autopsy technique with minimal disturbance of the needle. The needle was kinked at the parietal pleura using needle-nose pliers then removed. The measured distance from hub to kink represented the distance from the skin to the parietal pleura. Patients referred to the Erie County Medical Examiner age 18 and over were included. Homicides were excluded. This study received exempt approval from The Institutional Review Board.

Summary of Results: A total of 142 patients were enrolled, 13 were excluded. The mean age of the population was 50.02 years (range 18 - 89), and the mean weight was 81.65 kg (range 34 - 218). The mean chest wall thickness in the patients studied was 2.96 cm (95% Confidence Interval = 2.79 – 3.12, range 1.0 cm to 6.4 cm). Women, on average, had a thicker chest wall than men (3.09 cm for women, 2.90 cm for men). A 3.5 cm needle would not reach the pleural space of 22% of patients studied (29 of 129).

Conclusion: The mean chest wall thickness was 2.96 cm, with great variability among the study population. To reliably penetrate the pleural space of 78% of patients, a needle of at least 3.5 cm should be available, with consideration for a longer needle or alternate insertion location for individuals of significant body habitus.

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#22. INCREASE IN HDL LEVEL AND EFFECT ON CORONARY ARTERY DISEASE: A META-ANALYSIS

Ashish Shukla, MBBS, MPH - PGY 1 in Internal Medicine

Additional Authors: Ashish Shukla, M.D; Zhou Xiao, M.D;

Faculty Mentor: Dr William E Boden, Cardiology

Type of Research: Clinical

Purpose of Study: Cardiovascular disease processes remain the primary cause of morbidity and mortality. Raised Low density lipoproteins (LDL) and low levels of circulating High density Lipoproteins (HDL) have definitely shown to be associated with an increased incidence of coronary artery disease (CAD). Although attempts to increase HDL levels to reduce the risk of development and progression of CAD have been prescribed, the extent to which it is beneficial is not clear. We performed a systematic review and a Meta-Analysis to assess the association of increasing the HDL level and changes in the burden of CAD.

Method: EMBASE and Medline databases were searched to identify articles reporting randomized control trials that evaluated the increase in HDL and associated reduction in either clinical presentations in patients with CAD or associated changes in vessel wall indicating atherosclerotic burden. Studies were selected using a priori defined criteria, and two authors evaluated each study and abstracted data on study characteristic, study quality and outcomes. Odds ratios or weighted means and 95% confidence intervals (CIs) were then calculated and pooled using a random-effects model. Chi-square and I square statistics were used to evaluate heterogeneity.

Summary of Results: Twenty-one case-control and cohort studies with a total of 53,552 patients met the inclusion criteria. Currently available pharmacotherapy increase HDL by 20-30%. While smaller studies per se indicate some benefit in increasing the HDL levels, definitive reduction in cardiovascular events is not apparent.

Conclusion: Based on the trials done so far, there seems to be a modest reduction of cardiovascular events upon increase in the HDL levels.

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#23. Are Internet Searches a Reliable Source for Answers to Residents Clinical Questions in the ED?

Shravanti R Sinha, MBBS - PGY 2 in Emergency Medicine

Additional Authors: Dr.Krause, Dr.Moscati, Diane Schwartz, June Abbas

Faculty Mentor: Drs. Krause & Moscati, Emergency Medicine

Purpose of Study: To determine EM resident level of accuracy in searching Google® to answer clinical questions. EM residents seek outside resources to answer clinical questions. With the advent of ED internet access, Internet Search Engines have replaced textbooks as references, Google® being the most popular.

Method: Two faculty members developed a 71 question test. Questions were clinically oriented and had validated, referenced answers. The residents initially answered demographic questions regarding confidence on computer and ISE to search for answers. Residents then answered questions without any help, (the PreTest). They were instructed to answer only if they were “confident to a sufficient degree of clinical certainty”. Second phase, (the Google® Test), was done using Google® to answer incorrect/unsure questions. The tests were scored and compared with the training level and individual computer experience/confidence.

Summary of Results: 33 EM residents completed the test. On the Pretest the residents answered 32% correctly, 28 % incorrectly and 40% unsure. For the Google® test, residents answered 59% (95%CI 56-62) correctly, 33% incorrectly and 8% unsure. Of the background variables, only age, confidence using a computer, confidence finding medical information and reliability of medical information were correlated with higher percentages of correct answers on the Google® test.

