Congratulations Graduating Residents!

Woojoong Lee, M.D.

Brett Teran, D.O.

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

Fourth Year Residents

Woojoong Lee, M.D.

1. ***Immunosuppressive Therapy with Myocophenolate Mofetil for Bullous Pemphigoid Complicated by Segmental Zoster Paresis***
   Woojoong Lee, MD; Joseph Nicholas, MD, MPH; Kanakadurga Rao Poduri, MD
   Presented as a poster at the Association of Academic Physiatrists in Nashville, Tennessee; February 2014

CASE DESCRIPTION: An 84 year old woman with wheelchair dependency due to spinal stenosis was started on mycophenolate mofetil for exacerbation of bullous pemphigoid. Two months after starting treatment, she experienced pain on right shoulder and arm with subsequent eruption of vesicles over the right C6 and C7 distribution. Six days after onset of skin lesions, she experienced rapid progressive paresis of right arm and her strength decreased from 5/5 in C5 – T1 muscles to less than 3/5 in same muscles. She was hospitalized for segmental zoster paresis and treated with IV acyclovir. MRI did not reveal myelitis and thus lumbar puncture was not performed. After seven days, she was discharged to a skilled nursing facility with rehabilitation where she completed a total of 14 days of valacyclovir. She did not make significant motor recovery of her right arm over the next two months and was transitioned to long-term level of care.

DISCUSSION: Herpes zoster is cutaneous reactivation of varicella zoster virus and is most commonly seen in sixth to eighth decade of life. Segmental zoster paresis is a rare complication of herpes zoster and can lead to significant functional impairment. State of immunosuppression is a known risk factor for herpes zoster and mycophenolate confers this risk. However, its association with segmental zoster paresis is unknown. This is the first reported case, to our knowledge, of segmental zoster paresis after starting therapy with mycophenolate.

CONCLUSION: Segmental zoster paresis may be an associated complication of immunosuppressive therapy with mycophenolate mofetil.

2. ***Acute Inpatient Rehabilitation: Usefulness of Psychological Classification of Patients to Provide Interventions to Increase Rehabilitation Outcomes.***

Simer Preet Singh, MBBS, MPH; Kanakadurga R Poduri, MD; Jennifer Fleeman, PhD; **Woojoong Lee, MD;**
Presented as a poster at the Association of Academic Physiatrists in Washington DC; October 2014

OBJECTIVE: We hypothesized that patients in acute rehab would benefit from assessment of their psychosocial function using a classification system that would be a tool to provide communication between team members to assist for therapeutic intervention.

DESIGN: A descriptive study of assessment of inpatients' psychosocial status with an arbitrary classification system. Patients were assigned a score weekly from I-IV by the rehabilitation team. Functional status was measured on the functional Independence Measure (FIM). Lengths of stay and efficiency ratios (ER = total FIM gain/ length of stay) were calculated to assess outcome of rehabilitation and usefulness of the psychosocial classification.

The classification system is as follows:
Green: Expressing hopefulness, good understanding of the discharge, independently managing anxiety.
Yellow: Having a bad day, change in behavior or mood for unknown/known reason, setback due to medical condition, and requires assistance to manage anxiety.
Red: Patient refusing therapies, Patient and/or family overwhelmed, unrealistic expectations, cannot manage anxiety.
Double Red: wanting to leave the hospital against medical advice, aggressive behavior towards staff and/or family.

RESULTS: The data was analyzed using student t-test for difference in efficiency ratios of two groups, Group 1 (393) - patients who remained at II or less on the scale and Group 2 (32) with patients who at least once during their stay went into the score of III or IV. There is statistically significant difference ($p<0.05$) between efficiency ratio of group 1 and 2, the former scoring an average ER of 1.84 and 1.09 for the latter.

CONCLUSIONS: A psychosocial classification system is useful in acute rehabilitation hospitals to identify high risk patients to design medical or behavioral Therapeutic Interventions to improve efficiency ratio.

