

Department of Physical Medicine and Rehabilitation

Fifth Annual Research Day

Tuesday, June 14, 2011

Keynote Speaker: Neil Segal, M.D., M.S.

Associate Professor, University of Iowa

University of Rochester School of Medicine & Dentistry

Department of Physical Medicine and Rehabilitation

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MEDICINE *of* THE HIGHEST ORDER



Department of Physical Medicine and Rehabilitation
5th Annual Research Day
Agenda
Tuesday, June 14, 2011

4:00 p.m. – 5:00 p.m.

Keynote Speaker (CME Grand Rounds): Neil Segal, M.D., M.S., Associate Professor, University of Iowa
The Role of Quadriceps Strength and Proprioception in the Development and Progression of Knee Osteoarthritis
Location: PM&R Conference Room, 5-4121

5:15 p.m. – 8:00 p.m.

Residents' Research and Presentations (Presentations are in bold, each allowing 5 minutes for Q&A)
Location: Natapow Conference Room, 1-9545

	Mathew Abraham, M.D. (PGY4):		Hemant Kalia, M.B.B.S., M.P.H. (PGY3):
5:15 – 5:30 p.m.	1. Double Blind Placebo Controlled Trial to Evaluate Preservation of Bone Mineral Density of the Hip and Distal Femur by Bisphosphonate Therapy (Fosamax) Following Spinal Cord Injury: A Pilot Study	6:50 – 7:00 p.m.	1. Successful Rehabilitation Outcome of Functional Right Hemispherectomy in an Adult with Refractory Status Epilepticus: A Case Report
5:35 – 5:45 p.m.	2. Atypical Presentations of Pulmonary Embolism on an Acute Inpatient Rehabilitation Unit: Case Reports 3. Discharge Summary: Assures Safety, Continuity and Quality Care of Patients 4. Discharge Summaries: A Tool to Assure Continuity of Care		2. The Efficacy of Anal Fistula Plug in Fistula-in-ano: A Systematic Review 3. Outcome Analysis of Spinal Cord Stimulator Treatment in Failed Back Surgery Syndrome
	Christina Escobar, M.D. (PGY4):		Sonya Kuhar, M.D. (PGY3):
5:50 – 6:05 p.m. 6:10 – 6:20 p.m.	1. Discharge Summaries: A Tool To Assure Continuity of Care 2. Left Hip Degeneration vs. Hip Fracture after Gunshot Wound to the Buttocks: A Case Report		1. Acute Inpatient Rehabilitation: Functional Outcomes in Patients With a Left Ventricular Assist Device (LVAD) 2. Relationship Between Participation in a Wheelchair Sports Team and The Level of Independence With Activities of Daily Living Achieved By The Participating Athletes With Physical Disabilities
	Arrash Kirkland, M.D. (PGY4):		Matthew Perkowski, D.O. (PGY3):
6:25 – 6:35 p.m.	1. Atypical Presentation of Central Cord Syndrome: A Case Report 2. Discharge Summary: Assures Safety, Continuity and Quality Care of Patients	7:05 – 7:10 p.m. 7:15 – 7:20 p.m.	1. An Unusual Case of Neurogenic Cramp Disorder: A Case Report 2. Vitamin D Levels, Awareness, and Practices Among Resident Physicians at the University of Rochester Medical Center 3. Investigational Survey to Assess the Knowledge of the URM C Medical and Surgical Services of the URM C Physical Medicine & Rehabilitation Consult Service
	Ben Laplante, D.O. (PGY4):		Nathan Odom, M.D.; Simer Singh, M.B.B.S., M.P.H.; Brandon Snead, M.D., M.S. (PGY2s):
6:40 – 6:45 p.m.	1. A Retrospective Database Study Examining Correlation Between Satisfaction With Pain Control and Improvement in Functional Status of Patients With Spinal Stenosis	7:25 – 7:30 p.m.	1. Clinical Indicators That Are Correlated With Deep Vein Thrombosis Diagnosed By Ultrasound

Congratulations Graduating Residents!



Mathew Abraham, M.D.



Christina Escobar, M.D.



Arrash Kirkland, M.D.



Ben Laplante, D.O.

