

Congratulations Graduating Residents!



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



Sonya Kuhar, M.D.



Matthew Perkowski, D.O.

Fourth 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.

4. Spinal Cord Injury and Pregnancy

Kalia H; Namassivaya N. Peri-FACTS Academy Obstetric and Fetal Monitoring Course, Case #986.

Sonya Kuhar, M.D.:

1. 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

The purpose of this study is to investigate the relationship between participation in a wheelchair sports team and the level of independence with activities of daily living achieved by the participating athletes who have physical disabilities. We hypothesize that children and youth who participate in a sports team with wheelchair-using peers are more likely to achieve independence in activities of daily living than those wheelchair-using peers who are not participants in team sports activities.

Study Design: The proposed research is prospective in nature. We will identify prospective study participants by contacting the team coaches. Matched Control participants will be identified by contacting students in inclusive and specialized schools who are patients at the Kirsch Center for Children with Physical Disabilities, and their parents.

Two groups will be studied: Athletes: Children ages 7-21 with physical disabilities who participate in team sports. They will be identified through the Rochester Rookies track and field sports team, (a program of the Center for Disability Rights) and in the Sports-Net Rochester Rockets junior competitive sports team (a division of Rochester Rehabilitation Center in Rochester NY) Control: Children ages 7-21 with physical disabilities who do not participate in team sports. These children will be recruited from the investigators' contacts at the Kirsch Center for Children with Physical Disabilities

A total of 40 participants (20 athletes and 20 controls) will be recruited. Both genders will be included. This will reflect the distribution within the population of children and youth with disabilities, which represents diverse racial and ethnic backgrounds. Children ages 7-21 with physical disabilities who are willing to complete the Vineland questionnaire will be included in this study. Participants must be willing to provide assent and their parents must be willing and able to provide permission. Participants who do not meet the above criteria for inclusion will be excluded from the study.

Methods: Study personnel will identify prospective study participants by contacting the team coaches of the Rochester Rookies and Rochester Rockets. The investigator will send a letter to parents of potential participants describing the study and inviting their child

to participate. Follow-up phone calls will be made to parents (if child <18 years old) to provide opportunities to learn more information and have questions answered. The investigator will meet the athlete group and their parents at a team practice and obtain informed consent (assent for children and permission from parents). Investigator will identify GMFCS level and will distribute the Vineland Adaptive Behavior Scales, Interview Edition to the participants and their parents during Team practice. Questionnaires that have been completed prior to the end of practice will be collected at that time. Self-addressed, stamped envelopes will be included with questionnaires that are distributed by mail and for mailing incomplete questionnaires that were delivered in person. The investigator will use the GMFCS level and identify an appropriate match to serve as controls from patients followed at the Kirsch Center for Children with Physical Disabilities who attend inclusive and specialized schools that do not participate in team sports. The investigator will contact parents of these potential participants by mail describing the study and inviting them to participate. Follow up as stated above.

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

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

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

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

Sonya Kuhar, M.D.; Kanakadurga Rao Poduri, M.D.

Presented as a poster presentation at the Annual Assembly of the AAPM&R in Orlando, Florida; November 2011

Objective: To evaluate functional outcomes of cardiac failure patients with Left Ventricular Assist Devices (LVADs) using Functional Independence Measure (FIM) and to determine whether age and co-morbid conditions impact these outcomes.

Design: Retrospective study. 27 charts were reviewed for patients admitted between 12/2/2004 and 07/26/2011 for admission and discharge FIM, FIM gains, efficiency ratios (ER), co-morbid conditions and readmissions.

Setting: Acute inpatient rehabilitation unit.

Participants: Cardiac failure patients with a left ventricular assist device (LVAD).

Interventions: Acute inpatient rehabilitation.

Main Outcome Measures: Age, Admission and discharge FIM scores, length of stay (LOS), ER, and discharge home.

Methods: 27 cardiac failure patients with LVADs underwent acute inpatient rehabilitation at the University Of Rochester Medical Center (Strong Memorial Hospital) between 12/2/2004 and 07/26/2011. Charts of these 27 patients were reviewed for admission and discharge FIM, LOS, ER and co-morbid conditions. FIM gains and ER were calculated using the data.

