

## Congratulations Graduating Residents!



Nathan Odom, M.D.



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



Brandon Snead, M.D.,  
M.S.

### Fourth Year Residents

#### Nathan Odom, M.D.

- 1. Acute Inpatient Rehabilitation: is there an association between presence of venous-thromboembolism and patient weight in the setting of chemoprophylaxis (in progress)?*

Simer Singh, MBBS, MPH; Brandon Snead, MD, MS; **Nathan Odom, MD**; Douglas Fetkenhour, MD

#### Objectives:

To determine a correlation between venous thromboembolism and individual patient weight, and type and dosage of heparin based chemoprophylaxis used.

#### Methods:

We will perform a retrospective chart review of patients admitted to the University of Rochester Inpatient Rehabilitation Unit, between 2007 - 2013. Subjects will be approximately 45 adults, both male and female, and will be included if they were found to have a venous thromboembolism during their inpatient rehabilitation stay or up to seven days antecedent to acute rehabilitation admission while being treated with chemoprophylaxis. Patients will be excluded from the study if they have a prior deep vein thrombosis (DVT) on active anticoagulation, active cancer, known genetic mutation causing hypercoagulability, or active anticoagulation with non-heparin based compounds.

#### Expected results:

We will theorize that our null hypothesis is true, in that there is no difference in numbers of patients with venous thromboembolism (VTE) with regard to patient weight while being on non-weight based chemoprophylaxis with low molecular weight (LMWH) or unfractionated heparin (UF).

#### Simer Preet Singh, M.B.B.S. M.P.H.

- 1. Acute Inpatient Rehabilitation: When is the best time to involve patient and family in team meetings and does it impact discharge?*

**SimerPreet Singh MBBS MPH**; Kanakadurga R Poduri MD; Simon Carson, OTR/L, MBA

## Presented in New Orleans- AAP 2013

### Objectives:

To compare discharge outcomes and efficacy of team meetings and their timing to involve patients and families. It is not practical to have all team meetings with patients and families present. Our previous study showed that involving the patient and family in the initial team meeting was helpful, now we aimed to study timing of their involvement in the second team meetings and its impact on discharge. The team felt barriers to discharge are perhaps better identified and addressed in the second team meeting and further may help predict length of stay (LOS) as initial team meeting is premature to involve family.

Design: Retrospective analysis of data pertaining to family involvement, meeting duration and interval between admission and meeting, LOS and disposition of two groups with 304 and 144 admissions in each (June 2010- August 2012). Family was involved in first interdisciplinary team meeting only for group I (304) and in the second meeting only for group II (144). LOS was predicted at the initial team meeting.

Results: When compared group I with group II, family involvement increased from 57% to 68%, team meeting duration 9 minutes vs. 10.5 minutes (median) and home discharge increased from 77% to 87%. The error in predication (EIP) of LOS was the difference between predicted and actual LOS. The Standard deviation of EIP in group I was 8 days as compared to 4 days in group II.

Conclusions: There is increase in family involvement and number of home discharges by involving family in the second team meeting as opposed to first with an increase of just few more minutes in the duration of the meeting. Rehabilitation team was able to better predict the LOS, which may result in better utilization of resources.

2. *Support for preoperative IVC filter placement for ORIF in patients with known same limb distal DVT.*  
Woojoong Lee, MD; **SimerPreet Singh, MBBS MPH**; Nithyanandini Namassivaya, MD; KR Poduri, MD.  
**Poster presented in March 2013 AAP annual Meeting, New Orleans and Published AJPMR March 2013 Supplement.**
3. *Vitamin B12 Deficiency a potentially hypercoagulable state- A Case report.*  
**SimerPreet Singh, MBBS MPH**; Andrew Rudmann, MD.  
**Poster presented in annual meeting AAPM&R Nov, 2012 in Atlanta and published in PMR journal Nov 2012 (Supplement).**
4. *Bladder cancer presenting as Autonomic Dysreflexia- A Case report.*  
**SimerPreet Singh, MBBS MPH**; Douglas Fetkenhour, MD.  
**Poster presented in annual meeting AAPM&R Nov, 2012 in Atlanta and published in PMR journal Nov 2012 (Supplement).**
5. *Acute Inpatient Rehabilitation: Utility of Psychosocial classification to provide interventions and to improve rehabilitation outcomes.*  
**SimerPreet Singh, MBBS MPH**; Kanakadurga R. Poduri, MD, Woojoong Lee, MD, Jennifer Fleeman, PhD.  
**\*Poster to be presented in AAPMR 2013 in National Harbor, MD.**