Fourth Year Residents

Mathew Abraham, M.D.:

1. Double Blind Placebo Controlled Trial to Evaluate Preservation of Bone Mineral Density of the Hip and Distal Femur by Bisphosphonate Therapy (Fosamax) Following Spinal Cord Injury: A Pilot Study

Mathew Abraham, M.D.; K. Rao Poduri, M.D. (PM&R); Susan Bukata, M.D.; (Orthopedics) and Leslie Morse, D.O. (PM&R, Harvard University).

Winner of the 2009 Scott F. Nadler Foundation for PM&R PASSOR Musculoskeletal Research Grant for \$10,000.00

Winner of the 2010 Merck, Sharp and Dohme Corporation Investigator Initiated Studies Program Grant (for full supply of Drug and Placebo)

Objectives: The goal of this clinical research study is to explore the effect of Fosamax therapy in prevention of acute SCI induced osteoporosis. The primary outcome variable will be difference in bone mineral density at the distal femur and total hip from control to experimental group that will be measured by DEXA scan at 6 month intervals up to 12 months. The goal of this clinical research study is to explore the effect of Fosamax therapy in prevention of acute SCI induced osteoporosis.

Project Plan – Procedures and Methods: The proposed project is a randomized, placebo controlled, double blinded study aimed at evaluation of the efficacy of oral Fosamax in prevention of osteoporosis in acute spinal cord injury. The setting will be a tertiary care inpatient rehabilitation center. Patients with acute traumatic or ischemic spinal cord injury will be recruited to participate in the study during the acute phase of rehabilitation. Patients will be selected based on past medical and surgical history, history of medication allergies, and prior medication use. Patients will be enrolled according to the following inclusion criteria: volunteers age 18 or older sustaining an ASIA A or ASIA B SCI who are willing to give consent and sign an IRB approved informed consent form. Exclusion criteria will include patients with a history of hypersensitivity to alendronate or other bisphosphonates, esophageal abnormality, inability to sit/stand upright for 30 minutes, creatinine clearance less than 35 milliliters/minute, hypothyroidism, malignancy, pregnancy, or prolonged steroid use.

Subjects will be included up to two weeks after the initial injury or insult. Subjects that have had spinal fusion will be enrolled after a two month time period to allow bone healing. Prior to initiation of the study, participants will undergo an initial screening to identify sub clinical thyroid disorders, Vitamin D deficiency, or pregnancy. TSH, 25-hydroxyvitamin D (25(OH)D), and, for all female participants, a serum B-hCG will be drawn. Patients with a 25(OH)D level below 20 ng/ml will have the deficiency corrected with 50,000 IU oral vitamin D each day for 8 days (Malabanan et al 1998). Renal function and serum calcium will be monitored during this treatment. 25(OH)D level will be redrawn and if below 20ng/ml, the patient will undergo another cycle of oral vitamin D until level normalizes. Patients with abnormal TSH or who are pregnant will be excluded from the study. Female patients will be advised against pregnancy for the duration of the study as little clinical data exists characterizing the prenatal effect of alendronate on mother or fetus. Subjects with osteoporosis will not be eligible for the study. Additionally, serum and urine biochemical markers of bone metabolism will be assessed including osteocalcin, PTH, 25(OH)D, serum calcium, 24 hour urinary calcium, 24 hour urinary creatinine, and C-telopeptide (CTX). Patients will be randomized and those assigned to the control group will receive oral placebo once weekly for a total of 12 months. Patients randomized to the experimental arm will receive oral fosamax 70mg in pill form once weekly for a total of 12 months. Fosamax will be administered according to packaging insert to optimize absorption. Serum calcium, phosphate, osteocalcin and PTH and 25(OH)D and urine CTX levels will be followed monthly after initiation of treatment. Patients in