Results: The average age of patients was 57 (range 18-74). The average admission and discharge FIM scores were 71 (range 26-91) and 95 (range 38-123), respectively. The average FIM gain was 27 (range -23-44). A 73 year old and a 51 year old had the least FIM gain (-23 and -5). A 66 year old patient had the largest FIM gain of 44. The younger patients (two 18 year olds and a 21 year old) had FIM gains of 16, 27 and 25, respectively. Co-morbid conditions did not influence the FIM gains, as most individuals had similar medical conditions. The average LOS was 19 days (range 7-53). The average ER was 2 (range -3.29-3.56). Four patients were transferred back to the cardiac unit for acute decompensation. One patient was discharged to a skilled nursing facility and the rest all improved their function and were discharged home.

Conclusions: LVAD patients can show functional improvements given the appropriate therapies. Advanced age appeared to have a negative effect on the functional gains in this small sample while co-morbidities did not appear to have a great impact on the FIM gains. A large sample will need to be studied for further conclusions.

*Additional patients have been added to the study after acceptance for the AAPM&R National Conference 2011

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 trialed 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)

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

Objective: To evaluate the prevalence of hypovitaminosis D, awareness of hypovitaminosis and possible affects, and impact of vitamin D supplementation among resident house staff at University of Rochester Medical Center.

Methods: All participants will complete a survey at the time of enrollment that will include demographic information, awareness of biologic role of Vitamin D, and validated outcome measure of personal functioning Health Related Quality of Life Index. After completion of enrollment survey, all participants will attend a short conference with the objective to educate the participants about the importance of Vitamin D supplementation and outline a universal Vitamin D3 supplementation regimen. Study participants will be given a lab requisition for serum 25-OH Vitamin D, Calcium, and Intact Parathyroid Hormone levels. Participant lab draw timing and venue is still being determined. Participants will be given a handout about Vitamin D supplementation and all participants will be recommended to take 2000 IU of cholecalciferol OTC daily. Repeat blood draw, Vitamin D survey, personal functioning Health Related Quality of Life Index will be repeated 12 months after enrollment.

Data Analysis: Labs, Vitamin D Knowledge and Practices Survey, and HRQoL Index will be collated at initial and 12-month follow-up. Standard statistical techniques will be used to evaluate the laboratory and HRQoL Index results independently and to identify relationships between the two measures. Survey results will be interpreted to determine participant compliance with Vitamin D supplementation and assess resident awareness of affects of Vitamin D.

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

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

Objective: The purpose of this study is to evaluate the current knowledge of the University of Rochester Medical Center resident house staff of the inpatient physical medicine and rehabilitation consultation service.

Aim 1 -Evaluate the knowledge of the resident house staff of the inpatient physical medicine and rehabilitation consultation service at URM.

Hypothesis: The UPMC resident house staff will have a limited knowledge of the inpatient physical medicine and rehabilitation consultation service.

Aim 2 - Assess the referral patterns of the UPMC resident house staff for inpatient physical medicine and rehabilitation consults.

Hypothesis: The UPMC resident house staff will initiate inpatient physical medicine and rehabilitation consultations following recommendations of therapists for evaluation for admission to hospital-based rehabilitation.

Methods: At the time of enrollment, all participants will complete a survey, developed by the investigation team. No personal identifying information will be collected. Participants will be asked to identify their residency training program and level of residency training (see attached survey). Survey will assess knowledge of the inpatient physical medicine and rehabilitation consultation service and use of the inpatient consultation service.

Survey Participants: All residents at UPMC will be invited to participate in this survey, specifically including internal medicine, pediatrics, medicine-pediatrics, neurology, neurosurgery, orthopedic surgery, and surgery residents.

Data Analysis: Data from the survey will be collated after completion of the survey. Standard statistical techniques will be used to evaluate and interpret the survey results to determine relationships between resident knowledge of the inpatient physical medicine and rehabilitation consultation service, referral patterns, residency program, and level of training.

Third Year Residents

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

1. Venothromboembolism: correlation between body mass index, weight, and type of chemoprophylaxis in the acute rehabilitation population (Study in Progress)

Nathan Odom, M.D.; Simer Singh, M.B.B.S., M.P.H.; Brandon Snead, M.D., M.S.; Anne Burns, N.P.; K. Rao Poduri, M.D.; 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.

