



University of Kentucky
Department of
Physical Medicine &
Rehabilitation

18th Annual
PM&R Research Day

June 15, 2006

Cardinal Hill Rehabilitation Hospital
Center of Learning
Rooms CL3 & CL4
Lexington, Kentucky

**UNIVERSITY OF KENTUCKY
DEPARTMENT OF PHYSICAL MEDICINE & REHABILITATION
18TH ANNUAL RESEARCH DAY**

CARDINAL HILL REHABILITATION HOSPITAL
CENTER OF LEARNING, ROOMS CL2, CL3 & CL4
JUNE 15, 2006

8:00 a.m. – 8:20 a.m. Continental Breakfast
Sponsored By: Scott Williams/Wilma Bickers, Pfizer

8:20 a.m. – 8:30 a.m. Opening Remarks: Joe E. Springer, Ph.D.

PM&R RESIDENT/GRADUATE STUDENT RESEARCH PRESENTATIONS

8:30 a.m. – 8:50 a.m. Tracy Allen, M.D., M.A.
9:00 a.m. – 9:10 a.m. Bradley Davis, M.D.
9:15 a.m. – 9:30 a.m. Sheila Chandran, M.D.
9:35 a.m. – 9:45 a.m. Tonya Harris, M.D.
9:50 a.m. – 10:00 a.m. Ninad Karandikar, M.D.

10:00 a.m. – 10:15 a.m. BREAK

10:15 a.m. – 10:25 a.m. Kyle Kiesel, MPT, ATC, CSCS.
10:30 a.m. – 10:40 a.m. Rebecca McCammon, P.T./Diana Downing P.T.
10:45 a.m. – 10:55 a.m. Harvey Mallory, M.D.
11:00 a.m. – 11:10 a.m. Karen Miller, M.D.
11:15 a.m. – 11:25 a.m. Jared Rasmussen, B.S.

11:45 – 1:00 p.m. Lunch ~ Center of Learning, CL2 & CL4
Sponsored By: Byron Coleman, Acorda Therapeutics

1:00 p.m. – 1:15 p.m. Scott Schaffer, PT, OCS, ECS
1:20 p.m. – 1:30 p.m. Beth Shelton, M.D.
1:35 p.m. – 1:45 p.m. Chad Walters, D.O.

FEATURE SPEAKER

2:00 p.m. – 3:00 p.m. Stephen J. Page, Ph.D.
University of Cincinnati, Physical Medicine & Rehabilitation
“Practice Makes Plasticity: New (and not so new) Therapies
To Improve Motor Function After Stroke”

POSTER PRESENTATIONS

3:15 p.m. – 4:00 p.m. Jennifer Hamrick-King, Graduate Center for Gerontology
Alyssa Catherin LaForme, Rehabilitation Sciences, Allied Health
Lindsey Schipper, Brain Injury Unit, Cardinal Hill

Janet Campbell, RN, CRRN, Cardinal Hill Hospital
Elizabeth Faulkner, RN, CRRN, Cardinal Hill Hospital
Sara Salles, DO, Physical Medicine & Rehabilitation (2)
Camille Skubik-Peplaski, MS, OTR/L, Cardinal Hill Hospital
Melanie McEwen (Presenter: Joe Springer, PhD, PM&R)
Ravi Ravikumar (Presenter: Joe Springer, Ph.D., PM&R)
Lisa Tudor, MBA, BBA, BA, Cardinal Hill Hospital

4:00 p.m. – 4:30 p.m. Awards & Closing Remarks
Joe Springer, PhD, Physical Medicine & Rehabilitation
Gerald Klim, DO, Chairman, Physical Medicine & Rehabilitation

SPEAKER PRESENTATION

“Practice Makes Plasticity: New (and not so new) Therapies To Improve Motor Function After Stroke”

STEPHEN J. PAGE, Ph.D., F.A.H.A.

Stephen J. Page, PhD, is Director of Research and Assistant Professor in the Department of Physical Medicine and Rehabilitation at the University of Cincinnati College of Medicine. He is also a Scholar with the Institute for the Study of Health, and a member of the Neuroscience Graduate Program faculty.

Dr. Page is the principal investigator of several grants, including two currently funded by the National Institutes of Health, and is the primary author of peer-reviewed articles appearing in such journals as: the Archives of Physical Medicine & Rehabilitation, The American Journal of Physical Medicine and Rehabilitation, Physical Therapy, Topics in Stroke Rehabilitation, Clinical Rehabilitation, The Journal of Rehabilitation Research and Development, and The Occupational Therapy Journal of Research. Dr. Page also served as Lead Editor for the February, 2001 issue of the Journal of Head Trauma Rehabilitation, Editor of the Winter, 2002 issue of Topics in Stroke Rehabilitation, Editor of the Summer, 2003 issue of Brain Injury, Editor of the 2004 supplement to the American Journal of Physical Medicine and Rehabilitation, and Editor of the Winter, 2005 issue of Topics in Stroke Rehabilitation.

Dr. Page is also a member of the Program and Membership Committees for the American Congress of Rehabilitation Medicine, including chairing their annual conference in 2004 and 2005, and is a reviewer for 11 medical journals.

Dr. Page graduated with a Bachelor's Degree from the College of Wooster, completed a Master of Science Degree at Ball State University, and graduated with a Doctor of Philosophy degree in Motor Learning and Control from The University of Tennessee. At both Ball State and Tennessee, Page was recognized as Outstanding Graduate Student. Page also completed a post-doctoral fellowship in rehabilitation research at the Kessler Institute for Rehabilitation. In 2002, Page received the Early Career Award from the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD). Page was also named a fellow of the Research Consortium of AAHPERD, and, in 2003, was named a fellow of the American Stroke Association.

Dr. Page also feels a strong commitment to the patients that he endeavors to serve, and he ventures into the community at least once/month to “spread the word” about best practices to recover from a devastating stroke, both to patients and to clinicians. Dr. Page is also an active volunteer for the American Heart Association and, in 2005, Dr. Page was recognized as the Heart Association volunteer with the most community speaking hours. Dr. Page also attends several stroke support groups each month, acting as a resource for stroke patients and their families. For these efforts, in February 2006, Dr. Page and the NmRRL were named a finalist for the HealthCare Hero" Award, given annually by the Cincinnati Business Courier.

ORAL PRESENTATIONS

PM&R Residents and Graduate Students

Presenter:

Abstract Presentation:

Tracy Allen, M.D.

Sports Participation in Children with Lower Extremity Amputations

Bradley Davis, M.D.