both control and experimental groups will be monitored for adverse reactions including hypersensitivity to the medication, headache, hypocalcemia, hypophosphatemia, gastrointestinal symptoms, and esophagitis. As esophagitis is a serious reaction to alendronate treatment with a reported incidence of 1.5%, treatment will be stopped for patients who develop symptomatic, persistent esophagitis. DXA scan of the total hip will be performed at 6 months and 12 months. Data will be extrapolated to estimate BMD at the distal femur. Subjects that have rapid loss (greater than 10% loss from baseline) in BMD at the 6th month DXA evaluation will be discontinued from the study in order for them to receive active drug therapy. The sample for this study includes approximately 10 individuals with acute SCI. Individuals will be enrolled in one of two groups: experimental (receiving alendronate) and control (receiving placebo). Our sample will be stratified into these two groups. Based on the literature, a very conservative estimate is that individuals who do not receive any treatment for loss of bone density will experience at least 15% bone loss at the distal femur within the first year after injury. We expect that those who receive alendronate will not experience this bone loss. As this study has low statistical power given an enrollment of 10 individuals, we plan on using the data as pilot information for a larger powered study in the future.

Expected results

The primary outcome variable will be difference in bone mineral density at the total hip and distal femur from data extrapolated from control to experimental group that will be measured by DXA scan at 6 month intervals up to 12 months.

2. Atypical Presentations of Pulmonary Embolism on an Acute Inpatient Rehabilitation Unit: Case Reports **Mathew J. Abraham, M.D.;** Sirish Kondabolu; Nithya Namassivaya, M.D.; KR Poduri, M.D.

Case: A 26-year-old female and a 50-year-old female

A 26 year old female with a history of CML diagnosed in 2008 presented with left groin/thigh pain which limited her ability to ambulate. She was not on OCP's or estrogen-containing products and was a non-smoker. She was diagnosed with critical illness myopathy and transferred to the acute rehabilitation unit where she had an episode of sustained SVT which was converted to sinus rhythm with an adenosine push.

The second patient is a 60 year old female with no past medical history who presented with slurred speech and right hand/foot weakness. MRI of the brain revealed multiple acute infarcts in the frontal and parietal lobes bilaterally suggestive of embolic infarctions. The patient noted 3 days of vaginal bleeding prior to admission. She was transferred to the acute rehab unit where endometrial biopsy by OB/GYN revealed endometrial adenocarcinoma.

Tertiary care medical center acute rehabilitation unit

Workup: 26 year old with CML: Workup by CAT Scan revealed bilateral segmental pulmonary emboli in the lower lobes. Ultrasound of the left lower limb showed thrombi in the left common femoral to mid-femoral veins.

60 year old with embolic stroke: Complete staging CT of her chest, abdomen, and pelvis to look for any systemic metastases of her primary cancer revealed a pulmonary embolism on the right base of the lungs.

Discussion: Acute Pulmonary Embolism (PE) is a common medical problem which is associated with a high degree of morbidity and mortality, especially if not promptly diagnosed. This is clinically relevant given that the clinical presentation of PE is often variable and nonspecific, making accurate diagnosis challenging. Patients that are admitted to inpatient rehabilitation units are at high risk for developing venous thromboembolism (VTE) and possible resulting PE secondary to immobility. These patients often are not mobilized during the acute inpatient admission secondary to multiple fractures, stroke, spinal cord injury, traumatic brain injury, debility from prolonged hospitalization, and status post amputation, to name a few. According to the Prospective Investigation of Pulmonary Embolism Diagnosis II (PIOPED II) study, the most common presenting symptoms of patients with acute PE without prior cardiopulmonary disease are dyspnea at rest or with exertion (73%), pleuritic pain (44%), cough (34%), calf or thigh pain (44%), calf or thigh swelling (41%), wheezing (21%). The most common signs were tachypnea (54%), tachycardia (24%), rales (18%), decreased breath sounds (17%) (Stein et al). The difficulty in diagnosing PE arises due to the fact that the frequency of these symptoms and signs are similar in patients with and without PE.

Conclusion: There is the potential for significant morbidity from unrecognized pulmonary embolism and there should be a low threshold to evaluate PE especially in patients with history of cancer or newly diagnosed cancer. Due to the variety of presentations of PE, a patient with history of cancer that demonstrates any of the symptoms or signs mentioned in the PIOPED II study should be evaluated for PE.

3. Discharge Summary: Assures Safety, Continuity and Quality Care of Patients

Mathew Abraham, M.D.; Douglas Fetkenhour, M.D., Karen Genett, ANP; Arrash Kirkland, M.D.; Nithya Namassivaya, M.D.; K.R. Poduri, M.D.