3. ***Support for Preoperative IVC Filter Placement for ORIF in Patients with Known Same Limb Distal DVT.*** **Lee, W**., & Poduri, KR
   Presented as a poster at the Association of Academic Physiatrists in New Orleans, Louisianan; March 2013

4. ***Pediatric traumatic spinal cord injury. Knowledge NOW***
   Woojoong Lee, MD; Colin Canham, MD, KR Poduri, MD
   Published online in April 2013, AAPM&R KnowledgeNOW
   http://now.aapmr.org/peds/neurological/Pages/Traumatic-spinal-cord-injury.aspx

5. ***Spinal cord injury without radiographic abnormality (SCIWORA).Knowledge NOW (in print)***
   Woojoong Lee, MD; Colin Canham, MD; KR Poduri, MD
   Under review by AAPM&R Knowledge NOW

6. ***Adverse Drug Events in Older Adults***
   Woojoong Lee, MD; KR Poduri, MD
   Published on line in May 2012, Ger-E-News vol.2:3. Through Reynolds Grant: URMC Division of Geriatrics and Aging

Brett Teran, D.O.

1. ***Dropping Objects and Carpal Tunnel Syndrome***
   Brett Teran, D.O., David Speach, M.D., John Elfar M.D. (*in progress*)

Introduction
Dropping objects from the hands is a symptom in patients with carpal tunnel syndrome (CTS). There are few studies evaluating dropping objects' association with CTS and no literature evaluating the symptom as a screening test prior to electrodiagnostic examination. This study evaluated the symptom of "dropping things" as a predictor of a positive electrodiagnostic study for median neuropathy at the wrist.

Methods
Retrospective review of patients referred for electrodiagnostic studies from January 2003 to December 2004. The symptom of dropping objects from the hands was the main inclusion criteria. The patients were clinically evaluated and electrodiagnostic studies performed by one examiner.

Results
646 subjects included in the study. The symptom of dropping objects as a predictor of a positive electrodiagnostic study had a sensitivity (25%), specificity (86%), PPV (77%) and NPV (38%).

Discussion
Dropping objects is a poor screening test for a positive electrodiagnostic study to diagnose CTS.

2. ***Outcome Measures in Interventional Spine – A Focused Review***
   Brett Teran D.O., Denise Norton M.D., Clifford Everett M.D., MPH Published on-line at International Spine Intervention Society March, 2013.

Review Article

The selection of outcome instruments appears open in the current evolving health care system. The aim is to include the most utilized questionnaires in the field of interventional spine while focusing on attributes and distinctions of each questionnaire. There is a comparison of each subjective measurement tool emphasizing the unique characteristics that each has in the evaluation of low back pain with its effect on physical functioning. The conclusion discusses the future of standardized questionnaires for clinical and research purposes. This includes the Patient Reported Outcome Measurement System (PROMIS) and computerized adaptive testing (CAT) with a comparison relating to the currently used questionnaires.

3. ***Idiopathic Congenital Syringomyelia Presenting as Paraplegia***
   K.R. Poduri, M.D., M. Bessette, M.D., **Brett Teran, D.O.**
   Presented at the ASIA annual conference, Chicago, IL, May 2013

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

1. ***Evaluation of Students Academic Performance after Mild Head Trauma: A Prospective Study (****in progress****).***
   Konstantin Tsymbalov, D.O., M.H.A.; Jennifer Paul, M.D., K. Rao Poduri, M.D.

Objectives:
The purpose of this study is to investigate possible impact of a minor head injury on middle/high school and college level students' ages 10-25 year old academic performance. We hypothesize that students after head trauma have a decline in grade point average in regards of academic performance at school and possibly need further evaluation and treatment provided by Speech and Language, Occupational, and Neuropsychology therapists.