Exclusion Criteria: Prior deep vein thrombosis (DVT) on active anticoagulation, active cancer, known genetic mutation causing hypercoagulability, active anticoagulation with non-heparin based compounds.

Inclusion Criteria: Patients who were found to have a venous thromboembolism during their inpatient rehabilitation stay or up to seven days antecedent to acute rehabilitation admission.

Patients analyzed in the study will have been treated with either a prophylactic heparin, enoxaparin or dalteparin, and while on this therapy diagnosed with DVT by ultrasonography, or pulmonary embolus diagnosed by either computed tomography or V/Q scan.

Methods: Retrospective observational study of an inpatient rehabilitation population, with a chart review of patients discharged from acute rehabilitation spanning 2007 - 2012. We will record patients' weight, body mass index (BMI), as well as type, dosage, and frequency of chemoprophylaxis. Demographic data will include gender, age, and rehabilitation diagnosis. Other VTE risk factors for this study will include tobacco use.

Data Analysis: Dependent variable is dichotomous. Independent variables are BMI, weight, and type of heparin used. We will perform a correlation analysis between VTE and the independent variables and determine how strongly they are correlated. Nominal variables: heparin BID, heparin TID, low molecular weight heparins including dalteparin and enoxaparin. Additionally, there is a possible sub-group analysis correlating VTE with type of diagnosis and VTE with tobacco use.

Expected Results: Our hypothesis predicts that BMI and weight is positively correlated with incidence of DVT.

Simer Singh, M.B.B.S., M.P.H.:

2. Impact of Anemia on Outcome and Performance of Geriatric Patients Undergoing Rehabilitation

Simer Preet Singh, M.B.B.S., M.P.H.; K. Rao Poduri, M.D.; Nithya Namassivaya, M.D.

Objective: The purpose is to study the impact of anemia on functional progress and length of stay of geriatric (>65 years) patients admitted to the acute rehabilitation unit at SMH.

Background and Significance: Anemia is extremely frequent in elderly persons and is growing in importance as a public health issue and a biomedical research priority. In response to reports describing a heavy health burden from anemia in the elderly, the American Society of Hematology and the National Institute of Aging organized joint symposia in 2004 and 2005 to review the problem and define a research agenda, and the National Institutes of Health offered a special request for research proposals in 2006. The issue is driven by demographics: the US Census Bureau estimates that currently more than 36.3 million Americans are aged 65 years or older and that by 2050 that number will increase to 85 million if current trends continue. The oldest old, persons aged 85 years or older, are not only the fastest-growing segment of the US population, but also have the highest prevalence of anemia: 26% for men and 20% for women, when World Health Organization (WHO) definitions of anemia are used. Currently there is lack of consensus between various organizations and lack of recommendations from agencies like the American Academy of Family Physicians (AAFP) and United States Preventive Service Task Force (USPSTF) on management and prevention of such a common co-morbid condition found in this population. The people in this age group continue to deal with functional limitations and increased dependence on their caregivers with this rather chronic condition whose etiology is often unclear. The correction and prevention of anemia may help preservation of active life in the elderly¹⁻⁹.

Anemia is associated with symptoms ranging from weakness and fatigue to increased falls and depression, and in severe cases can lead to congestive heart failure. A few studies have systematically examined functional, clinical, and economic outcomes or patient satisfaction in the elderly with anemia. Future directions or research on anemia should include a more detailed examination of the importance of anemia on outcomes such as physical function and cognitive function, and an analysis of whether impairments associated with anemia are amenable to correction by improving hemoglobin concentration¹⁰.