Presented as a poster at the Annual Assembly of AAPM&R in Austin, Texas; October 2009

Objective: To evaluate the adequacy of the contents of a discharge summary in assuring continuity, safety and quality of patient care.

Design: As part of our quality assurance program one hundred discharge summaries were reviewed in a four month period using a template which met JCAHO and institutional requirements. The discharge template included the following items: 1. admission (ADM) and discharge (DC) dates, diagnoses and medications; 2. admission physical exam, history of present illness, past medical history, allergies, family history, review of systems and lab data; 3. summary of the hospital course and functional status of the patient on admission and discharge, treatments, procedures; 4. information about the discharge, including condition of the patient, discharge location, physical activity, diet and follow up care. Current data was compared with data obtained from D/C summary review prior to the development of the template.

Setting: An Acute Inpatient Rehabilitation Unit at a University Hospital.

Results: Prior to using the discharge summary template, deficiencies were noted in many areas, most notably discharge diet instructions (100%). Of the 100 charts reviewed with a template, improvements were noted in the area of discharge diet instructions (50% improvement), Chief Complaint (2% improvement), ROS (4% improvement), Procedures (3% improvement), Adm medications (11% improvement), and Physical Activity at Discharge (19% improvement). Remaining areas of deficiency included: Adm Diagnoses 26%; D/C Diagnosis 36%; D/C Site 18%.

Discussion: Deficits in communication and information transfer at hospital discharge are common and may adversely affect patient care. The contents of discharge summaries without redundancy are essential for effective communication to assure quality of care and patient safety. Review of the summaries indicated improvement in information transfer at discharge after the use of a template.

Conclusion: Our study indicates that using a discharge summary template is an effective strategy in ensuring and improving the quality of patient care after discharge. Deficiencies were still noted in certain areas after the use of a template, which indicates that ongoing evaluation of strategies to improve information transfer after discharge is essential.

4. Discharge Summaries: A Tool to Assure Continuity of Care

Christina M. Escobar, M.D.; **Mathew J. Abraham, M.D.;** Kanakadurga R. Poduri, M.D.; Hiang L. To

Christina M. Escobar, M.D.:

1. Discharge Summaries: A Tool To Assure Continuity of Care

Christina M. Escobar, M.D.; Mathew J. Abraham, M.D.; Kanakadurga R. Poduri, M.D.; Hiang L. To

Presented as a poster at the Annual Meetings of the AAP in Bonita Springs, Florida; April 2010

Objective:

To evaluate discharge summaries as a tool to assure continuity of care of rehabilitation patients. Our discharge summaries followed a template that met JCAHO and institutional requirements, including the following: admission and discharge dates, discharge diagnoses/medications; admission physical exam; summary of the hospital course; procedures; discharge site; physical activity; diet and follow-up care among others.

Design:

As part of quality improvement and enhancement of continuity of care, a mail survey was sent to primary care physicians (PCP) of our rehab patients. The survey consisted of five questions regarding rehabilitation discharge summaries: 1) Was the summary available to you on time when you saw the patient in the first follow-up[item 1]; 2) Was adequate information provided to continue medical care[item 2]; 3) Was the discharge diagnoses list complete[item 3]; 4) Are there missing elements in the summary, if yes please specify[item 4]; 5) What would you suggest we include in our future summaries[item 5]. Primary care physicians of 72 consecutive discharges from an acute hospital-based inpatient rehab unit were mailed the survey.

Results:

Twenty four of the seventy-two surveys were completed and returned with the following results: 100% of the respondents indicated that the summary was available to them at the time of the first follow-up visit (item #1). 100% of respondents indicated that adequate information was provided to continue medical care(item #2). 100% of respondents noted that the discharge diagnoses list was complete(item #3). 87.5% (3 of 24) of respondents noted there were missing elements in the summary, however, the missing elements were not specified (item #4). None of the respondents suggested what could be included in future summaries (item #5). Of the seventy-two surveys mailed, twelve surveys were returned indicating that the summary was never received by the PCP. Four surveys were returned undelivered.

Conclusion:

Our small sample of survey results indicate adequacy of our discharge summaries in providing continuity of care by the primary care physicians of our rehabilitation patients. In an ongoing effort to improve quality of care, we will be mailing the surveys along with the discharge summaries in the future. In conclusion, the study demonstrates that discharge summaries are an effective tool in assuring continuity of care.