Project Plan – Procedures and Methods:
Subject identification and initial screening for eligibility would be conducted using eRecord. Study personnel will identify prospective study participants, students ages 10-25 having head trauma and being treated at Dr. Paul's Clinic at University of Rochester after having mild traumatic brain injury from January 1, 2015 through June 30, 2016 (ICD-9-CM Diagnosis Codes 800-804, 850-854, 920-924, 925-929, 930-939, 958-959) who did not have head trauma prior to the current injury and were full time students prior to the current injury, and able to return to school or college. The investigator will provide an introduction of the purpose of the study to students and parents of potential participants describing the study and inviting their child to participate in the study. The investigator will discuss the study with the subject after the subject have read the consent form and having questions in order to obtain informed consent (assent for children and permission from parents). If a participant and his or her parent agree to participate, informed consent by consent or assent and permission will be signed prior to initiation of the study. Once consent is given, we will ask the participants to provide information regarding previous medical history, rehabilitation treatment provided if any, any symptoms of depression, and challenges faced at school on return after the current injury using the prepared questionnaire. The participants will return the filled questionnaires with official school/college transcripts for two semesters prior and two semesters after the injury during the follow up visits or official transcripts will be obtained from the Registrar's office of the participant's middle/high school or college using the consent form.

Expected results:
We hypothesize that students after head trauma have a decline in grade point average in regards of academic performance at school and possibly need further evaluation and treatment provided by Speech and Language, Occupational, and Neuropsychology therapists.

2. ***Recognized Homonymous Hemianopsia and Delirium during Rehab Admission Exam Leading to Diagnosis and Appropriate Treatment of Acute Stroke: A Case Report (****in progress****).***
   Konstantin Tsymbalov, D.O., M.H.A.; Douglas Fetkenhour, M.D.

Setting: Inpatient Rehabilitation Department at a tertiary care hospital.

Case Description:
An Esophagogastroduodenoscopy performed on a 65-year-old male revealed a distal esophageal mass that was identified through biopsy as moderately differentiated adenocarcinoma. Subsequent positron emission tomography (PET) and computed tomography (CT) scan studies revealed distal esophageal wall thickening with extension into the proximal stomach, but no lesions identified in the brain. The patient underwent esophagectomy and received neoadjuvant chemotherapy. Once medically stabilized, the patient was admitted to the rehabilitation unit.

Assessment/Results:
During the exam performed on admission to the rehabilitation unit, the patient was found to have a new left homonymous hemianopsia and confusion. A magnetic resonance image (MRI) study of the brain revealed a new brain lesion within the right parietal-occipital lobe measuring 5.2x3.8x5.0 cm. The patient underwent

craniotomy for tumor resection. The pathology report surprisingly identified the lesion as being a subacute cortical ischemic stroke, negative for neoplasm. The patient received treatment for secondary stroke prevention and visual rehabilitation.

Discussion:
Identifying the visual field defect on exam prompted further investigation of an acute process. The PET scan performed as part of the initial oncologic workup would have demonstrated an existing lesion, be it malignancy or infarct. However, the MRI revealed a new finding. Given the patient's history of invasive esophageal adenocarcinoma, the leading diagnosis was a metastatic lesion. The unexpected pathology results allowed for proper management of an infarct from CVA.

Conclusion:
A thorough physical exam on admission is important to identify new deficits that may indicate acute pathology. In this case, a visual field defect led ultimately to the diagnosis of stroke which guided appropriate secondary stroke prevention treatment and rehabilitation instead of brain radiation and further chemotherapy.

3. Prolonged Academic Recovery of 9 – 15 Years Old Female Students after Concussion

Tysmbalov, K., Paul, J. (*in progress*)

Objectives:
The purpose of this study is to investigate possible prolonged academic recovery for 9-15 years old female students after having concussion. We hypothesize that female students after concussion need significantly prolonged time to recover and return to academic activities after having concussion.

Inclusion Criteria
The data of Elementary/Middle/High school students ages 9-15 having concussion(Glasgow Coma Scale (GSC) 13-15 if performed on the scene or in the Emergency Room) with no loss of consciousness and no radiographic evidence of hemorrhage or TBI if diagnostic imaging been performed treated at PMR Clinic at University of Rochester from July 1, 2012 through January 31, 2014 (ICD-9-CM Diagnosis Codes 800-804, 850-854, 920-924, 925-929, 930-939, 958-959), who had or did not have prior history of head injury and were full time students prior to the injury, able to return to school after the injury or later after recovery. Only data of recovery without personal identity data to be used in the review study.