A Cost-Comparison Analysis of Helmeted vs. Un-Helmeted Patients Admitted to an Acute Rehabilitation Hospital Following an ATV Accident

Sheila Chandran, M.D.

Kinematic Biofeedback for Independent Motor Retraining

Tanya Harris, M.D.

The Effect of Obesity on Length of Stroke Acute Hospitalization

Ninad Karandikar, M.D.

DVT Prophylaxis of Orthopedic Trauma in the Rehab Setting – Optimal Duration of Prophylaxis

Kyle Kiesel, MPT, ATC, CSCS

A Comparison of Select Trunk Muscle Thickness Changes Between Subjects with Low Back Pain Classified in the Treatment-Based Classification System and Asymptomatic Matched Controls

Rebecca McCammon, P.T./
Diane Downing, P.T.

Aerobic Conditioning of Older Adults Using an Independent Home Exercise Program in the Chronic Phase of Recovery From Stroke

Harvey Mallory, M.D.

The Impact of BMI on Post-operative Recovery in the Pediatric Population

Karen Miller, M.D.

Gait Patterns in Hereditary Spastic Paraplegia

ORAL PRESENTATIONS

PM&R Residents and Graduate Students
(Continued)

Presenter:

Abstract Presentation:

Jared Rasmussen, B.S.

The Prevalence of Temporomandibular Disorders in Fibromyalgia Patients Compared to that of Failed Back Syndrome Patients: A Blinded Prospective Study

Scott Shaffer, P.T., OCS, ECS

Reliability and Validity of Semmes-Weinstein Monofilament Testing in Older Community-Dwelling Adults

Beth Shelton, M.D.

Spina Bifida Patients with Asymptomatic Bacteriuria: Prophylactic Antibiotic Use and Resistance

Chad A. Walters, D.O.

Correlation of Neopterin and von Willebrand's Factor with Disease Activity in Juvenile Idiopathic Inflammatory Myopathy

PM&R RESIDENT PRESENTATION

Sports Participation in Children with Lower Extremity Amputations

Presenter:

Tracy Allen, M.D.

Collaborators:

Tracy Allen, M.D., Wayne Cottle, C.P., Vishwas, Talwalkar, M.D.

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation
Shriners Hospital for Children, Lexington, Kentucky

Abstract Text:

There are well recognized medical, physical, emotional and psychological benefits in participating in sports activities for patients with lower extremity amputations. Due to advancements in prosthetic design there has been an increase in opportunities for sports participation by children with limb amputations. Research on pediatric athletes with lower extremity amputations is very limited. There is little information published concerning what type of sports the pediatric amputee participates in, their type of prosthesis and how it contributes or hinders in their ability to participate in their chosen sport, and what residual limb complications are directly associated with their sports activity. In this study, we performed a retrospective chart review of children seen in the past 5 years in Shriners prosthetic clinic that were diagnosed with a lower extremity amputation and participated in organized sports. The factors evaluated included data regarding their sex, age at the time of their amputation, current age, demographics, reason for amputation, level of amputation, type of amputation, prosthesis used, the sport(s) they participate in, repair and adjustments to their prosthesis, complications to the residual limb and any further surgical interventions since their original amputation.

Key Words:

Lower Extremity Amputation, Sports, Prosthesis, Children

PM&R RESIDENT PRESENTATION

A Cost-Comparison Analysis of Helmeted vs. Un-Helmeted Patients Admitted to an Acute Rehabilitation Hospital Following an ATV Accident

Presenter:

Bradley S. Davis, M.D.

Collaborators:

Gerald Klim, D.O.

Departmental Affiliations:

Cardinal Hill Rehabilitation Hospital

University of Kentucky, Department of Physical Medicine and Rehabilitation

Abstract Text:

The All-terrain vehicle (ATV) was initially introduced to the United States in 1970. As its popularity increased in the mid 1980's, so did the number of ATV related injuries. This prompted a 10 year \$100 million national industry safety campaign, which expired without renewal in 1998. Since then, ATV sales have increased by 5% each year with an estimated 875,000 sold in the U.S. in 2005. Ongoing longitudinal research studies at major trauma centers have verified an annual increase in incidence and severity of ATV related injuries since expiration of industry regulations. Specifically, there have been a higher proportion of pediatric cases despite recommendations from the American Academy of Pediatrics that children younger than 16 years of age should not ride on ATVs. Of most injuries, traumatic brain injuries and orthopedic injuries are the most prevalent with head injuries being the primary cause of death. The increase in traumatic brain injuries are likely a result of an overall decrease in helmet use and the lack of proper vehicle safety training efforts. In 2005, the state of Kentucky led the nation in ATV related deaths.

Methods: A cost-comparison will be performed to evaluate acute rehabilitation hospital charges associated with helmeted vs. non-helmeted ATV-related cases. To evaluate this, I will perform a retrospective review of all helmeted and un-helmeted ATV-related admissions to an acute rehabilitation facility. The University of Kentucky trauma bank will be utilized to locate and track ATV-related injuries to a major rehabilitation hospital.

Objective: The results of this study can be used to encourage governmental regulation or to provide information to help formulate a public awareness campaign for injury prevention.

Key Words:

ATV Accident Injury, Acute Rehabilitation, Cost-Comparison, Helmet-Unhelmeted Injury

PM&R RESIDENT PRESENTATION

Kinematic Biofeedback for Independent Motor Retraining

Presenter:

Sheila Chandran, M.D.

Collaborators:

Sara Salles, D.O.; Eric C. Hartman, M.S.

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation

Abstract Text:

Problem: Stroke patients undergo acute rehabilitation to restore functional use in paralyzed limbs. Therapies are utilized to improve motor function at all phases of recovery. During early phase of recovery, current lower extremity techniques are not task specific, causing delay in transfer training, relearning activities of daily living (ADL) and eventual gait training. **Aim:** The SymSlide, a closed chain, partial weight bearing lower extremity exercise device, will be used in conjunction with traditional therapy in the earliest stages of rehabilitation. The device will allow patients to practice sit-to-stand movements and weight transfers. A foot plate will record kinematic measurements generated by patient, which will be visible to patient on a video display. Specific tasks will be performed testing static forces, sit-to-stand transitions, postural shifts and holds. **Hypothesis:** The use of the SymSlide to provide task specific feedback will expedite patients' progress through early phase of stroke recovery, improving ADL training, and increasing endurance. **Methods:** 10 post-stroke patients will be randomized to incorporate the SymSlide therapies as part of therapy sessions. 10 control patients will have traditional physical and occupational therapy sessions. Goal of this Phase 1 study is to test feasibility of integrating the SymSlide into acute post-stroke inpatient rehabilitation therapy.