Anemia is an independent predictor for increased morbidity and mortality in several disease states. Older persons with anemia suffer hospitalization, physical decline and disability at higher rates than those without anemia^{11,12}. Prevalence of anemia is markedly increased in the frail elderly and the interaction between anemia and frailty is complex. Anemia functions as a powerful prognostic factor for the complications related to frailty¹³. Pennix et al described anemia being associated with disability, decreased muscle strength and decreased physical performance in the elderly¹⁴. Independent strong associations of anemia, even if not severe are documented with major adverse functional outcomes in older adults¹⁷. To date, only one case report was found in the literature that addressed implications of functional recovery of a geriatric patient with anemia¹⁸. The impact of anemia on function and quality of life has been studied in the nursing home residents and community dwelling elderly^{15,16}. The need for developing practice guidelines was addressed in a study¹⁹ where practice trends in the management of patients with low hematocrit in the acute rehabilitation setting was described in general but not specific to geriatric population. Treatment with recombinant human erythropoietin was studied in anemic orthopedic patients²⁰, however to date correction of anemia and its impact on functional outcomes in geriatric population has not been studied.

We hypothesize that people with higher hematocrit (Hct) may have higher and faster functional recovery and result in shorter length of rehab stay, thereby resulting in reducing the health care costs especially with increasingly aging US population.

Number of Subjects: Data from the charts of approximately 200 subjects admitted to the acute rehabilitation unit in SMH in last 5 years will be collected for use in this study.

Gender of Subjects: Both genders will be included for the proposed research.

Age: Subjects age >65 years will be included in this study.

Race of Subjects: The data from the rehabilitation unit for the last 5 years will be collected, representative of all presenting races.

Inclusion Criteria:

- Age >65 years
- All diagnoses except conditions described in the exclusion criteria
- Underwent rehab in acute rehabilitation unit in SMH

Exclusion Criteria:

- Known diagnosis of myelodysplastic syndrome, leukemia
- Cardiac patients with left ventricular assistive devices (LVAD) COPD/ Malignancy/ chronic lung conditions that may affect function independent of anemia.
- Patients with bleeding disorders
- Chronic kidney disease

Vulnerable Subjects: No direct patient participation needed.

Study Design/Methods: We will use a retrospective study design and the data from charts of 200 subjects that meet the above criteria and underwent rehabilitation in last 5 years (whichever comes earlier) will be collected via electronic medical records (EMR). The data collected will include patient demographics, admission diagnosis, PMH and co-morbid conditions, admission and discharge FIM scores, LOS, the admission Hct and Hb will also be collected. The patients will be divided into 3 groups on the basis of admission Hct: <25, 25-33, >33; a central (mean/median) FIM gain (Discharge FIM – Admission FIM) length of stay (LOS) and Efficiency ratio (ER; FIM gain/LOS) amongst these groups will be contrasted to see if lower Hct results in lower FIM efficiency and thus longer rehab stay.

Data Analysis and Data Monitoring: The PIs will collect and analyze the data. The outcome of rehabilitation will be evaluated through the Functional Independence Measure (FIM). The FIM contains 18 items used to evaluate the patient's functional self-care, sphincter control, transfers, locomotion, communication and social cognition. FIM scores provide an indicator of the level of disability within cognitive and motor domains, based on the level of assistance that the patient requires to perform important functional tasks.

Data Storage and Confidentiality: Subjects will be assigned a study number, which will be used to identify all the data. The study design will consist of a onetime review of the medical record. De-identified PHI will be maintained in a locked file. Access will be restricted to the investigators, the study coordinator, and any agency legally empowered to demand access to the data.

Risk/Benefit Assessment: The risk that this research represents to subjects is minimal.

Potential Risk: Consequences of breach of confidentiality is a possible risk.

Protection Against Risks: Both institutional and HIPAA privacy and security standards will be observed, including: to reduce the risk of breach of confidentiality, subjects will be assigned a study number and the data will be de-identified. The collected material will be in a locked cabinet in the department of Physical Medicine and Rehabilitation. Access will be restricted to the investigators, the study coordinator, and any agency legally empowered to demand access to the data.

Potential Benefits to the Subjects: There are no potential direct benefits.

Subject Identification, Recruitment and Consent: As this is a retrospective study, no participant consent is required for data collection. Participants will be identified by subject number only.

Process of Consent: N/A

3. 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

Simer Preet Singh M.B.B.S., M.P.H.; 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).

Dr. Abraham won the 2009 Scott F. Nadler Foundation for PM&R PASSOR Musculoskeletal Research Grant for \$10,000.00 and also won 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.