Exclusion Criteria
The data of Elementary/Middle/High school students after brain trauma more severe than concussion as with GCS < 13 on presentation to Emergency Room if any, unable to return back to school after recovery, radiographic evidence of hemorrhage or TBI if diagnostic imaging been performed.

Results:
Students' ages 9-15 diagnosed with concussion, 42 female and 53 male, were under investigation of this study. Unexpectedly, a significant difference of prolonged recovery and the number of clinic visits of 12 y.o. male students was found. Female students ages 9-15 were found having significantly higher rates of headaches, and 14 y.o. female students having significantly higher rates of insomnia.

Discussion:
There is a potential for significant impact on academic performance for high school students after mild head trauma. Studies state that patients with even mild head injury can have symptoms usually associated with more severe traumatic injuries and also may have affected mechanisms of adaptive social decision-making. These findings were further investigated with a conclusion that special learning strategies and specific academic

accommodations are required for injured students for several post-injury years. This study has estimated the length of recovery for male and female students ages 9-15 and showed a significantly prolonged recovery for 12 y.o. male students and significant increase of the rate of headaches for 9-15 y.o. female students and insomnia for 14 y.o. female students.

Conclusion:
Further research is needed to confirm the findings of this small group retrospective study to address a better estimation of the length of the High school students' recovery after concussion and gender related differences of the recovery.

Third Year Residents

Maya Modzelewski, M.D. (PGY3)

1. ***Case report: Severe sensorimotor polyneuropathy in a burn patient*** **, Modzelewski M., MD**, Paul, J MD
   Will be presented as a poster at AAPM&R 2014

Case Description:
A 34 year old male who presented to the acute hospital following a propane tank explosion resulting in 43% total body surface area thermal burns to the face, trunk, back, and bilateral upper limbs. Autologous skin grafting to the trunk and bilateral upper limbs was performed following medical stabilization. Prolonged stay in the intensive care unit was complicated by rhabdomyolysis requiring hemodialysis, severe pain and ventilator dependence. Upon admission to acute rehabilitation, the patient presented with distal greater than proximal extremity weakness in all four limbs. Throughout rehabilitation proximal limb strength improved, however distal strength remained negligible. Only trace activation of bilateral wrist extensors, finger flexors and abductors was seen. The unburned lower limbs demonstrated only trace ankle dorsiflexion, extensor halluces longus activation, and plantarflexion. Sensory exam was challenging secondary to burned tissue, graft and donor sites.
Assessment/Results: Electrodiagnostic examination of the upper and lower extremities demonstrated severe acquired sensorimotor peripheral polyneuropathy, as may be seen in diabetes or other metabolic or pharmacologic etiologies. The remainder of the electrodiagnostic exam was normal.

Discussion: Neuropathies are frequently seen in critically ill burn patients, but can often go undiagnosed. This patient presented with severe sensorimotor polyneuropathy affecting both burned and unburned limbs. The polyneuropathy significantly affected his functional status on the rehabilitation floor and length of stay. The etiology of the patient's severe sensorimotor polyneuropathy remains unclear despite thorough evaluation. Determining the underlying cause of neuropathy in this patient is difficult due to the metabolic nature of burn injuries and multiple iatrogenic factors that may have contributed.

Conclusion: Severe sensorimotor peripheral neuropathies can be seen in burned and unburned extremities. Despite complete evaluation, the underlying etiology can remain unknown.

2. ***Effect of Proprioceptive Training for Concussion Prevention in High School Aged Female Soccer Players,*** Bazarian J MD, **Modzelewski M MD**, Norton D., (*in progress*)

   Overview: To determine if a modified warm-up routine focused on proprioceptive training can prevent concussions in high school girls. The modified warm-up routine chosen is called *The Santa Monica ACL*

Injury Prevention Project (PEP) and consists of 15-minute drills focused on balance and spatial orientation performed 2-3 times per week. The routine is designed to improve agility, strength, and proprioception. It is well-established that improving proprioception decreases ACL injuries in female athletes. Several Division I college soccer programs have already adopted this warm-up routine for ACL injury prevention, however it is unclear to what extent this program prevents concussions. We hypothesize that the PEP program in female high school athletes would decrease concussions through improvement of proprioception.