PM&R RESIDENT PRESENTATION

The Effect of Obesity of Length of Stroke Acute Hospitalization

Presenter:

Tanya Harris, M.D.

Collaborators:

Joe E. Springer, Ph.D., Lynn Tindall, SLP

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation
Veteran's Administration Hospital, Speech/Language Pathology Department

Abstract Text:

One would say that it is a given that obesity severely affects morbidity and mortality in this nation. Per Clinics in Family Practice, "physical inactivity and obesity are significant risk factors for chronic diseases such as hypertension, stroke, thrombogenesis, breast cancer, sleep apnea, colon cancer, gallbladder disease, osteoarthritis, dyslipidemias, type 2 DM, and endometrial cancer." As numerous studies support, "excessive weight...(has been) associated with increased mortality from all causes among adults." This is a particularly tragic realization when it has been documented that "obesity has increased in the last decade among men and women in every state, racial group, age group, and educational level in the United States" (Mokdad, JAMA, 1999).

Despite the numerous documented circumstances that obesity results in increased morbidity, particularly in a cardiovascular setting, there is relatively little research documenting stroke rehabilitation outcome in relation to obesity. Obesity is listed as an individual risk factor for stroke (Reeves, Neurology, 2002). However, as seen in my literature search with MdConsult as the search engine, there is little mention specifically of the outcome of stroke in the setting of pre-morbid obesity.

This project is a continuation of my endeavor two years ago to define the relationship of obesity as defined by BMI score greater than 30 kg per m² to one's functional recovery. Unfortunately, as aspects of data recording could not be controlled retroactively, we were unable to show a clear relationship to change in FIM scores. However, we will attempt to relate effect of obesity on time for medical stabilization, a key factor in rehabilitation. By reviewing the VA therapy database, we will attempt to provide physicians in the acute hospital setting an additional factor to consider in prognosticating a patient's recovery in this retrospective study.

Key Words:

Obesity, Stroke, Hospitalization Length

PM&R RESIDENT PRESENTATION

DVT Prophylaxis of Orthopedic Trauma in the Rehab Setting – Optimal Duration of Prophylaxis

Presenter:

Ninad Karandikar, M.D.

Collaborators:

Sara Salles, D.O., Joe Springer Ph.D.

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation

Abstract Text:

Background: Venous Thromboembolism continues to be a significant problem for all physicians concerned with the management of patients with Orthopedic Trauma, in the acute setting and in the rehabilitation setting. Incidences of VTE in the Orthopedic trauma population have been reported to be as high as 40-60%. Although VTE is easily preventable, the literature reveals no clear guidelines on the type and duration of VTE prophylaxis for the patient with major Orthopedic trauma. **Aim:** To determine optimal duration of VTE prophylaxis in major Orthopedic trauma. **Methods:** This will be a prospective study of 50 patients, >18 years old, with orthopedic trauma. After IRB approval and informed consent, patients will be enrolled in the study. A color Doppler study of both lower extremities will be performed at admission. Enoxaparin 30mg SQ bid will be started on day of admission. The patients will then be randomly divided into two groups. In group I, Enoxaparin will be stopped when the patient can ambulate > 150 feet or at 3 weeks post injury. In group II, Enoxaparin will be stopped at 6 weeks. The patients will be followed up at 3 weeks, 6 weeks, 3 months, 6 months and 12 months post injury with a repeat color Doppler study of both lower extremities on all patients at 3 months. Outcome measures will be either the occurrence of DVT or PE as documented by a Doppler study or CT PE protocol or the occurrence of complications e.g. bleeding, requiring discontinuation of prophylaxis.

Key Words:

Orthopedic Trauma, Venous Thromboembolism Prophylaxis, Deep Venous Thrombosis

GRADUATE STUDENT PRESENTATION

A Comparison of Select Trunk Muscle Thickness Changes Between Subjects with Low Back Pain Classified in the Treatment-Based Classification System and Asymptomatic Matched Controls

Presenter:

Kyle Kiesel MPT, ATC, CSCS
Doctoral Candidate, Rehabilitation Science Doctoral Program

Collaborators:

Terry Malone, Art Nitz, Carl Mattacola

Departmental Affiliations:

University of Kentucky, Department of Rehabilitation Sciences

Abstract Text:

Background: Consensus opinion suggests the need for classification of low back pain (LBP) subjects to guide research and intervention. The Treatment-Based Classification (TBC) system by Delitto is the most widely studied, classifying subjects in one of four treatment categories (immobilization, mobilization, direction specific exercise, and traction). Currently, only subjects classified into the immobilization category are routinely prescribed stabilization exercises. Recent research demonstrates impairments of deep lumbar stabilizing muscles exist in most subjects with LBP. We hypothesize impairments are present across classifications.

Objectives: To determine if there is a difference in thickness change of deep lumbar stabilizing muscles, as measured by real-time ultrasound imaging (RTUS), between subjects with acute LBP classified in the TBC system and controls.

Methods: Subjects referred to physical therapy for LBP with an Oswestry score of ≥ 25 are eligible. Subjects are classified into one of 3 categories of the TBC system then the RTUS exam is performed. Measurements are taken on the multifidus and transverse abdominis muscles at rest and during activation. Results are expressed as a percent change from rest.

Results: 24 subjects have been enrolled. RTUS measurements indicate there is a difference in muscle thickness change between subjects with LBP and controls. There is no difference between subjects across categories.

Clinical Implications: Specific stabilization exercises may be indicated for most subjects with acute LBP as defined.

Conclusion: Preliminary results indicate impairments exist in the deep lumbar stabilizing muscles of subjects in all categories of the TBC system.

Key Words:

Low Back Pain, Stabilization Exercise, Real-Time Ultrasound Imaging

GRADUATE STUDENT PRESENTATION

Aerobic Conditioning of Older Adults Using an Independent Home Exercise Program in the Chronic Phase of Recovery from Stroke

Presenter:

Rebecca McCammon, P.T./Diana Downing, P.T.