2. Left Hip Degeneration vs. Hip Fracture after Gunshot Wound to the Buttocks: A Case Report **Christina Escobar, M.D.**

Presented as a poster at the Annual Assembly of AAPM&R in Seattle Washington, November 2010

An 18 year old male with a gunshot wound to the buttocks with small bowel enterotomies, rectal injury, left hypogastric artery injury, and bilateral ischial spine fractures.

An 18 year old male involved in a hunting accident where he was shot with a high powered rifle in the right buttock with the bullet exiting the left buttock. Small bowel resection and sigmoid colectomy were performed for multiple enterotomies and a rectal injury with fecal contamination of the abdomen and pelvis. Bilateral ischial spine fractures were treated nonoperatively, and a left hypogastric artery injury was embolized. The patient required multiple buttock debridements, including resection of gluteus medius, minimus, piriformis and short external rotators on the left, and a near complete transaction of the sciatic nerve was discovered. He had excruciating left hip pain throughout and worsened during rehabilitation. Physical examination showed left hip subluxation. Initially patient was thought to have a hip fracture, however review by radiologist showed no fracture and confirmed superior subluxation of the left femur, deformity with fragmentation of the femoral head, severe joint space narrowing of the femur with the acetabulum, and lytic changes of the acetabulum. Fluid collection in the joint space and the soft tissues anterior to the left hip were aspirated and no bacterial growth was found.

Discussion: Initial contamination of the hip joint with fecal material , in conjunction with pelvic abscesses, lead to the degenerative changes of the hip. The patient was also felt to be at high risk for avascular necrosis secondary to the ballistic injury to the piriformis, and likely the circumflex vessels. The patient was discharged at a wheelchair level and 2 options were offered for hip salvage in the hopes of improving his mobility: fusion of the hip and total hip arthroplasty. Both of these surgeries were deemed risky secondary to the damage to the sciatic nerve and the resected musculature.

Conclusion: Many unrecognized injuries can occur with gunshot wounds, and unless there is a high degree of suspicion for these injuries they will not be discovered. This case highlights the importance of the physiatrist as not only restoring function after injury, but as the diagnostician who discovers the extent of the injury.

Arrash Kirkland, M.D.:

1. Atypical Presentation of Central Cord Syndrome: A Case Report

Kirkland, Arrash , M.D.; Kuhar, Sonya M.D; Fetkenhour, Douglas R, M.D.

Presented as a poster at the Annual Assembly of AAPM&R in Seattle, Washington; November 2010

80 year-old man with atypical presentation of central cord syndrome. The patient with past medical history of osteoarthritis, chronic low back pain, hypertension, and pacemaker for sick sinus syndrome was serving trick-or-treaters when he fell forward hitting head on surface and had total body paralysis. He eventually recovered some lower and left upper limb mobility but remained flaccid in the right upper limb. Patient's head CT revealed no intracranial abnormalities. CT of the cervical spine showed no fracture or dislocation but slight C4-C5 and C6-C7 disc space narrowing. CT of the thoracic and lumbar spine revealed old T11 and L1 compression fractures. Cervical CT myelogram revealed C3-C4 disc bulging most prominent on the right as well as C4-C5 and C5-C6 disc bulging. Posterior osteophytes were also visualized at the C4-C5 and C6-C7 levels. The patient underwent methylprednisolone therapy and was transferred to the rehabilitation unit 3 days later. On admission, exam revealed an alert, oriented male with intact memory and speech, intact cranial nerves, 2+ reflexes in upper and lower limbs, normal cerebellar exam, and normal proprioception in both feet. He had bilateral Babinski sign. He had relatively normal left upper limb and bilateral lower limb strength but had 0/5 strength in the right upper limb. He had intact light touch throughout but decreased pinprick and temperature sensation in the left upper limb from elbow to hand distally. Patient required moderate assistance for transfers and mobility but was completely dependent with all Activities of Daily Living.

After 5 weeks of inpatient rehabilitation, patient performed Activities of Daily Living with modified independence. He was modified independent with transfers and used a platform rolling walker to ambulate.