3. ***QI project: Assessing the relationship between emotional adjustment, participation level, and changes in functional abilities during acute rehabilitation through the use of a psychosocial adjustment to injury/illness scale***
   Fleeman J, PsyD, **Modzelewski M MD**, Norton D MD, Carson S. *(in progress 2014*)

Introduction:
The purpose of the study was to evaluate the use of a psychosocial adjustment to injury/illness scale (EA scale) as a means of standardizing psychosocial assessment and interventions aimed at maximizing participation and functional outcome during acute rehabilitation. The study will examine the relationships between emotional adjustment (as measured by the EA scale), level of participation in rehabilitation therapies, and change in functional abilities during the acute rehabilitation process. It is anticipated that by using the EA scale to identify patients who would benefit from interventions to improve emotional adjustment, participation and functional outcomes will also be improved.

Study population: Characteristics of the population: A total of 523 patients were included, of these 141 did not meet the 3 hour rule and 382 met the 3 hour rule. Those who did not meet the 3 hour rule were divided into one or more of the following missed codes: psychosocial reasons/ coping, patient refused, pain, fatigue, patient remained in bed, or was off of the unit.

The inclusion criteria included all patients who were on the inpatient rehabilitation unit during the specified time period. Exclusion criteria included: 1) Patients who had none of the above missed codes during their stay but did not meet the 3 hour rule for one or more of the following missed codes: nursing getting meds, nursing dressing changing, participation in bowel/bladder program, patient was incontinent, patient was being toileted, patient was not bathed or dressed in time, patient was sick, patient was at a test, on bedrest, medical hold, with physician, transportation problems, dietary/eating, or therapist error. Additionally, patients were excluded if they did not meet the three hour rule and the reason for missing this time was not coded

Methods and Materials:

Every patient was discussed weekly according to their psychosocial behaviors as they related to the psychosocial scale. They were then placed under their appropriate adjustment level: green, yellow, red and double red. If there were discrepancies between the levels of adjustment, the most "severe" level was used and recorded, in order to ensure appropriate treatment and management. Patients experiencing difficulty adjusting would receive additional supportive interventions by nursing staff, therapists, the social worker, the medical doctors and/or counseling by the neuropsychologist.

4. ***"Stroke Rehabilitation" Chapter in: Geriatric Rehabilitation from Bed-side to Curbside.*** K. Rao Poduri, ed, **Modzelewski, M**., et al First edition. In progress. August 2013- present

Denise Norton, M.D. (PGY3)

1. ***Neurostimulants as a Treatment for Anoxic Brain Injury in a Two Year-Old Girl with Hereditary Ventricular Arrhythmia: A Case Report***
   Katarzyna Iwan, MD and **Denise Norton, MD**
   Will present as a poster at the AAPM&R, San Diego; November 2014

   Setting : Acute inpatient rehabilitation unit in tertiary care hospital

   Patient: Two year-old girl with anoxic brain injury and catecholaminergic polymorphic ventricular tachycardia (CPVT) and arrhythmogenic right ventricular dysplasia (ARVD).

   Case Description : The patient presented with cardiac arrest secondary to CPVT/ARVD resulting in anoxic brain injury. She was initially sedated to prevent further episodes of ventricular ectopy. Sedation was weaned, (but changes consistent with diffuse cerebral hypoxia were noted on imaging). Four weeks post cardiac arrest, the patient was initially titrated on Nuvigil due to its lower side effect profile and showed improvement in tracking and head control. She was then transitioned to Ritalin and regained further brain function. On discharge, the patient continued to make improvements in cognitive function and did not experience any new episodes of ventricular tachycardia while on neurostimulants.