Collaborators:

Lynn English, PT, MEd, Associate Professor, Dana Lykins, MSPT, Clinical Advisor

Departmental Affiliations:

University of Kentucky, College of Health Science, Department of Rehabilitation Sciences, Division of Physical Therapy

Abstract Text:

Purpose: To determine if a physical therapy intervention plan consisting of independent aerobic exercise designed specifically for the individual older adult recovering from stroke will result in improved aerobic capacity and endurance and improved functional mobility. **Methods/Materials:** A sample of convenience of three older adults who were recovering from stroke > one year prior to the study served as subjects. Subjects were tested in a staggered fashion, with Subject A beginning first, Subject B beginning after Subject A began to improve in performance, and Subject C beginning as Subject B demonstrated improvement. Subjects initially completed the Folstein Mini Mental Status Examination (MMSE) and the SF-36 Item Health Survey. Functional tests/measures included in baseline testing were the Timed Up and Go (TUG), Three-Minute Walk Test, and the Physical Performance and Mobility Exam (PPME). Each subject was instructed in an individually prescribed aerobic exercise program and instructed to exercise 3 times per week for 12 weeks, using the equipment of his/her choice. Researchers provided a heart monitor and blood pressure cuff to each subject for self-monitoring, and subjects recorded results from each exercise session. The functional tests listed above were reassessed weekly throughout the exercise program and three months following completion of the program. Subjects also repeated the SF 36-Item Health Survey at the end of the twelve weeks of exercise. **Results:** All three subjects successfully completed 12 weeks of independent, self-monitored exercise. All three subjects improved time of performance of the TUG. Two subjects demonstrated increased endurance in exercise sessions by gradually increasing duration from 15 minutes to 45 and 20 minutes to 45, respectively. No significant changes occurred in the other tests of functional mobility, or in the Quality of Life Health Survey. Results at three month follow-up showed return to baseline in some areas of function for two subjects. **Conclusions:** Older adults recovering from stroke who perform an independent exercise program using a location and equipment of their choice demonstrate the ability to self-monitor and improve aerobic capacity and endurance. Further study is required to determine if improved aerobic capacity contributes to improved functional mobility and quality of life. **Clinical Relevance:** Diminished aerobic capacity and endurance are closely associated with stroke. Older adults recovering from stroke may benefit from a specifically prescribed and designed, self-monitored exercise program as part of a total rehabilitation program.

Key Words:

Aerobic Exercise, Stroke, Rehabilitation.

PM&R RESIDENT PRESENTATION

The Impact of BMI on Post-operative Recovery in the Pediatric Population

Presenter:

Harvey Mallory, M.D.

Collaborators:

C. M. Tytkowski, M.D., R. Meir, M.D., H. Mallory, M.D., Cristin Minter, M.A.

Departmental Affiliations:

Shriners Hospital for Children, Lexington, Kentucky

Abstract Text:

It is well documented recently that pediatric obesity is on the rise and presents a major health concern. It is speculated that one in three children will be on some type of hyperglycemic medication within the next ten years if trends continue as they are now. It is also well known that obesity presents a significant risk factor for adults undergoing surgery. In the obese adults, there are higher rates of infection, DVT, wound issues, skin breakdown, and prolonged hospitalization with prolonged rehabilitation. In this study, we will perform a retrospective chart review of children diagnosed with scoliosis, and who underwent spinal fusion at the Shriners Hospital in Lexington, Kentucky. Factors to be evaluated include BMI, operative time, length of hospital stay, post-operative complications, and long-term outcome. The goal of this study is an attempt to quantify the risk factors of obesity in the pediatric surgical population in an effort to determine the point where surgical risk increases secondary to weight issues.

PM&R RESIDENT PRESENTATION

Gait Patterns in Hereditary Spastic Paraplegia

Presenter:

Karen Miller, M.D.

Collaborators:

Chester Tylkowski, MD, Hank White, Donna Oeffinger

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation
Shriners Hospital for Children, Lexington, Kentucky

Abstract Text:

Hereditary spastic paraplegic (HSP) is a progressive movement disorder that mainly affects the lower extremities. Common gait patterns of patient with cerebral palsy have been identified. There have been no studies about the gait patterns in patients with HSP. The purpose of this study was to try to identify gait patterns of patients with HSP. The HSP patients not only showed patterns found commonly in cerebral palsy, but also demonstrated a pattern of a knee extension moment with decreasing or plateaued ankle dorsiflexion and a common finding of abnormal downward trunk obliquity, which is not described in subjects with cerebral palsy.

Key Words:

Hereditary Spastic Paraplegia, Gait

GRADUATE STUDENT PRESENTATION

The Prevalence of Temporomandibular Disorders in Fibromyalgia Patients Compared to that of Failed Back Syndrome Patients: A Blinded Prospective Study

Presenter:

Jared Rasmussen, B.S.

Collaborators:

Ramesh Balasubramaniam, BDS, Reny de Leeuw, DDS, Ph.D., Hua Zhu, M.S., Robert B. Nickerson, M.D., Jeffrey P. Okeson, DMD, and Charles R. Carson, Ph.D.

Departmental Affiliations:

University of Kentucky, College of Dentistry, Orofacial Pain Center
University of Kentucky, Department of Statistics
University of Kentucky, Department of Physical Medicine & Rehabilitation
University of Kentucky, Department of Psychology

Abstract Text:

The purpose of this prospective study was to determine the prevalence of temporomandibular disorders (TMD) in fibromyalgia (FM) patients compared to failed back syndrome (FBS) patients. In addition, the FM and FBS patients were assessed and compared with regard to their psychosocial dysfunction. The study included 51 adult patients (FM = 32, FBS = 19) recruited from a physical medicine and rehabilitation clinic and a FM workshop. Questionnaires included an orofacial pain questionnaire and a battery of psychological questionnaires which composed of the Symptom Check List-90-revised, the Pittsburgh Sleep Quality, the Multi-dimensional Pain Inventory, the post-traumatic disorder Checklist-Civilian Version, and Multidimensional Fatigue Symptoms Inventory-short form. Each patient underwent a clinical examination by a blinded dentist and if applicable was diagnosed with TMD based on the Research Diagnostic Criteria for TMD. Fifty three percent of the FM patients reported having face pain compared to 11% of the FBS patients ($P=0.002$). Of those FM patients that reported face pain, 71% of them fulfilled the criteria for TMD. The psychometric data revealed that the FM patients had statistically significant higher scores for somatization ($P=0.02$) and obsessive-compulsive ($P=0.009$) subscales compared to the FBS patients. The mean score of medication used to sleep was significantly higher among the FM patient compared to FBS patients ($P=0.002$). Eighty seven percent of the FM patients reported a stressful event ($P=0.036$). Of those FM patients that reported a stressful event 42.3% were deemed PTSD positive. FM patient also had significantly higher scores for general fatigue ($P<0.0001$), emotional fatigue ($P=0.008$), physical fatigue ($P<0.0001$) and mental fatigue ($P<0.0001$) compared to FBS patients. The high prevalence of TMD and psychosocial dysfunction among FM patients supports speculations of a dysfunctional HPA axis and dysregulated autonomic nervous system.

Key Words:

Prevalence, Temporomandibular Disorders, Fibromyalgia, Failed Back Syndrome and Psychosocial Distress.