Discussion: This is a novel case of a patient with central cord syndrome presenting with unilateral motor and contralateral pain and temperature loss in the upper limbs.

Conclusions: Neck hyperextension injury may result in central cord syndrome typically with greater upper limb involvement. However, complete sparing of unilateral motor and contralateral pain/temperature domains makes this an unusual presentation.

2. Discharge Summary: Assures Safety, Continuity and Quality Care of Patients

Mathew Abraham, M.D.; Douglas Fetkenhour; M.D., Karen Genett, ANP; **Arrash Kirkland, M.D.;** Nithya Namassivaya, M.D.; K.R. Poduri, M.D.

Ben Laplante, D.O.:

1. A Retrospective Database Study Examining Correlation Between Satisfaction With Pain Control and Improvement in Functional Status of Patients With Spinal Stenosis

Ben Laplante, D.O.; Clifford Everett, M.D., M.P.H.; Thomas Cesarz, M.D.

Presented as a poster at the Annual Meetings of the AAP in Bonita Springs, Florida; April 2010

Background: Lumbar spinal stenosis is both an anatomic and clinical entity associated with significant pain and disability. The majority of patients with lumbar spinal stenosis report some level of disability, making functional impairment a chief concern for the clinician to evaluate and address. Multiple studies have shown improvements in both pain and functional status of patients receiving operative or conservative care, but have not focused on the relationship between pain and function over the short term in conservatively treated patients. It is currently unknown whether pain can act as a surrogate marker for function in conservatively treated patients with spinal stenosis.

Objective: To investigate whether pain reduction correlates with lessened disability in conservatively treated patients with spinal stenosis.

Design: Retrospective analysis of an outpatient clinic database with concurrent control group.

Methods: The study population was drawn from an orthopedic musculoskeletal practice that provided non-operative care to patients with spinal pain. The clinic database was searched to identify patients with lumbar spinal stenosis, ICD code 724.02. A total of 311 patients were identified who had complete data. Of these, 76 had a clinically significant improvement in the VAS, defined as a decrease of at least 20 on a 100mm scale. 311 patients who did not have a clinically significant improvement in the VAS were used as a control group.

Results: Comparison was made between the control group of 311 patients and the group of 76 patients with improved pain. For the group with improved pain, there was a decrease in the Oswestry Disability index, from 35.49 to 28.64 that was statistically significant with $p < .000$. Additionally, in the group with improved pain, the Modified SF-36PF decreased from 46.25 to 25.95, representing a statistically significant loss of function with $p < .029$.

Conclusion: The Oswestry Disability Index Version 1 demonstrated good correlation with pain relief and return of function. Pain relief did not correlate with the modified SF-36PF scale, in fact, it negatively correlated. This divergence of the ODI and SF36-PF requires further study.

Third Year Residents

Hemant Kalia, M.B.B.S., M.P.H.:

1. Successful Rehabilitation Outcome of Functional Right Hemispherectomy in an Adult with Refractory Status Epilepticus: A Case Report

Hemant Kalia M.B.B.S., M.P.H.; Douglas Fetkenhour, M.D.; Kanakadurga R. Poduri, M.D.

Presented as a poster at the Annual Meetings of the AAP in Phoenix, Arizona; April 2011

A 24 year old male who underwent right hemispherectomy for refractory status epilepticus.

At age 12, our patient was diagnosed with epilepsy which later progressed to intractable status epilepticus requiring high dose antiepileptics. He was persistently having 30-40 myoclonic spasms and grandmal seizures every month predilecting him to frequent falls and severe functional impairment. His seizures were aggravated by simple voluntary movements. He was using a wheelchair requiring restraints and was moderately independent with his activities of daily living.

The patient underwent acute rehabilitation for 15 days after his successful right hemispherectomy. On admission, he had left hemiplegia exhibiting flaccidity in upper arm which was managed by functional electric stimulation and spasticity in lower extremity which was managed by baclofen and range of motion exercises. His Modified Ashworth score was 2/4 in knee flexors/extensors and 3/4 in hip flexors. Interestingly, he developed isolated left deltoid and triceps spasticity requiring botulinum injection. The patient progressed exceptionally, was feeding with supervision; grooming, bathing, dressing, transferring and ambulating with minimal assistance upon discharge. Modified constraint induced movement therapy was tried but was unsuccessful.