   Assessment/Results: At 1 month, 3 months and 6 months post administration of neurostimulants, the patient continued to regain neurological function. Her therapists have noted improvements in postural control, balance, motor function, coordination and communication.

   Discussion :CPVT and ARVD represent a hereditary ventricular tachycardia postulated to cause up to 15% of sudden cardiac deaths in the pediatric population due to a mutation in a voltage gated ion channels. Optimal management of CPVT/ARVD includes sedation to prevent endogenous catecholamine release and ventricular ectopy. In contrast, those with brain injury may be managed with neurostimulants which promote cholinergic activity. However, there is no FDA approved neurostimulant dose that can be administered to patients under six years old. To our knowledge, this is the first reported case of neurostimulant use in a patient under six years old with hereditary ventricular tachycardia.

   Conclusions: Neurostimulant use for treatment of brain injury in children with ventricular arrhythmia is possible despite the cholinergic side effects and no approved pediatric dosing.

2. ***Relationship Between Participation in Competitive Wheelchair sports and the Level of Independence with Activities of Daily Living : A Pilot Study***
   Ruth Fried, OTR, K.R Poduri, MD, Simer P Singh, MBBS, MPH and **Denise Norton, MD**. Poster presentation at AAPM&R 2013.

   Objective: 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.

   Design: A correlational study.

   Setting: Competitive wheelchair Athlete Group (1) and their parents at a team practice and age matched controls Group (2) and non-competitive wheelchair sports participants.

Participants: Children between 8-21 years of age with disabilities. Nine subjects (5 in Group1 and 4 in Group2) completed the study from the Rochester Rookies wheelchair track field team and Sportsnet. Interventions Investigators classified enrollees according to the Gross Motor Functional Classification system (GMFCS) and distributed the Vineland II Adaptive Behavior Scales; Parent/care-giver rating Form in the daily Living skills subsection to the participants and their parents to complete the questionnaires. Main Outcome Measures: GMFCS scores and scores on the Vineland II Adaptive Behavior Scales in the daily living skills were collected to assess the level of independence for both groups.

Results: There were 3 females and 2 males in group 1 and 3males and 1 female in group 2. The average age is 16 and 13 with average GMFCS scores are 2.6 and 3 respectively. The average standard scores on the Vineland II self-care scale are 86.4 and 67 with percentile scores for of 19.6 and 35.25 respectively. Pooled variance =786.85. S.E.(diff. of the means) =18.82. t(7) =0.83, p-value(two-sided) =0.4339; not significant.

Conclusions: 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 who are not participants in team sports activities, however we need to observe a larger sample to draw conclusions.
Results: The two groups are not significantly different in age, GMFCS level , but the standard score for ADL independence was found to be higher in group 1 as compared to group 2 (86.4 verse 67 with p-value: 0.109). The results show a trend towards significance. Competitive wheelchair sports increases the likelihood of achieving independence in activities of daily living when compared to age matched GMFCS controlled peers however we need to study a larger sample to draw more definitive conclusions.
Conclusions: Children and youth who participate in a sports team with wheelchair-using peers are more likely to achieve independence in activities of daily living

3. ***Outcome Measures in Interventional Spine – A Focused Review Article***
Brett Teran D.O, **Denise Norton M.D**., Clifford Everett M.D., MPH Published on-line at International Spine Intervention Society March 2013.

The selection of outcome instruments appears open in the current evolving health care system. The aim is to include the most utilized questionnaires in the field of interventional spine while focusing on attributes and distinctions of each questionnaire. There is a comparison of each subjective measurement tool emphasizing the unique characteristics that each has in the evaluation of low back pain with its effect on physical functioning.
The conclusion discusses the future of standardized questionnaires for clinical and research purposes. This includes the Patient Reported Outcome Measurement System (PROMIS) and computerized adaptive testing (CAT) with a comparison relating to the currently used questionnaires.