GRADUATE STUDENT PRESENTATION

Reliability and Validity of Semmes-Weinstein Monofilament Testing in Older Community-Dwelling Adults

Presenter:

Scott Shaffer PT, OCS, ECS

Collaborators:

Anne Harrison PT, PhD, Brennan K, Brown K

Departmental Affiliations:

University of Kentucky, Department of Rehabilitation Sciences, Division of Physical Therapy

Abstract Text:

Background: Monofilament testing (MT) is commonly used to identify the loss of protective sensation. Debate continues as to the most efficient, accurate, and reliable protocol for sensory screening. **Objectives:** The aims of this study were to assess the reliability and validity of MT in older adults in a health fair setting. **Materials/Methods:** Twenty-three community dwelling adults (50-89 years old) completed lower extremity sensory testing. The 5.07/10-g monofilament was applied to dorsum of the big toe 4 times on each foot for a total of 8 trials. Inability to perceive the monofilament on 5 or more trials was defined as positive for sensory impairment. The Biothesiometer, a reliable and valid instrument for quantitative vibration perception threshold (QVPT) testing served as the reference standard. A mean (6 trials; 3 on each big toe) value exceeding 25 volts was the criterion for the loss of protective sensation. Sensory testing was also repeated by a second examiner who was blinded to the prior test results. **Results:** Monofilament ($\kappa=.74$; $r_s=.89-.93$) and QVPT ($ICC=.77-.94$; $SEM=3.4-6.0V$) testing demonstrated good to excellent interrater reliability. Sensitivity, specificity, positive and negative predictive values were 36%, 92%, 80%, and 61% respectively. **Conclusions/Clinical Relevance:** Monofilament and QVPT testing were reliable measures in this limited sample of older adults. Monofilament testing also demonstrated a high degree of specificity, but lacked adequate sensitivity as a sole screening procedure. Findings supports previous research that suggests clinicians should consider a combination of examination items when screening older adults for sensory impairment.

Key Words:

Sensation Testing, Reliability, Validity, Older Adults

PM&R RESIDENT PRESENTATION

Spina Bifida Patients with Asymptomatic Bacteriuria: Prophylactic Antibiotic Use and Resistance

Presenter:

Beth Ann Shelton, M.D., M.S.

Collaborators:

Richard Mier, M.D.

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation
Shriner's Hospital for Children, Lexington, Kentucky

Abstract Text:

Urinary Tract Infection is a common cause of morbidity for spina bifida patients. Complications of chronic infections include bacteremia and sepsis, hydronephrosis, renal scarring, and ultimately possible kidney damage and failure. Prophylactic antibiotics have been utilized in appropriate patients in an attempt to reduce the number of UTIs and ultimately reduce morbidity. Our study investigates whether prophylactic antibiotics in asymptomatic spina bifida patients increases bacterial resistance. To this end we performed a retrospective study by reviewing clinic notes and urine labs on pediatric patients in a spina bifida clinic. We obtained urine analysis as well as urine culture and sensitivities on each patient and reviewed the susceptibility profiles of the organisms colonizing the urine. Our study showed no significant difference in bacterial resistance between prophylactic antibiotic treated group and the non-treated group

We did however find a relationship existed between UTI prophylaxis with specific antibiotic and colonization with bacteria with resistance to specific antibiotics. Our study showed that those patients who had been treated with TMP-SMX for UTI prophylaxis had significantly increased resistance to TMP-SMX and nitrofurantoin. We also found a relationship between prophylaxis with nitrofurantoin and increased resistance to nitrofurantoin and bactrim.

We also found that there was no difference in number of patients with UTIs over the past year if the patient catheterized himself versus having a caregiver perform this task.

Key Words:

Spina Bifida, Asymptomatic Bacteriuria, Prophylactic Antibiotics, Resistance

PM&R RESIDENT PRESENTATION

Correlation of Neopterin and von Willebrand's Factor with Disease Activity in Juvenile Idiopathic Inflammatory Myopathy

Presenter:

Chad A. Walters, D.O.

Collaborators:

Richard Mier, M.D., Christin Minter

Departmental Affiliations:

University of Kentucky, Department of Physical Medicine and Rehabilitation
Shriner's Hospital for Children, Lexington, Kentucky

Abstract Text:

Juvenile idiopathic inflammatory myopathy (JIIM) is a chronic inflammatory disorder that affects multiple systemic organs. Elevation of various muscle enzymes have been correlated with muscle fiber damage. Von Willebrand's factor and neopterin are both released by damaged vascular endothelial cells have also been shown to be elevated in JIIM.

Disease activity in childhood myositis has been monitored using several methods. This study chose the Childhood Myositis Assessment Scale (CMAS) as it has been validated by a large study. The purpose of this study is to determine if von Willebrand's factor and/or neopterin can be used as functional measures in childhood myositis.

A total of 12 children diagnosed with JIIM were studied at the Shriner's Hospital of Lexington, KY. They were monitored for at least one year at 2-3 month intervals. Using ANOVA and regression analysis, comparisons were made between routine enzyme abnormalities, neopterin, and von Willebrand's factor with its CMAS score.

A statistical significant difference was found between an abnormal von Willebrand's factor and CMAS score ($p < 0.05$). However, there was no statistically significant difference between abnormal neopterin levels and CMAS score ($p = 0.25$).

Diagnosing JIIM using labs or biopsy has been relatively standard historically. They usually are a good marker for muscle damage or inflammation. Monitoring disease activity has been routinely completed by different methods. This study has suggested that von Willebrand's factor could possibly be used to monitor muscle fiber damage as well as disease activity.

Key Words:

Myositis, von Willebrand's Factor, Neopterin, CMAS

POSTER PRESENTATIONS

Category: Graduate Students

Presenter:

Poster Presentation:

Jennifer Hamrick-King, M.A.

Cognitive, Physical, Memory Perception and Caregiver
Stress Outcomes After Spaced-Retrieval Training in
Alzheimer's Disease

Alyssa C. LaForme, PT, MPT

Use of Groups in Pediatric Physical Thereapy

Lindsey Schipper, M.A.

Validation of the Letter Memory Test for Use with Traumatic
Brain Injury Patients

POSTER PRESENTATION

Cognitive, Physical, Memory Perception and Caregiver Stress Outcomes After Space-Retrieval Training in Alzheimer's Disease

Presenter:

Jennifer Hamrick-King, M.A.

Collaborators:

Nancy J. Stiles, M.D., Julia Popham, M.D.