Update

We have recruited 1 patient so far and study is open for recruitment. I will be talking about problems that we have been facing over last one year.

Second Year Residents

Woojoong Lee, M.D.:

1. *Intraoperative Pulmonary Embolism After ORIF in a Trauma Patient With Distal DVT and Same Side Tibial Fracture: A Case Report*

Woojoong Lee, M.D.; Nithyanandini Namassivaya, M.D.

Disclosure: none

Setting: Tertiary care hospital. Patient: A 50 year old man with left tibial plateau fracture and left calf DVT. Case Description: The patient was diagnosed with DVT in left posterior tibial and peroneal veins and anticoagulated with dalteparin for 6 days prior to undergoing ORIF for left tibia plateau fracture. A pre-op IVC filter was considered but ultimately it was not placed. Intra-op, he developed O2 desaturations and started on heparin drip for presumed pulmonary embolism. Post-op CT of chest with contrast confirmed multiple bilateral emboli. He was successfully weaned off the ventilator and anticoagulation was transitioned first to dalteparin and then to warfarin. An IVC filter was also placed post-op.

Assessment/Results: He was treated for 3 months with warfarin without complications and IVC filter was removed 3 months post-placement without complications

Discussion: This is the first reported case, to our knowledge, of pulmonary embolism after ORIF in setting of distal DVT on same side as fracture. Current CHEST guidelines for DVT management encourages IVC filter placement in patients with proven DVT and planned major surgery.

Conclusion: IVC filter is indicated in patients with planned ORIF and confirmed same side proximal or distal DVT.

Brett Teran, D.O.:

1. *An Analysis of the Consequences of Premature Patient Transfers to Inpatient Rehabilitation (Study Being Developed)*

Brett Teran, D.O.; Matthew Perkowski, D.O.

Objective: Retrospective and prospective evaluation of premature patient transfers in an inpatient rehabilitation unit including possible causality analysis and the importance for establishment of guidelines including continuing education, self-assessment and discussion of possible prevention measures.

Methods: We will collect the data from electronic medical records from the last year and analyze the data. As a second step, we may compare the experience of other rehabilitation units.

Reference: Carney et al: Early unplanned transfers from inpatient rehabilitation. Am J Phys Med Rehabil 2006;85:453_460) showed that Patients admitted to the inpatient rehabilitation unit who have spinal cord injuries, amputations, or are >64 yrs old may have more medical/surgical complications.

2. *Development of Ileus on The Inpatient Rehabilitation Unit: Observations, Analysis and Possible Prevention Measures (Study Being Developed)*

Brett Teran, D.O.; Nithya Namassivaya, M.D.

Objective: Case series - ileus on inpatient rehabilitation – observations, analysis and possible prevention measures.

Methods: Case series of patients who developed ileus while on acute inpatient rehabilitation, comparison of existing studies and presentation of observations in each case with analysis and possible prevention measures.

Konstantin Tsymbalov, D.O., M.H.A.:

1. High School and College Students' Academic Performance After Head Trauma With Relation to the Level of Rehabilitation Treatment: A Retrospective Study

Konstantin Tsymbalov, D.O., M.H.A.; K. Rao Poduri, M.D.; Nithyanandini Namassivaya, M.D.; Marcia Scherer, Ph.D., M.P.H., C.R.C.

Objectives: The goal of this study is to investigate the relationship between academic performance of high school and college level students age 15 to 25 year old after having mild head trauma with no treatment versus appropriate rehabilitation treatment provided. It is hypothesized that students who received appropriate clinical evaluation and treatment after head injury have no decline in grade point average having better academic performance to compare to those students who were not evaluated and treated.