4. ***Effect of Proprioceptive Training on Concussion Prevention in High school female athletes***
Jeffrey Bazarian, MD., Maya Modzelewski, MD., **Denise Norton, MD**., (in progress 2014)

Overview: To determine if something as simple as a modified warm-up routine can prevent concussions in high school girls. The modified warm-up routine chosen is called *The Santa Monica ACL Injury Prevention Project (PEP)* and consists of 15-minute drills focused on balance and spatial orientation performed 2-3 times per week. (See below for details). This modified warm-up is designed to improve agility, strength, and positioning of the body in space, known as proprioception. It is well-established that improving proprioception decreases ACL injuries in female athletes. Several Division I college soccer programs have already adopted this warm-up routine for ACL injury prevention. At this time, it is unclear to what extent this program prevents concussions. We hypothesize that the PEP program in female high school athletes would improve proprioception and ultimately decrease the number of concussions.

5. ***QI Project: Assessing the relationship between emotional adjustment, participation level, and changes in functional abilities during acute rehabilitation through the use of a psychosocial adjustment to injury/illness scale***
   Jennifer Fleeman, PsyD., **Denise Norton, MD**., Maya Modzelewski, MD., Simon Carson, (in progress 2014)

6. ***Slipped Capital Femoral Epiphysis***. **Norton, Denise**, Essaff, David, Poduri, K.R. *KnowledgeNow of AAPM&R 2014.*

Claudia Ramirez, M.D. (PGY3)

1. Assessment of Patient Population Evaluated During a Short Term Medical Mission Trip
Ramirez CP, Poduri KR. Poster Presentation AAP 2014

Objectives: Providing pertinent and targeted medical care during short term medical mission trips is challenging given the limited time and limited financial support. Purpose of the study was to create a patient registry to evaluate and treat patients on a week-long trip in the Dominican Republic.

Design: A patient registry was created with two sections: demographic and clinical information. The former included patient's name, ID number, sex and age. The clinical information consisted of 5 questions: one open ended for current complaint; three yes/no questions regarding association to trauma, prior evaluation of complaint in the past 3 months to assess chronicity and admission to hospital to assess acuity. The final question focused on diagnosis, specific rehabilitation diagnosis included amputation, joint pain, back pain, brain injury, burns, congenital deformity, fracture, multiple fractures, neurological disorders, and SCI/paralysis. If the above diagnoses were not applicable, MDs classified them by organ system as heart, lung, GI, renal, GU, skin, endocrine, hematology and pain.

Results: Of the 413 patients, 65% were women, average age 29.4 years with range of 1 month to reported 112 years, 98% of complaints were non- traumatic, 31% were chronic and there were zero admissions to hospital. The most common diagnoses was "lung" with upper and lower respiratory problems. Secondly "GI" with acid reflux, malnutrition, abdominal pain, diarrhea and constipation followed by "skin" with rashes and "GU" which included UTI, dysmenorrhea and pregnancy. Of the 413 patients, 61 had rehabilitation diagnoses with arthritis (46%) and back pain (41%) the two most common.

Conclusion: A patient registry enables targeted volunteer recruitment and selection of equipment/ medications for short term medical missions. Physiatrists are able to treat rehabilitation specific diagnoses with medications, exercises and other modalities on mission trips.

2. Evaluating Workflow to Improve Efficiency in an Outpatient Spinal Cord Injury Clinic
Claudia P Ramirez, MD; Douglas Fetkenhour, MD; K.R. Poduri, MD. Will be presented at AAPMR 2014

Objective: Define workflow and evaluate turnaround time from start to finish of patients' visits in an outpatient teaching spinal cord injury (SCI) clinic to assess clinic efficiencies and potential areas of improvement.

Design: Process improvement study conducted in collaboration with Lean Six Sigma team. It involved definition of workflow, training and education of staff, development of online website and mobile phone application to collect data points to include: Patient ID, appointment time, patient check in time (A), the time the secretary pages patient technician (B), the time the technician rooms a patient (C), the time the technician

notifies a resident (D), the time the resident spent reviewing the chart (E), the time the resident sees a patient (F), the time the resident presents to attending (G), the time resident and attending review patient together (H), the time resident finishes documentation (I) and the time patient checks out (J).