Departmental Affiliations:

University of Kentucky, Graduate Center for Gerontology
University of Kentucky, College of Public Health
University of Kentucky, Physical Medicine & Rehabilitation
Veterans Administration Hospital

Abstract Text:

Alzheimer's disease (AD) affects 4.5 million individuals in the United States and the total cost of caring for individuals with Alzheimer's disease reaches 110 billion dollars every year (Alzheimer's Association, 2005). Medication therapy for AD has demonstrated some significant effects on memory and cognition, but most notably delay of disease progression and nursing home placement. Until more effective medication therapies are available for this population other therapeutic goals should be initiated. Spaced-retrieval (SR) and errorless learning are memory intervention techniques that utilize reserved implicit memory systems and some explicit memory residual in the brain to help individuals to learn and retain information that has been forgotten. In this study, fourteen individuals diagnosed with probable AD or vascular dementia with baseline MMSE scores in the range of 16-26 and have been taking an approved Alzheimer's medication for 3 months or longer compile the study population. The study involved 8 training sessions along with 3 assessment timepoints and a 2-week follow-up. This research demonstrates that memory improvement training significantly enhances memory and cognitive functioning as well as decreases caregiver stress.

Key Words:

Alzheimer's disease, Health Outcomes, Memory Improvement Training

POSTER PRESENTATION

Use of Groups in Pediatric Physical Therapy

Presenter:

Alyssa Catherin LaForme, P.T., MPT

Collaborators:

Susan K. Effgen, Ph.D., PT

Departmental Affiliations:

University of Kentucky, College of Health Science, Department of Rehabilitation Sciences, Division of Physical Therapy

Abstract Text:

Background: With large numbers of children needing rehabilitation services, therapists are challenged to find efficient and effective methods of intervention. Group intervention may be used, but little research is available on how therapists use groups. This survey aimed to examine use of groups in pediatric physical therapy including characteristics, effectiveness and financial considerations.

Subjects: Subjects were 500 randomly selected members of APTA Section on Pediatrics. Response rate was 285 of 500 surveys (57%).

Methods and Materials: Surveys were mailed to participants. Results compiled from returned surveys were analyzed to determine trends using descriptive statistics.

Results: Of respondents, 41.4% reported using groups with most prevalent use in schools. Most frequent reasons for not using groups were home based services (24%) and dissimilar children (21%). Groups were generally 2-4 children (71%) having general developmental delay (56%) and described as therapeutic groups (66%) working to increase physical abilities (55%) with a focus on developmental activities (44%). Respondents were divided in perceived effectiveness of group intervention. Despite variance in reported effectiveness, 90% of respondents stated they will use groups at least occasionally in the future.

Conclusions: Various trends in group therapy are noted in the survey results. Forty-one percent of respondents reported using groups and as many as 90% report they will continue to use groups, however, more research is needed to assess effectiveness and most appropriate use of group intervention.

Key Words:

Groups, Pediatric Physical Therapy, Children

POSTER PRESENTATION

Validation of the Letter Memory Test for Use with Traumatic Brain Injury Patients

Presenter:

Lindsey Schipper, M.A.

Collaborators:

Eileen Coen, M.S., Licensed Psychological Practitioner

Departmental Affiliations:

Cardinal Hill Rehabilitation Hospital

Abstract Text:

The past decade has shown increased interest in forensic neuropsychological assessment and concern with the detection of malingering. Malingering is the intentional production of false or exaggerated symptom complaints for some external gain, such as money or time away from work. Previous research has shown the rates of malingering vary with individuals with traumatic brain injury, ranging from as low as 7% to up to nearly 48% in forensic settings. The costs of malingering are potentially very high, resulting in inappropriate allocation of disability and compensation funds. However, incorrectly labeling an honest individual as a malingerer may deprive them of necessary compensation and resources. Thus, it is important to accurately assess for motivation during neuropsychological testing. However, test security breaches occur over time, creating a continuous demand for new and valid measures to detect malingering. The LMT is a new motivational measure designed for this purpose. This study provides further validation of the LMT for use with traumatic brain injured patients using data collected at Cardinal Hill Rehabilitation Hospital. Results and implications of the data will be discussed.

Key Words:

Malingering, Neuropsychology, Assessment

POSTER PRESENTATIONS

Category: Faculty & Others

Presenter:

Abstract Presentation:

Janet Campbell, R.N., C.R.R.N.

CPR and First Aid in Persons with Spinal Cord Injury:
Special Considerations

Elizabeth Faulkner, R.N., C.R.R.N.

Moving Toward Excellence: Identifying the Key Aspects of a
Successful Recruitment and Retention System

Sara Salles, D.O.

The Station Nightclub Fire: A Comparison of Psychosocial
Outcomes Between Burned and Non-Burned Survivors

Sara Salles, D.O.

Inpatient Rehabilitation After Deep Brain Stimulator
Placement: A Case Series

Camille Skubik-Peplaski, MS, OTR/L

Evidence-Based Transdisciplinary Practice

Joe Springer, Ph.D.

Post-Treatment with the Cyclosporin Derivative NIM811
Reduces Cytochrome C Release and Cell Death, and
Increases White Matter Sparing Following Spinal Cord Injury

Joe Springer, Ph.D.

Treatment with the Cyclosporin Derivative NIM811
Improves Mitochondrial Function and Reduces Oxidative
Damage Following Spinal Cord Contusion

Lisa Tudor, MBA, BBA, BA

Cardinal Hill Rehabilitation Hospital Outcome Analysis 2004:
The GRID

POSTER PRESENTATION

CPR and First Aid in Persons with Spinal Cord Injury: Special Considerations

Presenter:

Janet Campbell, R.N., C.R.R.N.
Alicia Cobb, R.N.

Collaborators:

N/A

Departmental Affiliations:

Cardinal Hill Rehabilitation Hospital, SCI Unit

Abstract Text:

The current project addresses the special considerations for CPR and first aid for persons with disabilities. The project was undertaken per request of the American Safety and Health Institute in order to assist in training both medical professionals and lay people. All of the training tasks deal with issues common to persons living with SCI. Some of the training tasks deal with issues exclusive to persons living with SCI. The results of this project will be given to all ASHI CPR/first aid instructors to use as an educational handout.

The project consists of both pictures and text for special situations that occur when preparing to do CPR or first aid on an individual with a disability. Examples of training tasks that are addressed include one and two person floor transfers from both a wheelchair and a bed. Another example is the management of orthotic devices common to SCI as it relates to CPR/first aid. The safe manipulation of external fixators vis a vis CPR/first aid is also covered in the training. Finally, treatment of a choking victim in a wheelchair and ventilation of a person with a tracheostomy are explained.

