

PM&R RESEARCH DAY

JUNE 24, 2015

Congratulations Graduating Residents!



Maya Modzelewska, M.D.



Denise Norton, M.D.



Claudia Ramirez, M. D.

Fourth Year Residents

Maya Modzelewska, M.D.

***1. Inpatient rehabilitation of a patient with thoracic myelopathy: A Case Report, Poster presentation
AAP 2015 Maya Modzelewski MD, Jean Nickels MD***

Case Description: Clear cell sarcoma is a relatively rare cancer of the soft tissues with hallmark chromosomal translocation, t(12;22)(q13;q12), or an EWSR1-ATF1 fusion gene. To our knowledge there are no studies detailing acute inpatient rehabilitation outcomes for patients with this condition. Traditionally, acute inpatient rehabilitation facilities (IRF's) do not accept patients on intravenous patient controlled analgesia (IV PCA) pumps. In this case we describe functional gains attained by a patient with clear cell sarcoma who successfully participated in a hospital based IRF, attributable to the use of IV PCA pump.

The patient was a 29-year-old male with metastatic clear cell sarcoma who presented with progressive paraparesis and decreased sensation below T4. Imaging revealed metastatic thoracic spine lesions, extensive pathologic fracture of T4 with displacement of the thoracic cord and T10 osseous destruction. He underwent an anterior T4 corpectomy, after which he was admitted to our IRF. Evaluation of worsening pain related to lower extremity lymphedema during rehabilitation revealed left femur bony metastasis. Intractable pain necessitated use of an IV PCA.

Assessment/Results: Pain and participation in therapies markedly improved with initiation of IV PCA. Nursing was able to manage the pump with no PCA related complications. He progressed from non-

ambulatory to contact guard for ambulation, and moderate-maximum assistance to set up for ADLs thus achieving enough independence for successful discharge to home.

Discussion: To our knowledge, this is the first reported case of inpatient rehabilitation of a patient with clear cell sarcoma. We suggest that IV PCA be safely used on IRF and can facilitate the rehabilitation process.

Conclusion: Patients with metastatic clear cell sarcoma can achieve significant functional gains from IRF. IV PCA pumps may facilitate rehabilitation participation and may be safe for use in IRF's. Further studies regarding IV PCA pumps in the IRF setting should be considered.

2. Baclofen Withdrawal in a Neonate: A Case Report, Poster presentation AAP 2015

Maya Modzelewski MD, K.R Poduri MD and My Lien T. Nguyen PharmD

Case Description: A 43 y.o. gravida 3, para 0 female with history of C6 incomplete spinal cord injury was on oral Baclofen for a number of years for spasticity. She was on Baclofen 80 mg/day during pregnancy. The pregnancy was uneventful and a healthy baby boy was delivered. The newborn was breastfed since birth as the American Academy of Pediatrics classifies baclofen as "usually compatible with breastfeeding." In anticipation of neonatal withdrawal from baclofen, Toxicology recommended baclofen treatment of the baby with 1 mg/kg/day divided into 4 doses and a 1/3 breast milk 2/3 formula mixture. The baby remained in the hospital for the baclofen wean, while the mother was discharged home. The baby was nursed 8 hours when his mother visited and the remaining 16 hours (evening and night) was fed the formula mix. Around the third day, the baby appeared sedated and was feeding poorly while on Baclofen. On the fifth day, baby's respiratory rate decreased to 18/minute, requiring supplemental oxygen. Serum Baclofen level was above 500 mcg/ml; supratherapeutic. Baclofen was thought to be responsible for sedation and respiratory distress and weaning of Baclofen began. On the 13th day, he was weaned off and the baby had no more effects of baclofen and was discharged home on 1/3 breast milk-2/3 formula mix. At 1.5 weeks the breast milk baclofen levels ranged from 0.22 to 0.32 mcg/ml.

At two months, he was switched to 50/50 breast milk/formula followed by 100% formula after 6 months due to reduction in breast milk.

Discussion: To prevent neonatal withdrawal the dose of 1mg/kg/day dose of Baclofen was tried and noted to be too high, however limited information is available to guide the dose in the newborns.

Conclusion: Maternal Baclofen use has effect on nursing babies. Dosing for neonates has not yet been established to prevent withdrawal.

3. Severe Sensorimotor Peripheral Polyneuropathy in a Burn Patient: A Case Report

Citation: Modzelewski, M, Paul, J., Severe Sensorimotor Peripheral Polyneuropathy in a Burn Patient: A Case Report, *PM&R vol. 6, (9S), S230*. 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 hallucis 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.

4. 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 adjustments (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.