### Objective:

To develop an easy and functional classification system that can be used on a rehabilitation floor to assess the psychosocial function of the patients admitted to the acute inpatient rehabilitation, which would be an effective tool to communicate between team members and also to trigger an appropriate and timely therapeutic intervention by the team.

**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). Length of stay and efficiency ratio (total FIM gain/LOS) were calculated to assess outcome of rehabilitation and usefulness of the psychosocial classification.

The classification system is as follows:

- I. Green: Expressing hopefulness, good understanding of the discharge, independently managing anxiety.
- II. 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.
- III. Red: Patient refusing therapies, Patient and/or family overwhelmed, unrealistic expectations, cannot manage anxiety.
- IV. 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 ratios of group 1 and 2, with the former scoring on 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 and potentially to improve efficiency ratio and thus inpatient rehabilitation outcomes.

***6. Relationship between participation in competitive wheelchair sports and the level of independence with activities of daily living: A Pilot study.***

**SimerPreet Singh, MBBS MPH;** Kanakadurga R. Poduri, MD; Ruth Fried, OTR/L; Denise Norton, MD.

\*Poster to be presented in AAPMR 2013 in National Harbor, MD.

**Objective:** To investigate the relationship between participation in a competitive wheelchair sports and the level of independence with activities of daily living achieved by the participating athletes who have physical disabilities.

**Design:** A two-group comparative correlational study.

**Setting:**

Community dwelling competitive wheelchair Athletes (Group 1) and their parents at a team practice and age matched Control (Group 2) participants in non-competitive wheelchair sports.

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/caregiver rating Daily Living Skills subsection) to the participants and their parents.

Main Outcome Measures: Standard and percentile scores on the Vineland II Adaptive Behavior Scales in the Daily living skills subsection were collected to assess the level of independence for both groups.

**Results:**

Despite not being significantly different in GMFCS level, the group 1 was found to be higher in standard score for ADL independence as compared to group 2 (86.4 vs 67 with p-value: 0.109). The results show a trend towards significance.

The percentile obtained from Vineland II for the ADL subsection was found to be 18th for group 1 as compared to 1st percentile for group 2.

**Conclusions:** Participation in competitive wheelchair sports increases the likelihood of achieving independence in activities of daily living when compared to the age matched and GMFCS controlled peers. However, more research is needed and we need to study a larger sample to draw more definitive conclusions.

### **Brandon Snead, M.D., M.S.**

#### ***1. Clinical indicators that are correlated with deep vein thrombosis diagnosed by ultrasound (in progress.)***

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

#### **Objective:**

To determine if there is a correlation between venous thromboembolism and the following factors: weight, body mass index, and type of chemoprophylaxis.

#### **Design:**

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.

#### **Methods:**

This is a retrospective observational study of an inpatient rehabilitation population. The subject population will be obtained from a review of patients discharged from acute rehabilitation spanning 2007 - 2012. They will be identified by ICD 9 codes. Patients are identified as having a DVT diagnosed by ultrasonography or pulmonary embolus diagnosed by either computed tomography or by V/Q scan. The selected patients were treated with either heparin, enoxaparin or dalteparin for DVT prophylaxis. We will record patient's weight, body mass index (BMI), type and frequency of chemoprophylaxis. Demographic data including sex, age, and rehabilitation diagnosis will also be recorded.