Project Plan – Procedures and Methods: The proposed project is a retrospective study using a convenient sample of high school and college level students ages 15-25 who had mild head trauma with Glasgow Coma Scale (GSC) 13-15 and no radiographic evidence of hemorrhage or traumatic brain injury (TBI) and being treated at Strong Memorial Hospital (SMH) Emergency Room (ER) during the period of time from January 1, 2010 through December 31, 2010. The setting will be an outpatient rehabilitation clinic based in the tertiary care inpatient rehabilitation center. Patients with mild head trauma will be recruited to participate in the study after being treated at the Emergency Department of the University based hospital. Patients will be enrolled according to the following inclusion criteria: high school and college level students ages 15-25 having mild head trauma with Glasgow Coma Scale (GSC) 13-15 and no radiographic evidence of hemorrhage or TBI and being treated at SMH ER in 2010 (ICD-9-CM Diagnosis Codes 800-804, 850-854, 920-924, 925-929, 930-939, 958-959), who did not have prior history of head injury and were full time students prior to the injury, able to return to school or college after the injury, and willing to participate in this study. Exclusion criteria will include high school and college students with prior head injury, GCS < 13 on presentation to Emergency Room or radiographic evidence of hemorrhage or TBI.

Study personnel will identify prospective study participants by contacting the Emergency Room medical records team regarding the data for students ages 15-25 having head trauma and being treated at SMH Emergency Room during 2010 calendar year. The investigator will send a letter to students and parents of potential participants describing the study and inviting their child to participate. Follow-up phone calls will be made to parents (if child <18 years old) regarding the information about the study and have questions answered. The investigator will meet the students and their parents and obtain informed consent (assent for children and permission from parents). The participants will be asked to provide information related to prior medical history and school or college study involvement and treatment provided at SMH and after discharge home. The sample for this study includes approximately 30 individuals who suffered from mild traumatic brain injury. Individuals will be enrolled in one of two groups: students with mild TBI and no rehabilitation on their return back to school and students with mild TBI and provided with Rehabilitation assessment and treatment. The participants will be asked that either the student or parent, or both jointly, provide information regarding the injury, Emergency Room visit, and all post- Emergency Room treatment in the hospital and outpatient clinics after discharge home. The official transcripts from the school or college one year prior and one year after the injury will be also required. The participants will be asked several questions about how they feel after the accident regarding their daily activities, academic performance and having any symptoms of depression.

Expected results: The expected result is to confirm that students who received appropriate clinical evaluation and treatment after mild head trauma have no decline in grade point average having better academic performance than those who were not evaluated and treated. The study is designed to show our community the importance of appropriate Rehabilitation assessment and treatment to be provided to all high school and college level students after having head trauma with a hope to start the process of establishing a standard of care model of appropriate rehabilitation therapies to use while attempting to help young people in the future.

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.

Dombovy, ML. “Traumatic Brain Injury”. Continuum. In process for June 2011 publication.

Dombovy, ML. “The Evolving Field of Neurorehab”, Continuum. In process for June 2011 publication.

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

Dougherty P; Salsbury Lyons S; **Everett, CR**; Weiner D. The role of integrated care in Older Adults with lumbar spinal stenosis. Fourth Annual Geriatric Symposium. Oral Presentation, ACC RAC. Las Vegas NV. March 18, 2011.

Dougherty P; Lyons SS; **Everett, CR**; Weiner D. Topics in Integrative Health Care. 2010 1(2) ID:12003.

Douglas Fetkenhour, M.D.:

Kalia HK; **Fetkenhour, D**. Successful Rehabilitation of Functional Right Research Hemispherectomy in Adult with Refractory Status Epilepticus: A Case Report. AAP 2011 Annual Assembly Poster, April 15, 2011.

Rajeev Patel, M.D.:

Patel, RK. 63: Intradiscal Biologics: A Potential Minimally Invasive Cure for Symptomatic Degenerative Disc Disease? The Comprehensive Treatment Of The Aging Spine: Minimally Invasive And Advanced Techniques. Edited by James J. Yue, M.D., Richard Guyer, M.D., J. Patrick Johnson, M.D., Larry T. Khoo, M.D., H. Hochschuler, M.D., and Stephen H. Hochschuler, M.D., Elsevier Inc., 2011.

Patel, RK. Percutaneous Intradiscal Biologics. Interventional Spine Care. Ed: DePalma, Demos Medical, 2011.

K. Rao Poduri, M.D.:

Poduri, KR; McLeary B. Outcomes of Spinal Stenosis Surgery Patients in Acute Hospital Rehabilitation Based on Comorbidities, Hb and HbA1C and Serum Albumin Levels (in progress).