5. "Stroke Rehabilitation" Chapter in: Geriatric Rehabilitation from Bed-side to Curbside. K. Rao Poduri, ed, Modzelewski, M., et al First edition. Publication on-going August 2013- present

6. *“Osteoarthritis” Case in: Physical Medicine and Rehabilitation Cases and Clinical Review*, publication on-going, December 2014-present

Denise Norton, M.D.

1. *Neurostimulants as a Treatment for Anoxic Brain Injury in a Two-Year-Old Girl with Hereditary Ventricular Arrhythmia: A Case Report.*

Citation: Iwan, K, Norton, D, Odom, N., (2014) Neurostimulants as a Treatment for Anoxic Brain Injury in a Two-Year-Old Girl with Hereditary Ventricular Arrhythmia: A Case Report. *PM&R vol. 6, (9S), S233. Presented 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. $t(7) = 0.83$, $p\text{-value}(\text{two-sided}) = 0.4339$; 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 $p\text{-value}: 0.109$). 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. 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)

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 adjustments (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.

5. *Slipped Capital Femoral Epiphysis.*

Citation: Poduri, KR, Norton, D, Paul J, Essaff, D. Slipped Capital Femoral Epiphysis. PM&R Knowledge Now the online journal of the American Academy of Physical Medicine & Rehabilitation. 2014. www.aapmr.org/education/knowledge-now

6. *Functional outcomes in patients with a Left ventricular assistive device.* Denise Norton, MD; Sonya Kuhar, MD and K. Rao Poduri, MD, FAAPMR . LVAD Manuscript for the Journal of Heart Lung and transplant. (in progress).

Background: To evaluate functional outcomes of patients with a left ventricular assist device (LVAD) for cardiac failure with the Functional Independence Measure (FIM) and to determine whether age and comorbid conditions impact patients’ outcomes.

Methods: A retrospective study of patients with an LVAD for cardiac failure that underwent acute inpatient rehabilitation from 2010 to 2014. Their age, admission and discharge FIM scores, FIM gains, length of stay (LOS), efficiency ratios (ER) and comorbid conditions were recorded. Correlation coefficients for these characteristics were calculated and Student’s t-test conducted with the p value set at < 0.05. We assessed the association between age, comorbid conditions and functional gains in patients with LVAD.

Results: The average age of patients was 62 years (range: 36-79 years). The average admission and discharge FIM scores were 76.56 and 96.69 respectively. The average FIM gain was 20 (range: 8-39). The

average LOS was 15 days (range: 6-23 days). The average ER (FIM gain over LOS) was 1.50. The highest and lowest ERs were that of a 61 year old and a 43 year old, respectively. Comorbid conditions did not influence the FIM gains, because most individuals had similar conditions and did not lose any time during their rehabilitation due to medical instability.

Conclusions: Age and comorbidities did not appear to have an impact on the FIM gains and/or ER in patients with LVADs going through acute inpatient rehabilitation. Overall, patients improved enough to be discharged home.

Claudia Ramirez, M. D.

1. Evaluating Workflow to Improve Efficiency in an Outpatient Spinal Cord Injury Clinic Ramirez, CP, Poduri, KR, Poster Presentation AAPMR 2014

Citation: Ramirez, CP, Poduri, KR, Evaluating Workflow to Improve Efficiency in an Outpatient Spinal Cord Injury Clinic, *PM&R vol. 6, (9S), S286.*

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.

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

Poster Presentation at National Hispanic Medical Association Annual Conference 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.

3. ICH in Setting of Autonomic Dysreflexia in a Spinal Cord Injury Patient: A Case Report

Ramirez CP, K.R. Poduri, MD, Submitted to AAPMR 2014

Case Description: The patient, a male in his fifties, with history of a complete C6 SCI was admitted emergently to the hospital with acute onset of slurred speech, right arm weakness and increased difficulty with bed mobility. Initial workup was remarkable for a left basal ganglia bleed which given its location was thought to be hypertensive in etiology; however workup was confounded by lack of history of hypertension. Patient underwent *computed tomographic angiography (CTA)* which showed no vascular anomaly or flow limiting stenosis of the major cervical and cranial vessels. A diagnostic angiogram was also performed which ruled out an arteriovenous malformation, aneurysm or underlying mass. Etiology of his intracerebral hemorrhage (ICH) remained unclear until admission to rehabilitation unit.

Assessment/Results: Review of patient's history was remarkable for orthostatic hypotension for which he was normally on midodrine with baseline systolic blood pressures of 100s-110s. Family reported that patient had been complaining of intermittent headaches and nasal congestion for about one week prior to admission. Evaluation of his blood pressure while in the hospital showed intermittent spikes in his systolic blood pressure as high as 150. Upon admission to the rehabilitation unit, medical providers systematically evaluated for the noxious stimuli that was triggering autonomic dysreflexia which resulted in ICH. Both his bowel and bladder regimen were found to be inadequate.