Setting: Tertiary care hospital.

Results: At 3 months follow up patient is ambulating independently with a straight cane, is working as data entry specialist and is independent with all his activities of daily living. No seizure episode has been reported post surgery; plan is to slowly wean off antiepileptics in a year's timeframe.

Discussion: This is an exceptional case of functional recovery post right hemispherectomy in an adult thereby evincing the concept of brain plasticity. Functional Hemispherectomies are commonly performed in pediatric population but this case report calls for further analysis of this procedure in carefully selected adults.

Conclusion: Functional Hemispherectomies should be considered in adults who have large unilateral hemispheric lesions causing intractable seizures.

2. The Efficacy of Anal Fistula Plug in Fistula-in-ano: A Systematic Review

Garg P; Song J; Bhatia A; Kalia H; Menon GR.. Published in Colorectal Disease: 2009 Apr 29.

3. Outcome Analysis of Spinal Cord Stimulator Treatment in Failed Back Surgery Syndrome (in progress)

Kalia H; Kent J.

Introduction: Over the years, a number of treatments for persistent low back pain following spine surgery, the failed back surgery syndrome (FBSS), have been developed. The complexity of the clinical problem, the multidimensional nature of chronic pain, and general lack of rigorous study design, however, have obscured outcome assessment and hampered efforts to optimize patient selection criteria. Recent work has focused on refinement of existing therapies for FBSS and identification of factors that influence outcome and improve patient selection criteria. In combination with more rigorous study methodology, these efforts have led to improved understanding of the clinical response to a number of pharmacologic, surgical, and neuromodulation therapies for FBSS. This will inculcate a level playing field for all the outcomes based research data and in turn help in formulating pragmatic evidence based recommendations at the population level. An outcomes data analysis based on a uniform standard approach will allow us to comment on the internal and external validity of the results thus translating evidence into practice.

Goal: To design a randomized control trial studying the valid and reliable outcome measures in well described and homogenous individuals with Failed Back Surgery Syndrome undergoing Spinal Cord Stimulator treatment, which can report the uniformity of effect within groups as well as group mean responses to SCS because factors that account for some but not all individuals having a response to SCS need to be explored. Also, choice of outcomes measures will generate information pertinent to each domain of functional measures.

Sonya Kuhar, M.D.:

1. Acute Inpatient Rehabilitation: Functional Outcomes in Patients With a Left Ventricular Assist Device (LVAD)

Kuhar S; Poduri KR.

Submitted and accepted for a poster presentation at the Annual Assembly of the AAPM&R in Orlando, Florida; November 2011

2. Relationship Between Participation in a Wheelchair Sports Team and The Level of Independence With Activities of Daily Living Achieved By The Participating Athletes With Physical Disabilities (Study in progress)

Kanakadurga Rao Poduri, M.D.; Fried, Ruth P, MA, OTR/L; **Sonya Kuhar, M.D.;** Matthew Perkowski, D.O.; Douglas Fetkenhour, M.D.; Kathleen Stoklosa, MS, OTR/L

Matthew Perkowski, D.O.:

1. An Unusual Case of Neurogenic Cramp Disorder: A Case Report

Matthew Perkowski, D.O; Kanakadurga Rao Poduri, M.D.

Presented as a poster at the Annual Assembly of AAPM&R in Seattle Washington; November 2010

61-yr-old female with diagnosis of fibromyalgia presented to clinic with chronic history of back pain and muscle cramps. Patient describes both muscle spasms and muscle stiffness that developed over many years. Muscle spasms are diffuse and all over the body. This cramp causes her severe pain (7 out of 10) and associated with diaphoresis. The spasms occur both during the day and night intermittently. She also complains of frequent falls due to her legs giving out, cannot walk 50 feet without profusely sweating, tires easily, paresthesia of bilateral feet, and has sleep difficulties. She started herself on high dose magnesium, 3200mg daily. She had been advised to stop taking high dose magnesium for concern of cardiac complications so she decreased her dose to 2400mg daily. She was diagnosed as having fibromyalgia and was treated with Lyrica. She developed side effects, the Lyrica was stopped and she was started on Cymbalta which improved her symptoms. She later stopped Cymbalta because she was gaining weight. After stopping Cymbalta she lost approximately 25 pounds and her pain remained under control with acetaminophen as needed. She had tried physical therapy with no improvement. A neurology consult was obtained and the findings were muscles strength 4/5, intact normal gait but difficulty toe and heel-walking, intact sensation, absent lower extremity reflexes, and bilateral and symmetric tenderness to palpation of interscapular region, shoulders, elbows, wrists, hips, knees, and ankles. Overall exam findings were not consistent with