Setting: Teaching clinic at tertiary care hospital residency program.

10 Participants: SCI patients seen over a five month period in 2013.

Results: A total of 68 patients were seen in the clinic. Of those, thirty six patients had 9 out of 12 data points collected. The remaining three were missing. The average turnaround time of these patients was 104 minutes with 22% percent arriving 10 minutes after their scheduled appointment time. The average number of minutes to complete Steps A/B: 4.5, B/C: 8.7, C/D: 1.7, E: 10.8, J: 6.4 and F/G/H/I 19.3 minutes per step.

Conclusions: 104 minutes per visit was deemed too long. Literature shows a direct impact between a patient's wait time and their satisfaction. From this exercise we learned that there are gaps in efficiency in the areas of rooming patients, reviewing charts and actual clinicians' time. Perhaps, teaching time is partly responsible for the latter.

3. ***Lumbar Disc Disorders, Physical Medicine and Rehabilitation Knowledge NOW,***
Everett C, **Ramirez CP**, Perkowski M September 2013

4. ***"Arthritis & Musculoskeletal Conditions" Chapter in: Geriatric Rehabilitation: Bed-Side to Curb-Side:***
Poduri KR, ed., **Ramirez, C.,** et al First edition. In progress. August 2013-present

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Faculty Research

K. Rao Poduri, M.D.:

1. Norton, Denise, Essaff, David, **Poduri, K.R.,** Slipped Capital Femoral Epiphysis. Published on-line in *KnowledgeNow of AAPM&R 2014.*

2. Lee, W., Nicholas, J., **Poduri, KR**. Immunosuppressive therapy with mycophenolate mofetil for bullous pemphigoid complicated by segmental zoster paresis. Association of Academic Physiatrists Annual Meeting, Nashville, TN. American Journal of Physical Medicine & Rehabilitation vol 93(3), Supplement 2: p. a69. April 2014.
3. Ramirez, C., **Poduri, KR**., Assessment of Patient Population Evaluated During a Short Term Medical Mission Trip. Association of Academic Physiatrists Annual Meeting, Nashville, TN. American Journal of Physical Medicine & Rehabilitation vol 93(3), Supplement 2: p. a14, April 2014.
4. Lee, W., Canham, C., **Poduri, KR**., Pediatric Traumatic Spinal Cord Injury. Published on-line at KnowledgeNow of the AAPM&R April 2013
5. Lee, W., **Poduri, KR**. Support for Preoperative IVC Filter Placement for ORIF in Patients with Known Same Limb Distal DVT. Presented as a poster at the Association of Academic Physiatrists in New Orleans, Louisianan; March 2013

6. **Poduri, KR**., Canham, C., Lee, W., Paul, J., Spinal Cord Injury without Radiological Abnormality. Published on-line in KnowledgeNow of AAPM&R 12/2013

7. Nickels, J., **Poduri, KR**., Bessette, M., Syringomyelia. Published on-line in KnowledgeNow of AAPM&R 9/2013
8. Singh, S., **Poduri, KR**., Fried, R., Norton, D., Relationship between Participation in Competitive Wheelchair Sports and the Level of Independence with Activities of Daily Living: A Pilot Study. PM&R Journal vol 5(9S): pp. 195 – 196. September 2013.
9. Perkowski, M & **Poduri, KR**. An Unusual presentation of functional and neurologic recovery 36 months post-injury in a person with traumatic incomplete tetraplegia. The Journal of Spinal Cord Medicine 2013, Vol 36, No 5. September 2013

Jeffrey Bazarian, M.D.:

1. Funded Research: K24 HD064754-01A1 (**Bazarian**) 03/01/11 – 02/28/16

   Validation of Putative Serum Markers of Axonal Damage after Mild TBI
   The goal of this project is to examine alterations in blood and CSF to test several hypotheses related to the biochemical and cellular response to mild TBI. It also will serve as a platform for the mentoring of new clinical investigators interested in traumatic brain injury
   Role: Study Principal Investigator

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