**Data analysis:** The dependent variable is dichotomous. Independent variables are weight and type of heparin used. We will do a correlation analysis between VTE and the independent variables and determine how strongly they are correlated. Nominal variable include heparin BID, heparin TID, low molecular weight heparins including dalteparin and enoxaparin.

**Expected results:** Our hypothesis is that BMI is positively correlated with the incidence of DVT.

This study is in progress. IRB approval has been obtained and a population of patients has been identified and logged into an excel file.

### **Third Year Residents**

#### **Woojoong Lee, M.D.**

#### ***1. Support for Preoperative IVC Filter Placement for ORIF in Patients with Known Same Limb Distal DVT.***

**Woojoong Lee, MD;** Simer P Singh, MBBS; Nithyanandini Namassivaya, MD; KR Poduri, MD

**CASE DIAGNOSIS:** A 50 year old man with intraoperative pulmonary embolism during ORIF with known same limb distal DVT.

**CASE DESCRIPTION:** A 50 year old man sustained a left tibia plateau fracture after a fall from roof. Definitive treatment was delayed due to soft tissue edema and the fracture was managed with an external fixator. He was admitted to an inpatient rehabilitation unit for short term rehabilitation prior to planned ORIF. During rehabilitation admission, he was diagnosed with DVT in left posterior tibial and peroneal veins and anticoagulated with dalteparin for 6 days prior to undergoing ORIF. 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 restarted with dalteparin bridge to coumadin. An IVC filter was also placed post-op.

**DISCUSSION:** He was treated for 3 months with warfarin without complications and IVC filter was removed 3 months post-placement without complications. This is the first reported case, to our knowledge, of pulmonary embolism during 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.

**CONCLUSIONS:** IVC filter is indicated in patients with planned ORIF and confirmed same limb proximal or distal DVT.

**2. *Pediatric traumatic spinal cord injury. Knowledge NOW***

Woojoong Lee, MD; Colin Canham, MD, KR Poduri, MD

Published online in April 2013, AAPM&R Knowledge NOW database

<http://now.aapmr.org/peds/neurological/Pages/Traumatic-spinal-cord-injury.aspx>

**3. *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

**4. *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: URM Division of Geriatrics and Aging

**Brett Teran, D.O.**

**1. *Exploring the Subjective Complaint of Dropping Objects in Making the Diagnosis of Carpal Tunnel Syndrome (in progress)***

**Brett Teran, D.O., David Speech, M.D.**

**Objective:**

To identify a clinical sign or symptom (dropping things) that will predict Carpal Tunnel Syndrome on electrodiagnostic evaluation in comparison to prior studies which have looked at various clinical exam tests all of which are non-specific (including tinel's sign, phalen's sign, hand diagram, semmes weinstein monofilaments etc).

**Methods:**

IRB approval obtained, single examiner over a period of 2 years (2003-2004) of patient data gathered. Chart review of subjective complaint of dropping things and subsequent electrodiagnostic study evaluation results. Currently completing data analysis using regression model over the 2 year study period.

**Conclusion:**

Preliminary results show that dropping things is not a good screening test prior to electrodiagnostic study but patients are more likely to have CTS with this positive finding. Comparison to previous and recent European study using regression analysis that showed dropping things as a measure of severity of CTS.

## ***2. 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

### **Objective:**

To present an unusual case of Congenital Syringomyelia presenting as paraplegia.

### **Participants/methods:**

A 43 year-old male with incomplete paraplegia presented with a 3-month history of a decline in function, decreased balance, gait instability requiring a wheelchair, spasticity, pain and multiple recent falls.