Conclusion: EM residents were not very accurate using Google® to search for answers to clinical questions. Using Google® appeared to have given a false sense of security, increasing the number of incorrect answers. Innovations such as ISE should be studied carefully before being accepted as reliable tools for teaching clinical decision making.

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#24. A Comparison of 4 Different Sedation Techniques for Pediatric Dental Patients.

Jayson Smith, DDS - PGY 3 in Pediatric Dentistry

Additional Authors: Dr Paul Creighton
Faculty Mentor: Dr Christopher Heard, Anesthesiology
Type of Research: Clinical

Purpose of Study: Conscious sedation is often part of a pediatric dentist's practice and can be provided by a variety of different routes and different medications. PO midazolam, IN midazolam, fentanyl lollipop and IN sufentanil were the methods we chose. Once a month a pediatric anesthesiologist is dedicated to a day in the dental clinic to organize and supervise the practice of conscious sedation. The aim of this study was to review four different sedation techniques for efficacy and safety.

Method: After IRB approval a research assistant, not involved with any form of direct patient care collected sedation data. The patients were monitored during and after the procedure with pulse oximetry. Depth of sedation was assessed using the UMSS. Behavior was rated using the OSBR. The overall effectiveness of the sedation was also assessed by the independent observer.

Summary of Results: Over a 6 month period 102 patient sedations were observed. In all groups the patients became significantly sedated during the procedure. None of the patients became deeply sedated. The patients who had received fentanyl lollipop were significantly more sedated in the PACU and they remained significantly longer in recovery. The OSBRS increased significantly for most patients during the procedure compared to baseline. There was no significant difference between the groups for the OSBRS during the procedure. The "failure-rate" of our sedation was approximately 25%. This was not significantly different between the sedation groups nor was the incidence of complications.

Conclusion: There appeared to be little difference between the different sedation regimens used.

Faculty Facilitators: Dr. Andrew Symons
Dr. Susan Baker

#25. Safety of Chronic 5-ASA Use in the Elderly

Camille Sommer, MD - PGY 2 in Internal Medicine

Additional Authors: Richard Feldstein, Shanti Raju, Lou Mastrine, Seymour Katz

Faculty Mentor: Dr. Seymour Katz, Gastroenterology

Type of Research: Clinical

Purpose of Study: The purpose of this study is to evaluate the safety profile in the chronic use of 5-ASA (Asacol®) and identify any adverse events, particularly nephrotoxic or hematologic side effects in the elderly inflammatory bowel disease (IBD) population (≥ 60 years).

Method: We retrospectively reviewed 218 charts of patients 60 years or older with IBD. We calculated the mean daily dose of 5-ASA, duration of therapy, and evaluated each patient for any adverse reactions, specifically focusing on the creatinine and white blood cell count (WBC).

Summary of Results: Of the 218 patients, 52 were taking 5-ASA. Thirty-four of these patients were treated with 5-ASA ≥12 months; the average daily dose of 5-ASA in these patients was calculated to be 3.24 g. Of the patients on chronic 5-ASA therapy, 7 patients were found to have an elevated serum creatinine concentration of ≥ 1.2 mg/dL. The GFR was calculated using the Modification of Diet and Renal Disease study equation (MDRD) and was found to be between 35-61 mL/min/1.73m². However, the MDRD has not been validated in the elderly (>70 years). In addition, serum creatinine levels are decreased with advanced age, malnutrition and muscle wasting which may be present in the elderly and confound the calculation of the MDRD. Furthermore, 5 out of the 7 patients had predisposing comorbidities (hypertension, cirrhosis, diabetes, nephrolithiasis, congestive heart failure) and were taking potentially nephrotoxic drugs (allopurinol, diovan, furosemide, ACE inhibitors). Two of the seven patients had no documented comorbidities or additional medications and were taking 5-ASA (4.8 g) for durations of 17 and 18 months, respectively. However these patients had elevated serum creatinine levels on initial presentation before receiving any 5-ASA product (1.4 and 1.5 mg/dL, respectively and remained unchanged for the duration of 5-ASA therapy). Two patients on chronic 5-ASA therapy had WBC ≤ 4 10³/cmm, however both patients had a history of malignancy (uterine and renal cell carcinoma) and had undergone chemotherapy and/or radiotherapy, which may have contributed to their leukopenia.

Conclusion: This is the first study reporting the safety profile of long-term 5-ASA usage in the elderly IBD population (≥ 60 years). The data would indicate that when within the FDA-approved maintenance dose range for 5-ASA, no significant adverse events were noted up to 119 months. Periodic monitoring of both CBC and serum creatinine is still warranted in this population with comorbid diseases and on multiple medications.