Key Words:

CPR, First Aid, Persons Living with SCI

POSTER PRESENTATION

Moving Toward Excellence: Identifying the Key Aspects of a Successful Recruitment and Retention System

Presenter:

Elizabeth A. Faulkner, R.N., C.R.R.N.

Lisa Tudor, MBA, BBA, BA

Claudia Diebold, R.N., M.S.N., C.N.E. University of Kentucky Faculty

Collaborators:

Departmental Affiliations:

University of Kentucky, College of Nursing

Cardinal Hill Rehabilitation Hospital

Abstract Text:

As an organization Cardinal Hill Rehabilitation Hospital recognized that the ability to retain qualified, experienced professional staff improves the quality of patient care and provides a cost-benefit. Therefore the goal to develop and maintain a work environment that promotes a high level of job satisfaction was established.

Through an integrated multidisciplinary team approach, the protocol was determined for baseline data collection, using both quantitative and qualitative methods. Quantitative methods within the data collection protocol consisted of demographic information; including work-related and non-work-related stress and experience level; the Communication Assessment questionnaire, the McCloskey/Mueller Satisfaction Scale (MMSS), and Anticipated Turnover Scale (ATS). Qualitative methods within the data collection included employee focus groups that both shared the quantitative results and gathered specific intervention suggestions for improving job satisfaction.

Feedback obtained from the focus groups revealed that employees were loyal, committed and proud of the quality of care they provided to patients at Cardinal Hill. During the focus groups employees identified areas of potential improvement with recommendations that will increase job satisfaction and enhance recruitment and retention.

Key Words:

Staff Retention, Quality Patient Care, Integrated Multidisciplinary Approach

POSTER PRESENTATION

The Station Nightclub Fire: A Comparison of Psychosocial Outcomes Between Burned and Non-Burned Survivors

Presenter:

Sara S. Salles, D.O.

Collaborators:

Jeffrey Schneider, M.D., Elizabeth Selleck, MPH, Claudia Wheeler, D.O., Diana Fondulis, Joel Stein, M.D.

Departmental Affiliations:

University of Kentucky, Physical Medicine & Rehabilitation
Department of Physical Medicine & Rehabilitation, Spaulding Rehabilitation Hospital, Massachusetts General Hospital, Harvard Medical School, Boston, MA
Department of Research & Training, Spaulding Rehabilitation Hospital, Boston, M.A.

Abstract Text:

Burn injuries have significant effects on survivors' quality of life and psychological well being. The Station Nightclub fire in West Warwick, Rhode Island on February 21, 2003 was one of the largest fires in the United States' history, resulting in 100 deaths and 330 survivors. Such large fires are rare events. There are no outcome studies of fire survivors of single-event, large cohort fires. Additionally, there are not outcome studies of fire survivors who are not burned. The purpose of this study is to compare outcomes of survivors who were burned with survivors who were not burned. This study examines measures of quality of life, depression and post-traumatic stress (PTS).

Key Words:

Burn, Psychosocial Outcomes

POSTER PRESENTATION

Inpatient Rehabilitation After Deep Brain Stimulator Placement: A Case Series

Presenter:

Sara S. Salles, D.O.

Collaborators:

Devi Nampiaparampil, M.D., Sara S. Salles, D.O.

Departmental Affiliations:

University of Kentucky, Physical Medicine & Rehabilitation
Cardinal Hill Rehabilitation Hospital, Lexington, Kentucky

Abstract Text:

Deep brain stimulation (DBS) of the subthalamic nucleus or the globus pallidus internus is an evolving treatment in the management of Parkinson's Disease (PD). DBS is a neurosurgical procedure that involves delivering continuous electrical stimulation to the brain through implanted electrodes connected to an internalized neurostimulator that is programmable in amplitude, pulse width, and frequency. DBS is used in patients who have severe motor fluctuations or dopa-induced dyskinesias, to improve function and decrease medication dosages. This case series describes the inpatient rehabilitation of two patients with PD who had undergone DBS placement. One patient had the stimulator, generator, and leads placed simultaneously. He required multiple adjustments of the stimulator, which often led to worsening dysarthria and dysphagia. This resulted in his having variable functional abilities and therefore, multiple modifications of his weekly functional goals. The second patient had a previous left pallidotomy but because of difficulty managing freezing episodes and frequent dyskinesia, underwent DBS placement. He had a staged procedure where he experienced mild improvement after stimulator placement and additional improvement after generator placement. The patient made increasing functional gains and at one month post-discharge, was not experiencing any "off" phenomena. Both patients' medications were weaned dramatically. This suggests that the inpatient rehabilitation of patients after DBS placement may very considerably and may require periodic reassessments of functional goals.

Key Words:

Parkinson's, Deep Brain Stimulation, Rehabilitation

POSTER PRESENTATION

Evidence-based Transdisciplinary Practice

Presenter:

Lisa Tudor, MBA, BBA, BA
Camille Skubik-Peplaski, MS, OTR/L

Collaborators:

Jonathan Craft, R.N.

Departmental Affiliations:

Cardinal Hill Rehabilitation Hospital

Abstract Text:

Being visionary, Cardinal Hill Rehabilitation Hospital has integrated the World Health Organization's International Classification of Functioning (ICF) as the supporting infrastructure to infuse a Transdisciplinary Patient-Centered Model of care. The cultural transformation changed the process of communication from discipline-specific to transdisciplinary, building on the Brain Injury Unit's current model. This model yielded the evidence for Cardinal Hill Healthcare System to adopt the infrastructure, increasing the effectiveness of communication and reducing the Traumatic Brain Injury length of stay by five days. Encompassed in this model are three components of assessment including Body Functions/Body Structures, Activity Limitations/Participation Restrictions, and Environmental and Personal Factors. This fluid model was applied on the inpatient setting, and with its success the organization embraced the model for all indications across settings within the care delivery continuum. The ICF will stand as a springboard to collect data on specific strategies within and across disciplines creating a holistic view of the patient and their needs. One of the pivotal points of the model is Minding the Gap, which is decreasing the patient's gap between their current performance and their expected potential. The "Mind the Gap" focus will encourage effective communication regarding patient and family goals throughout their stay and as patients move from setting to setting throughout the healthcare continuum.

Key Words:

Transdisciplinary, Patient-Centered, Minding the Gap with Research and Evidence

POSTER PRESENTATION

Post-Treatment with the Cyclosporin Derivative NIM811 Reduces Cytochrome C Release and Cell Death, and Increases White Matter Sparing Following Spinal Cord Injury

Presenter:

Joe E. Springer, Ph.D.