### **Case Description:**

At age 23 he had abrupt onset of intense radiculopathy and myeloradiculopathy after a fall. Recrudescence of symptoms with cough and sneeze are classic for loss of compliance in the cervical canal and his MRI revealed large syrinx in the cervicothoracic cord. Patient had progressive symptoms necessitating a thoracic laminectomy at two levels and a stent placement within the syrinx. Subsequently, he was treated with four separate decompression surgeries with shunt placements and revisions over 15 years. His family history is significant with a brother with syringomyelia. On this admission, imaging showed that his syrinx was found to have expanded to his mid-thoracic cord and he underwent T6-9 thoracic laminectomy with shunt placement. Patient underwent intensive inpatient rehabilitation. He regained function and was walking with a walker again.

### **Conclusion:**

Hereditary syringomyelia is exceedingly rare, and literature is limited to case reports. Syringomyelia is typically found in the setting of other neurologic pathology. It affects pain and temperature conduction pathways in the arms due to its predilection to the cervical cord, with pain, sensory loss, autonomic dysfunction, and spasticity. Surgery is indicated early in treatment, as this leads to an improvement in symptoms and often halts deterioration. In this rare case, multiple surgeries were necessary to curb disease progression. Hereditary syringomyelia usually causes cervical lesions. However our current presentation being paraplegia presented a challenge for the diagnosis.

**Plan in progress for completion and submission as an article with discussion on Syringomyelia.**

## **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 April 1, 2013 through August 31, 2014 ( 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.

**Disclosure:** none

**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.

**Faculty Research**

**Douglas Fetkenhour, M.D.:**

Venothromboembolism: Correlation Between Body Mass Index and Type of Chemoprophylaxis in the Acute Rehabilitation Population. In progress

Acute Atraumatic Total Hip Arthroplasty Dislocation in Patient with Stroke. AAP Annual Assembly poster, March 2013

**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 (published at the Medical Education Conference Proceedings, 2012).

**Poduri KR:** Essentials of rehabilitation practice and science - specialized Physiatric assessment and management strategies: administrative rehabilitation medicine--systems-based practice. Knowledge Now, official publication of AAPM&R. November 2012.

**Poduri KR,** Canham CD, Lee W: Pediatric rehabilitation-traumatic spinal cord injury. Knowledge Now 2013. Official publication of AAPM&R. November 2012.

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

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

**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.

**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.

Adya M, Samant D, **Scherer MJ**, Killeen M & Morris, MW. (2012). Assistive/rehabilitation technology, disability, and service delivery models. *Cognitive Processing*, 13(1), 75-78.

(**Scherer M.J.**, Federici S., Tiberio L., Pigliautile M., Corradi F. & Meloni F. (2012). ICF Core Set for Matching Older Adults with Dementia and Technology. *Ageing International*, 37(4), 414-440

**Scherer, M.J.** (2012, June 30). Assessing the Match of Person and Cognitive Support Technology, Platform session for the RESNA 2012 Annual Conference, June 28-July3. Baltimore, MD.

<http://resna.org/conference/proceedings/2012/Cognitive/ASSESSINGTHEMATCHOFPERSONANDCOGNITIVE SUPPORT TECHNOLOGY.html>

Federici S, **Scherer MJ**, Meloni F, Corradi F, Adya M, Samant D, Morris MW & Stella A. (2012). *Assessing Individual Functioning and Disability*. Chapter in *Assistive Technology Assessment Handbook* (S. Federici & MJ Scherer, Eds.). CRC Press, Taylor & Francis Group.

**Scherer, M.J.** (2012, September). How Can We Best Match the Person with a Brain injury with the Most Appropriate Technology Support? *Brain Injury Professional: Special Issue on Neurotechnology*. 9(1)

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.

### **David Speech, M.D.:**

**D. Speech**, J. Elfar, B palmer, P. Abt\* (Rochester, NY;\*Syracuse, NY) "I Drop Things from My Hands" A Symptom of Carpal Tunnel Syndrome? American Association of Neuromuscular and Electrodiagnostic Medicine 59th Annual Meeting. Orlando, FL. | 10/06/2012