Faculty Facilitators: Dr. Susan Baker
Dr. Chester Fox

#26. What kind of workman's compensation is this?

Mohammad Tahir, MBBS - PGY 1 in CHS-medicine

Additional Authors: Muhammad F khan, MBBS; Donald Gullickson, MS-III

Faculty Mentor: Edward Obrien, Internal Medicine

Type of Research: Other

Purpose of Study: In primary care practice only injury related issues are addressed during clinic visit for workman's compensation. We present a case of delayed diagnosis of vitamin B-12 (cyanocobalamin) deficiency myelopathy who presented to clinic with minimal back injury.

Method: Case Report

Summary of Results: Twenty nine-year-old male presented to office with lower extremity weakness after sustaining minimal injury to back. He was referred for physical therapy and neurosurgery evaluation. MRI of spine was unremarkable. Patient's symptoms progressively worsened and at one time he developed urinary retention. Second MRI was also unremarkable. Five months after initial presentation patient developed inability to walk and was admitted to hospital for further work-up. Examination revealed grade 1 power in both lower extremities with diminished knee, ankle and planter reflexes. Touch, joint position and vibratory senses were diminished. Romberg sign was positive. CBC revealed hemoglobin of 12.3 with MCV of 104 fl. Serum cyanocobalamin level was <50 and folate level was normal. Patient was started on standard parenteral cyanocobalamin replacement. 4 week later joint position, touch and vibratory sensations in lower extremity had returned with 4/5 power. Hb was 14.6 but he had some loss of balance and walked with walker.

Conclusion: This is an interesting case of pernicious anemia which could have been diagnosed much earlier by CBC. It highlights the lacuna where an office visit for workman's compensation, not-paid for any medical work-up unrelated to injury. There should be some room for physician's medical decision making during non-health insurance paid office visits. This will reduce the cost of unnecessary investigations.

Faculty Facilitators: Dr. Susan Baker
Dr. Chester Fox

#27. *Thyroid Storm*

Shehzad M Topiwala, MD, FCPS. DD, MBBS - PGY 4 in Endocrinology

Additional Authors: Teekam Das Lohano, Bina Shakya, Atif Mohammad, Sachin Bangar

Faculty Mentor: Dr Dhindsa, MD, Endocrinology

Type of Research: Other

Purpose of Study: To describe a case of thyroid storm

Method: Case study narrating a patient who presented with this uncommon endocrine emergency

Summary of Results: A 19 year old female student was brought to the ER after passing out late evening. There was no prior history of thyroid disorders in the patient or her family. She had altered sensorium, hyperthermia, hypertension, tachycardia, tachypnea. Her family said he had been losing weight lately, and was feeling hot most of the time. No visual complaints. No past or family history of autoimmune phenomena. She had a past history of exercise induced asthma. The EMT noticed a swollen neck while transferring her to the bed. That's what made the hospitalist think of thyroid as a potential cause, because otherwise the diagnosis is fairly elusive. It often masquerades as an infection which fails to respond to antibiotics and anti-pyretics. She was intubated, and treated with propyl thiouracil, propranolol, hydrocortisone and lugols iodine, in addition to supportive care in the ICU. There was a prominent thyromegaly with a classic bruit. No eye or integumentary signs were present. The patient responded to therapy.

Conclusion: Thyroid storm is an uncommon medical emergency, which frequently mimics an infectious state. It is a difficult diagnosis to make. However, it may be overdiagnosed as well. Any uncontrolled / poorly treated hyperthyroid patient with an infection can have similar manifestations. Although one may be tempted use the label of 'storm' in many such cases, in reality the hyperthyroidism cannot be incriminated as the sole etiology. This is important because a loose diagnosis might warrant treatment with radioactive iodine. The latter then precludes a diagnostic and therapeutic option (radioiodine uptake scan, and then radioablation) for the next several weeks to months.

Faculty Facilitators: Dr. Susan Baker
Dr. Chester Fox

#28. Log odds of positive lymph nodes in the prognosis of node-positive breast cancer

Jiping Wang, MD, PhD - PGY IV in Surgery

Additional Authors: Stephen B. Edge
Faculty Mentor: James Hassett, Surgery
Type of Research: Clinical

Purpose of Study: Many studies have shown the significance of lymph node ratio (LNR), proportion of positive lymph nodes (pLN) in the prognosis of early breast cancer. A commonly used statistics in classification, log odds (the logarithm of the ratio between the probability of "success" and the probability of "failure") has not been systematically studied in the staging of breast cancer. We examined log odds of pLN (LODDS) as a prognostic factor in node-positive breast cancer (NPBC) and the role in NPBC staging.