Collaborators:

R. Ravikumar, M.L. McEwen, C.L. Scarce, P.C. Waldmeier, P.G. Sullivan, & J.E. Springer

Departmental Affiliations:

University of Kentucky, Physical Medicine & Rehabilitation
Cardinal Hill Rehabilitation Hospital, Lexington, Kentucky
University of Kentucky, Spinal Cord & Brain Injury Research Center
Nervous System Research, Novartis Pharma Ltd., Basel, Switzerland

Abstract Text:

Cyclosporin A (CsA) is a potent immunosuppressive drug that inhibits mitochondrial permeability transition (mPT). Although clinical trials examining CsA in traumatic brain injury are currently underway, CsA is highly neurotoxic and appears to have limited neuroprotective actions in experimental spinal cord injury (SCI). NIM811 is a non-immunosuppressive CsA derivative that inhibits mPT following SCI and has significantly less cytotoxicity than CsA. Therefore, in the present experiment, we investigated the effects of NIM811 post-treatment on cytochrome c release, the presence of apoptosis-related mono- and oligonucleosomes, and white matter sparing following SCI in rats. Using a randomized, blinded study design, rats received a spinal cord contusion at T10, and were treated with 20mg/kg NIM811 (n=7) or vehicle (n=10) by oral gavage at 15 min post-injury. These animals were sacrificed 1, 4, or 24 hr later for examination of apoptotic cell death markers in spinal cord homogenates. ELISA procedures revealed that the levels of cytosolic cytochrome c and apoptosis-specific mono- and oligonucleosomes were significantly reduced, indicating a reduction in apoptotic cell death. A second set of rats was used for histological analysis and received an additional dose of NIM811 (n=8) or vehicle (n=7) 24hr post-injury. These animals were perfused 7 days post-surgery and the amount of spared white matter was determined using stereological techniques. Control groups included rats that received sham surgery (laminectomy only) or no surgery (normal). In this histological study, NIM811 post-treatment increased the amount of white matter spared at the injury epicenter, as well as adjacent rostral and caudal regions at 7 days post-SCI, relative to rats post-treated with the vehicle. The experimental findings demonstrate that NIM811-mediated inhibition of mPT significantly reduces apoptotic cell death and increases white matter tissue sparing. We propose that the use of CsA derivatives, such as NIM811 has clinically relevant potential as an acute treatment strategy in SCI. Supported by NIH Grant NS046380, the Kentucky Spinal Cord and Head Injury Research Trust, and the Cardinal Hill Endowed Research Program.

POSTER PRESENTATION

Treatment with the Cyclosporin Derivative NIM811 Improves Mitochondrial Function and Reduces Oxidative Damage Following Spinal Cord Contusion

Presenter:

Joe E. Springer, Ph.D.

Collaborators:

Melanie L. McEwen, Crystal Searce, Peter C. Waldmeier, Patrick.G. Sullivan, J.E. Springer

Departmental Affiliations:

University of Kentucky, Physical Medicine & Rehabilitation
University of Kentucky, Anatomy & Neurobiology
University of Kentucky, Spinal Cord & Brain Injury Research Center
Cardinal Hill Rehabilitation Hospital, Lexington, Kentucky
Nervous System Research, Novartis Pharma Ltd, Basel, Switzerland

Abstract Text:

Cyclosporin A (CsA), a potent immunosuppressive drug, inhibits mitochondrial permeability transition (mPT) and clinical trials are currently underway examining CsA in traumatic brain injury. However, CsA is highly neurotoxic suggesting that strategies utilizing CsA derivatives with non-immunosuppressive properties may be more efficacious. NIM811 is a non-immunosuppressive CsA derivative that inhibits mPT with significantly less cytotoxicity relative to CsA. In the present study, we investigated the effects of NIM811 treatment on mitochondrial function and several indicators of oxidative damage following a contusion spinal cord injury (SCI) in rats. Rats were pretreated with 40mg/kg NIM811 and 15 min later received a mild to moderate contusion at T8. At 24 hrs following SCI, the spinal cords were rapidly removed and synaptosomal mitochondria were isolated to examine a number of parameters of mitochondrial function. In addition, measures reflective of oxidative damage were examined. We found that NIM811 pretreatment significantly improved mitochondrial respiratory control ratios, and the maximal electron transport capacity of complex I and II, as well as state III (i.e., ATP producing capacity). As a consequence of improved mitochondrial function, there was a significant decrease in free radical production and subsequent oxidative damage, as reflected in a reduction in protein carbonyl formation. These studies are the first to demonstrate the therapeutic potential of CsA derivatives in an *in vivo* model of SCI, and support the need for continued investigation of compounds like NIM811 as an acute treatment strategy in human SCI. *Supported by PHS grants NS40015, NS46380, and the Kentucky Spinal Cord and Head Injury Research Trust (JES).*

POSTER PRESENTATION

Cardinal Hill Rehabilitation Hospital Outcome Analysis 2004: The GRID

Presenter:

Lisa Tudor, MBA, BBA, BA

Collaborators:

Kathy Fitzgerald, VP Patient Services

Departmental Affiliations:

Cardinal Hill Rehabilitation Hospital

Abstract Text:

This Rehabilitation Hospital is a 108 bed free-standing rehabilitation center, accredited by CARF for Comprehensive Integrated Inpatient Rehabilitation Program, Spinal Cord System of Care, and Brain Injury Comprehensive Integrated Inpatient Rehabilitation Program.

To continually analyze and improve the business functions of the organization, we have set six overall performance objectives, determined performance indicators, collected and analyzed data on which to base decisions.

This analysis is the result of a very participative approach, completed with involvement of all teams.

Within the areas of Effectiveness, Efficiency, Access and Satisfaction, there are six objectives and performance indicators. Target goal expectancies for each are then identified based on national benchmarks and/or on actual CHRH trend data. Environmental factors are identified to include key characteristics of the persons served, barriers and severity factors impacting the meeting of target goal expectancies. The data is then collected and displayed for the past two to three years and statistical analysis completed. Through performance improvement processes, observed patterns and reasons for patterns, proposed action plans were developed and follow up data is gathered.

For this poster session, a display of the hospital wide 2004 data will be shared. The display of information utilizes a unique comprehensive GRID format which assists stakeholders in understanding our continuous improvement process by providing an overall snapshot of issues, outcomes and actions.

Key Words:

Outcomes, Process Improvement, Analysis

PHYSICAL MEDICINE & REHABILITATION RESEARCH DAY 2006

The Department of Physical Medicine & Rehabilitation would like to acknowledge our appreciation to those who have made the 18th Annual Research Day a success.

CARDINAL HILL REHABILITATION HOSPITAL

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