Sotto R; **Poduri, KR**; Lindsay LR. Influence of Age on Functional Performance of Stroke Patients with Rehabilitation (Manuscript submitted to *Topics in Stroke Rehabilitation*).

Poduri, KR; Groth-Juncker A; Scherer MJ. The Potential of Tai Chi to Prevent the Recurrence of Low Back Pain in Healthcare Workers (Manuscript submitted to *Pain Physician*).

Poduri, KR; Scherer MJ. Inpatient Rehabilitation: Correlation between Patient Satisfaction and Functional Goals (Manuscript submitted to *Topics in Stroke Rehabilitation*).

Saxena D, **Poduri KR**. Age-related Changes: Cardiovascular. Book chapter in Geriatric Rehabilitation Quick Reference, Demos Publications, due for publication in July 2012.

Poduri KR, Pike K, To HM, Simpson S, Escobar C. Innovations in graduate medical education: utilization of new technologies to improve resident education in physical Medicine and rehabilitation Am. J. Phys. Med. Rehabil. & Vol. 91, No.3, pp a34, March 2012.

Poduri KR, Odom N. Rehabilitation of Central Nervous System Disorders - Immune Mediated and Neurodegenerative Disorders - Multiple Sclerosis; in Knowledge Now, official publication of AAPM&R. November 2011.

Kuhar S, **Poduri KR**. Acute Inpatient Rehabilitation: Functional Outcomes of Patients with a Left Ventricular Assist Device, PM&R, The journal of Injury, function and rehabilitation: Vol 3.iss10S1 Pp: S193, October 2011.

Simon Carson, OTR, MS, MBA; Scott Simpson, M.D.; **Kanakadurga R. Poduri, M.D.**; Cynthia Thieleman, RPT. Inpatient Rehabilitation: Patient-Centered versus Professional-Centered Care. *Am. J. Phys. Med. Rehabil.*, Vol 90, No. 4, pg. 348. Presented at Association of Academic Physiatrists Annual Meeting, Phoenix, Arizona, April 2011.

Cecilia Ransom, M.D.:

Ransom, C. Orthoses and Adaptive Equipment. American Academy of Neurology, Continuum. Volume 17(3) June 2011 (In Press).

Marcia Scherer, Ph.D.:

Federici S; **Scherer, MJ** (Eds.). (2012). Assistive Technology Assessment Handbook. Boca Raton, FL: CRC Press.

Scherer, MJ. (2012). Assistive Technologies and Other Supports for People with Brain Impairment. New York: Springer Publishing Co.

Scherer, MJ. (in press). *Assistive Technologies and Other Supports for People with Brain Injuries from Genetics, Injury, or Aging*. New York: Springer Publishing. ISBN-13: 9780826106452.

Scherer, MJ; Federici S; Tiberio L; Pigliautile M; Corradi F; Meloni F. (2011). ICF Core Set for Matching Older Adults with Dementia and Technology. *Ageing International*, 36(2).

Scherer, MJ; Craddock G; Mackeogh T. (2011). The relationship of personal factors and subjective well-being to the use of assistive technology devices. *Disability and Rehabilitation*, 33(10), 811-817. PMID: 20735272.

Medwetsky L; **Scherer, MJ.** (2011, May). Factors Influencing Individuals' Decisions to Access Hearing Care Services. *Hearing Review*, 18(5), 24,26,27,28,30,32.

National Institute for Disability and Rehabilitation Research. Co-Principal Investigator for grant number H133A090004 to the Burton Blatt Institute at Syracuse University and the Institute for Matching Person & Technology for the DRRP *Center of Effective Rehabilitation Technology (CERT)*. 1 October 2009 - 31 October 2014.

William Schneider, Ph.D.:

Schneider, WN; Wong TM. (2011). Cognitive and Behavioral Disorders in Rehabilitation. In Continuum Lifelong Learning Neurology 17(3): 460 – 468, In Press.

David Speech, M.D.:

Cesarz T; **Speech, D.** Aquatic Therapy in The Comprehensive Treatment of the Aging Spine Minimally Invasive and Advanced Techniques 1st ed. Edited by James Joseph Yue et al. Elsevier Saunders, 2011, pp 103-105.