4. Quality Improvement Project: Call and Pull Schedule for PM&R Residents.

Captain: Ramirez CP

Members: Nicole Strong, Kristen Brusky, Nicholas Love, David Essaff, Kasia Iwan

Reason for action: Wouldn't it be great if...

-The call and pull counts were easily accessible

-There was a system with checks and balances to ensure counts were up to date/accurate

Anticipated benefits of initiative:

- Transparency and collegiality amongst residents
- Easy to transition information from one year (class) to another

Baseline Condition:

- Access to the counts are limited to chief residents for viewing
- Multiple people have been able to input data

Target Condition Reached:

- Access to the counts is available to all residents
- Consistent system in place to ensure accuracy of data input

5. *Lumbar Disc Disorders, Physical Medicine and Rehabilitation Knowledge NOW*, Everett C, Ramirez CP, Perkowski M September 2013
6. *“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
7. *Ongoing Research Project: Understanding of 0-10 numeric pain intensity ratings among trained and untrained chronic pain patients*. Mentor: Shannon Smith, PhD, Department of Anesthesia.

Third Year Residents

David Essaff, D.O.

1. Essaff, D, Poduri, KR, Nickels, J., (2014) *Pulmonary Embolism Presenting as Seizures in an Acute Inpatient Rehabilitation Unit: A Case Report*. *PM&R vol. 6, (9S), S233*.
2. Poduri, KR, Norton, D, Paul J, Essaff, D., (2014) *Slipped Capital Femoral Epiphysis*. *PM&R Knowledge Now* the online journal of the American Academy of Physical Medicine & Rehabilitation. www.aapmr.org/education/knowledge-now
3. *The Effects of Pre-morbid Anxiety and Depression on Functional Outcomes in Acute Stroke Patients Admitted to Inpatient Rehabilitation*. Essaff, D., Iwan, K., Ackroyd, S., Rhie, K., Fleeman, J., Poduri, K.R. American Academy of Pain Medicine Annual Assembly, Boston, MA, Submitted in March 2015
4. Essaff, D., DO; Iwan, K., MD; Bazarian, J., MD, MPH. *Concussion in an Athlete with Incidental Arnold Chiari Type-I Malformation: A Contraindication to Return to Play?* American Academy of Physical Medicine & Rehabilitation 2015 Annual Assembly. *Pending acceptance*.
5. Essaff, D., DO; Singh, S., MD; Thakur, R., MD. *Superior Hypogastric Plexus Block: A Novel Treatment Approach for Phantom Limb Pain*. American Academy of Pain Medicine 31st Annual Meeting. Presented 03/2015.
6. Iwan, K, MD.; Essaff, D., DO; Singh, S., MD; Kent, J., MD. *Placebo Effect of a Spinal Cord Stimulator in the Treatment of Post-Herpetic Neuralgia*. American Academy of Pain Medicine 31st Annual Meeting. *Presented 03/2015*.

7. Essaff, D., DO; Iwan, K., MD; Poduri, KR., MD. *The Effect of Functional Outcomes on Discharge Disposition in Acute Stroke Patients Who Sustained a Fall*. American Association of Academic Physiatrist 2015 Annual Meeting. *Presented 03/2015*.
8. Essaff, D., DO; Ransom, D., MD; Everett, C., MD, MPH. *Thoracic Myelopathy Presenting as Lumbar Spinal Stenosis* American Association of Academic Physiatrist 2015 Annual Meeting. *Presented 03/2015*.
9. Essaff, D., DO; Iwan, K., MD; Odom, N., MD. *Unilateral Knee Swelling in a Young Male T7 AIS A: Heterotopic Ossification vs Gout?* American Association of Academic Physiatrist 2015 Annual Meeting. *Presented 03/2015*.
10. Essaff, D., DO; Nickels, J., MD; Poduri, KR., MD. *Pulmonary Embolism Presenting as Seizure in Two Young Males on an Acute Inpatient Rehabilitation Unit*. American Academy of Physical Medicine & Rehabilitation 2014 Annual Assembly. *Presented 11/2014*.

Kasia Iwan, M.D.

