



*Department of Orthopedics and Rehabilitation and Department of Anesthesiology presents*

## **UW Multidisciplinary Pain and Physical Medicine and Rehabilitation Research Day**

Friday, May 12, 2023

Medical Foundation Centennial Building, Room 1220

School of Medicine and Public Health – Madison, WI

### **Keynote Speaker:**

**Sandip Biswal, MD**

Visiting Professor

Department of Radiology

School of Medicine and Public Health, University of Wisconsin-Madison

## **Program**

### **7:30 Breakfast**

Beverages and an assortment of breakfast sandwich bagels, pastries and sweets will be available outside of room 1220 in the lobby. Coffee, juice and water will also be available.

### **8:00 Opening Remarks**

Nalini Sehgal, MD, Professor

Chief, Division of Rehabilitation Medicine

Program Director, Pain Medicine Fellowship

Vice Chair, Department of Orthopedics and Rehabilitation Medicine

School of Medicine and Public Health, University of Wisconsin-Madison

### **8:05 A new clinical imaging approach to pinpoint pain generators using PET/MRI**

Sandip Biswal, MD

Visiting Professor

Department of Radiology, School of Medicine and Public Health, University of Wisconsin-Madison

Pain, whether it is low back pain, joint pain, fibromyalgia is collectively now the #1 clinical problem in the world and, yet, our current imaging methods to correctly identify pain generators remain woefully inaccurate leading to misdiagnosis, rampant use of opioids, unhelpful surgeries and, ultimately, therapeutic failures. For nearly two decades, our group has been developing PET/MRI molecular imaging approaches and developing radioligands for more accurate identification and localization of peripheral pain generators. His ongoing clinical trials are already starting to positively impact patients with chronic pain.

### **9:00 Clinical Trials on Psychedelics**

Paul R. Hutson, PharmD, BCOP

Professor (CHS)

Director, UW Madison Transdisciplinary Center for Research in Psychoactive Substances

School of Pharmacy, University of Wisconsin-Madison

Professor Hutson's present clinical research is focused on the safety and novel therapeutic uses of psilocybin and other psychoactive medications. These include the study of MDMA for PTSD, and psilocybin for depression and substance use disorder. In addition to assisting with clinical study design, Dr. Hutson holds an FDA investigational new drug exemption for psilocybin, as well as other necessary State and Federal possession authorizations.

Dr. Hutson also provides population pharmacokinetic modeling services using NONMEM and Phoenix/WinNonLin to University of Wisconsin researchers through the UW Institute for Clinical and Translational Research. Collaborative

activities in pharmacokinetic modeling have included sparse sampling in murine research cohorts, porcine retinoid deprivation/supplementation, and bioengineering devices.

10:00 **Identification of Risk Factors for Running-Related Injuries among High School Cross Country Runners**

Mikel R. Joachim, PhD

Research Program Manager | Department of Orthopedics and Rehabilitation, School of Medicine and Public Health, University of Wisconsin-Madison

Running-related injuries are prevalent among youth runners, yet we have no guidelines for safe running volumes or risk factors for these injuries. This presentation will address the effects of training habits and psychosocial changes, such as sleep and stress, that may influence injury risk in a large sample of Wisconsin high school cross country runners.

10:15 **Break**

10:25 **A case report on nervus intermedius neuralgia**

Joseph Parks, DO

Pain Medicine Fellow, PGY-5 | UW Health

10:32 **Understanding predictors of a therapeutic response to Qutenza used to treat patients with diabetic peripheral neuropathy: a retrospective evaluation of quantitative sensory testing**

Ryan Rossos, MD

Pain Medicine Fellow, PGY-5 | UW Health

10:39 **Erectile dysfunction and spinal cord injuries: a quality improvement study**

Jonathan Liang, DO

Physical Medicine & Rehabilitation Resident, PGY-4 | UW Health

There is a gap in care regarding sexual health in males with spinal cord injury males, either due to provider discomfort or lack of expertise. We created a structured, educational checklist on the topic of erectile dysfunction following spinal cord injury, including an optional nursing visit to educate on the use of a vacuum assistive device. Our study demonstrated that our patients value these discussions and that sexual health can be a routine part of the review of systems for spinal cord injury males to improve quality of life.