Method: 50,631 NPBC patients aged 18 or older during 1988-2003 were identified from the Surveillance, Epidemiology, and End Results (SEER) cancer registry. Patients were sub-grouped as LNR1 to LNR4 with cutoff points 0.07, 0.25, and 0.50. Patients were also sub-grouped as LODDS 1 to LODDS5 when LODDS value falls into (- 8, -2.2), (-2.2, -1.1), (-1.1, 0), (0, 1.1), and (1.1, 8) respectively. Log-rank test and Cox proportional hazard model were used to evaluate the prognostic performance of LNR, LODDS and AJCC stage.

Summary of Results: Observed 10-year survival for patients in LNR1 to LNR4 groups was 72.2%, 63.8%, 51.7%, and 32.9% respectively ($p < 0.0001$) and for patient in LODDS1 to LODDS5 groups was 71.9%, 63.8%, 51.7%, 39.7%, and 26.4%, respectively ($p < 0.0001$). Multivariate Cox model adjusting for age, tumor size and grade, race and number of pLN shows that LODDS is an independent predictor (relative risk: 1.25, 95% CI=1.23-1.27). The survival of AJCC stage II or III patients are heterogeneous when stratified by LODDS (table, all $p < 0.0001$).

AJCC Stage Group	LODDS1 (- 8, -2.2)	LODDS2 (-2.2, -1.1)	LODDS3 (-1.1, 0)	LODDS4 (0, 1.1)	LODDS5 (1.1, 8)	All
II A	79.1 (4,195)	72.0 (9,607)	66.3 (1,726)	58.9 (569)	48.1 (481)	73.1 (16,578)
II B	64.9 (3,066)	57.3 (7,659)	49.0 (1,602)	40.7 (444)	26.2 (351)	57.5 (13,122)
IIIA	52.1 (335)	57.8 (2,786)	51.3 (5,528)	41.2 (2,690)	30.9 (1,168)	48.9 (12,507)
IIIB	47.8 (134)	36.2 (471)	33.8 (481)	23.1 (357)	12.4 (374)	29.1 (1,817)
IIIC	0 (0)	33.3 (9)	44.5 (593)	37.7 (2,160)	24.9 (3,845)	31.0 (6,607)

*All survival comparison within each stage group was < 0.0001 ; ** Cell contents: Survival % (No. of Patients)

Conclusion: LODDS is an independent predictor for survival in NPBC patients and is superior to LNR and AJCC Stage Group.

Faculty Facilitators: Dr. Susan Baker
Dr. Chester Fox

#29. Characterization of CD8 T cells activated by intact urokinase plasminogen activator bone marrow derived dendritic cells

Nicholas R Yu, MD - PGY 2 in Dept of Surgery

Faculty Mentor: Drs. P Shrikant and J Gibbs, Immunology and Surgical Oncology, RPCI
Type of Research: Basic

Purpose of Study: Dendritic cells (DCs) migrate to integrate dangers posed at various anatomic sites with the naïve T cells residing in the secondary lymphoid organs. uPAR is present on the filapodia of DCs and has been shown to play a role in migration. However, the role of uPAR in regulating T cell activation has not been delineated. Here, we characterize intact uPAR BMDC's ability to activate and to induce proliferation and differentiation of naïve T cells in vitro.

Method: BMDCs activated and matured with H-2Kb MHC-I restricted peptide derived from chicken ovalbumin (SIINFEKL) and LPS respectively, were co-cultured with carboxyfluorescein succinimidyl ester labeled naïve TCR transgenic CD8+ T (OT-I) cells to study their activation, proliferation, and differentiation as determined by flow cytometry.

Summary of Results: After 24 hours of co-culturing with BMDCs, 84-94% of OT-I T cells exhibited upregulation of an activation marker, CD69, in an antigen dependent manner. At 48 hours, the T cells underwent several rounds of division and began to produce 13-35% of interferon-gamma (IFN- γ). By 72 hours, IFN- γ production decreased to basal levels while proliferation persisted.

Conclusion: The model demonstrates that CD8+ T cell activation, proliferation, and differentiation occur in an antigen dependent manner presented by BMDCs. The expected results will have future implications in the evaluation of a crucial role for the uPAR system in the regulation of the DC-T cell axis.

Faculty Facilitators: Dr. Susan Baker
Dr. Chester Fox