1. **Iwan, K**, Norton, D, Odom, N., (2014) *Neurostimulants as a Treatment for Anoxic Brain Injury in a Two-Year-Old Girl with Hereditary Ventricular Arrhythmia: A Case Report*. American Academy of Physical Medicine & Rehabilitation 2014 Annual Assembly. *Presented 11/2014*.
Citation: Iwan, K, Norton, D, Odom, N., (2014) *Neurostimulants as a Treatment for Anoxic Brain Injury in a Two-Year-Old Girl with Hereditary Ventricular Arrhythmia: A Case Report*. *PM&R vol. 6, (9S), S233*.
2. *Reporting Practices of Cross-Over Trials for Chronic Pain Treatments: An ACTION Systematic Review*. Gewandter, J., Dworkin, R., **Iwan, K.**, et al. University of Rochester Medical Center, Rochester, NY Submitted for review in December 2014
3. *The Effects of Pre-morbid Anxiety and Depression on Functional Outcomes in Acute Stroke Patients Admitted to Inpatient Rehabilitation*. Essaff, D., Ackroyd, S., Rhie, **Iwan, K.**, K., Fleeman, J., Poduri, K.R. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Boston, MA, March 2016
4. *Concussion in an Athlete with Incidental Arnold Chiari Type I Malformation: A Contraindication to Return to Play?* Essaff, D., **Iwan, K.**, Bazarian, J. American Academy of Physical Medicine and Rehabilitation Annual Assembly, Boston, MA, March 2016
5. *Placebo Effect of a Spinal Cord Stimulator in the Treatment of Post-Herpetic Neuralgia: A Case Report*. **Iwan, K.**, Essaff, D., Singh, S., Kent, J., American Academy of Pain Medicine Annual Assembly, National Harbor, MD, March 2015
6. *Unilateral Knee Swelling In Young Male T7 AIS A Spinal Cord Injury: Heterotopic Ossification vs Gout*. **Iwan, K.**, Essaff, D., Odom, N., Association of Academic Physiatrists Annual Assembly, San Antonio, TX, March 2015

7. *The Effects of Functional Outcomes on Discharge Disposition among Adult Stroke Fall Patients in an Acute Inpatient Rehabilitation.* Essaff, D., **Iwan, K.**, Poduri, K. Association of Academic Physiatrists Annual Assembly, San Antonio, TX, March 2015
8. *Contributed chapter on Geriatric Musculoskeletal Disorders in Geriatric Rehabilitation.* Paul, J., **Iwan, K.**, and Ramirez, C. Pending publishing in 2016

Second Year Residents

Kristen Brusky, D.O.

1. *Effects of Coma Stimulation Trial on FIM Outcome and Efficiency,* Brusky, K, Schneider, W, Odom, N, (2014 – in progress)

Nicholas Love, M.D.

1. *Evaluating Neurogenic Shock in Traumatic SCI Patients,* Love, N, Strong, N, Messfin, A. (2014 – in progress)

Nicole Strong, D.O.

1. *Evaluating Neurogenic Shock in Traumatic SCI Patients,* Love, N, Strong, N, Messfin, A. (2014 – in progress)

Faculty Research

K. Rao Poduri, M.D.

1. *Modzelewski M, Poduri K.R., and Nguyen MT: Baclofen Withdrawal in a Newborn: A case report.* Association of Academic Physiatrists Annual Meeting in San Antonio, TX March, 2015
2. *Modzelewski M, Nickels J, Poduri, KR: Inpatient Rehabilitation of a Patient with Metastatic Clear Cell Sarcoma. A Case Report.* Association of Academic Physiatrists Annual Meeting in San Antonio, TX March, 2015
3. *Essaff D, Iwan K, Poduri KR: The Effect of Functional Outcomes on Discharge Disposition in Acute Stroke Patients Who Sustained a Fall.* Association of Academic Physiatrists Annual Meeting in San Antonio, TX March, 2015
4. *Essaff, D, Nickels J, Poduri, KR: Pulmonary Embolism Presenting as Seizure in Two Young Males on an Acute Inpatient Rehabilitation Unit.* 76th Annual Assembly of the AAPMR in San Diego, Ca, November, 2014
5. *Ramirez CP, Poduri K R: Evaluating Workflow to Improve Efficiency in an Outpatient Spinal Cord Injury Clinic.* 76th Annual Assembly of the AAPMR in San Diego, Ca, November, 2014
6. *Poduri K. Rao Paul, J., Norton, D., Essaff, D. Slipped Capital Femoral Epiphysis.* Published on-line Knowledge Now of the AAPM&R. 2014.

7. **Poduri K. Rao Multiple Sclerosis**. Updated version on invitation for the on-line Knowledge Now of the AAPM&R To be published in July

Editorial Assignments:

8. Journal of Physical Medicine, Rehabilitation & Disabilities Editor, 2015- Present
9. Journal "Knowledge Now" of the AAPMR. Editor 2010- Present
10. Editor, Internet Journal of Medical update: International Advisory/Reviewers' Committee Member 2008 - Present
11. Journal of the Jawaharlal Nehru Medical College Scientific Society: Editorial Member 2008 - Present
12. Journal, "Disability and Rehabilitation" Member, Editorial, Board 2005 - Present
13. American Journal of Physical Medicine and Rehabilitation: Reviewer July 2005 - Present
14. Journal Neurology: Reviewer April 2005 - Present
15. Journal, "Archives of Physical Medicine and Rehabilitation": Reviewer 1992 - Present

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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