her diagnosis of fibromyalgia. EMG studies revealed peripheral neuropathy. Lab tests were obtained and she was diagnosed with a neurogenic cramp disorder exacerbated by neuropathy. It was recommended that she continue treatment with magnesium.

Discussion: Fibromyalgia is a diagnosis by exclusion and muscle pain, spasms, fatigue and insomnia are presenting symptoms. However, this symptom complex needs thorough investigation to rule out other organic diseases.

Conclusions: Proper diagnosis is the key for pain management.

2. Vitamin D Levels, Awareness, and Practices Among Resident Physicians at the University of Rochester Medical Center (Study in progress)

Dr. Glenn Rehtine, M.D.; Dr. Sarah Offley, M.D.; Dr. Jeffrey Bair, M.D.; **Matthew Perkowski, D.O.**

3. Investigational Survey to Assess the Knowledge of the URM Medical and Surgical Services of the URM Physical Medicine & Rehabilitation Consult Service (Study being developed)

Matthew Perkowski, D.O.; Douglas Fetkenhour, M.D.

Objective: To evaluate the knowledge of URM house staff of the Physical Medicine & Rehabilitation Consult service and identify the needs of the different medical and surgical services at URM for the Physical Medicine & Rehabilitation Consult service.

Proposed Methods: A short survey with multiple choice questions will be administered to current resident and fellow house staff at URM. This survey is currently being formulated.

Second Year Residents

1. Clinical Indicators That Are Correlated With Deep Vein Thrombosis Diagnosed By Ultrasound (Study being developed)

Nathan Odom, M.D.; Simer Singh, M.B.B.S., M.P.H.; Brandon Snead, M.D., M.S.; Douglas Fetkenhour, M.D.

Objective: To determine which clinical signs and symptoms are strong indicators of deep vein thrombosis (DVT) and to develop an algorithm for determining when a patient should be evaluated by ultrasonography for DVT.

Design:

- Part 1. Develop a checklist of common signs and symptoms that are triggers for ultrasonography to evaluate for DVT.
- Part 2. Request house officers on the inpatient rehabilitation unit complete the checklist for every patient that is sent to ultrasound with a clinical suspicion of DVT.
- Part 3. Analyze the data from the checklist to determine which clinical signs/symptoms are highly correlated with a positive DVT on ultrasound.
- Part 4. Generate an algorithm based on the above information that categorizes patients into low, moderate and high suspicion for DVT. This algorithm would guide residents/attendings in deciding when to ultrasound patients to evaluate for DVT.

The checklist would include the following:

- Signs/Symptoms: Redness, Swelling, Pain, Fever, Tachycardia, Vein dilation, Type/description of pain
- Side: Left, Right, Bilateral
- Patient: Diagnosis, Hemiparesis, if so, which side? Spasticity present? Currently ambulating?
- Risk Factors: Type of DVT ppx, SCDs on patient? Malignancy, Smoker, Degree of ambulation, Lower extremity injury/surgery

Faculty Research

Mary Dombovy, M.D., MHSA:

Dombovy, ML, Editor, “Neurorehabilitation and Restorative Neurology” in Continuum. A program of the American Academy of Neurology. Journal format CME Course, in process for 2011 publication.

Dombovy, ML. “Emerging Therapies in Neurorehab”. Continuum. In process for June 2011 publication.

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Clifford Everett, M.D., M.P.H.:

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Douglas Fetkenhour, M.D.:

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Mark LiVecchi, D.M.D., M.D.:

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Nithya Namassivaya, M.D.:

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Rajeev Patel, M.D.:

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K. Rao Poduri, M.D.:

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Cecilia Ransom, M.D.:

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Marcia Scherer, Ph.D.:

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