**Disparities in inpatient rehabilitation admissions according to health coverage and race**

Medicaid enrollees are overrepresented by persons of color and low-income patients as compared to enrollees of commercial health insurance and Medicare, however may face significant barriers to admission to inpatient rehabilitation hospitals. We are currently performing a retrospective chart review of admission trends at our inpatient rehabilitation hospital, with consideration to disparities in health coverage and thus the access of persons of color to inpatient rehabilitation services.

10:46 **Teaching Zones of Partial Preservation to PM&R Residents**

Alyssa Warden, DO

Physical Medicine & Rehabilitation Resident, PGY-4 | UW Health

Interpreting the American Spinal Injury Association (ASIA) exam is an important concept of PM&R resident training. Zones of partial preservation (ZPP) are a component of the ASIA exam which can be difficult to understand, though they can play a prognostic role in spinal cord injury. This quality improvement project focuses on a flowchart method of teaching ZPP to PM&R residents. Resident ZPP test scores improved from 45% to 92% after learning this method of interpreting ZPP.

10:53 **Break**

11:00 **Conus Medullaris Syndrome due to Dural AV Fistula**

Vince Yaccarino, MD

Physical Medicine & Rehabilitation Resident, PGY-4 | UW Health

A sixty five year old female presented to spine clinic with a several month history of low back pain radiating into the left lower extremity, progressively worsening bilateral lower extremity weakness with a “heaviness” sensation which had been resulting in falls, and episodes of bowel and bladder incontinence. An MRI with MRA time-resolved imaging of contrast kinetics (TRICKS) imaging of the thoracic and lumbar spine and a spinal angiogram which demonstrated a type I dural AV fistula spanning from T5 through the conus medullaris with associated cord edema. The source seemed to be from prominent intercostal arteries at T8. Neurosurgery performed an embolization procedure with subsequent symptom improvement. This presentation examines dural AV fistulas.

11:07 **Cervical Spinal Cord Stimulation for the Treatment of Headache Disorders: A Systematic Review**

Michael Finner, MD

Physical Medicine & Rehabilitation Resident, PGY-3 | UW Health

The aim of the study is to appraise the literature for the efficacy of cervical spinal cord stimulation in treating any intractable headache. Using the PRISMA guidelines, nearly 5,000 articles were reviewed. This talk summarizes the results, analyzes the quality of evidence, and compares the results based on headache subtype, lead placement, and stimulation settings.

11:14 **The Effectiveness of Thoracic Radiofrequency Ablation for Thoracic Back Pain**

Michele Luu, MD

Physical Medicine & Rehabilitation Resident, PGY-3 | UW Health

Thoracic back pain is a challenging entity to treat. Patients who fail conservative management are often referred to the Pain Clinic for interventional options, including thoracic radiofrequency ablation for suspected painful arthropathy of the zygapophyseal joints. The American Society of Interventional Pain Physicians gives a weak to moderate strength recommendation for thoracic RFA given the sparsity of evidence for RFA in this area. To determine the efficacy of thoracic RFA, we have designed a retrospective chart review in collaboration with Mayo Rochester. We hypothesize that thoracic RFA may not be an effective treatment for thoracic back pain, particularly at the T4-T8 levels given the unique neuroanatomy of this area.

11:21 **Resident Preparation for PM&R Home Call- Evaluation of Challenges and Opportunities**

Kaitlyn Vanias, MD

Physical Medicine & Rehabilitation Resident, PGY-3 | UW Health

Transitioning to PM&R home call can be a challenging change for incoming PGY-2 PM&R residents. There are a wide range of new challenges including adjusting to a stand-alone rehab hospital, pediatric inpatient and outpatient issues as well as outpatient questions including medications, baclofen pumps and pre- and post-procedure questions. Comfort with all types of calls improves significantly through training, with dramatic improvement over the first year of training. Comfort with pediatric calls remains low through training. Feedback regarding decisions made on call was rare. New resident onboarding was identified as a helpful opportunity to review resources, protocols, and potential patient scenarios encountered with home call.

11:28 **A 60-year-old man with a 34 year history of chronic exertional compartment syndrome and 3 previous surgical fasciotomies, successfully treated with injection of Botulinum Toxin, a case report.**

Shivani Khakhkhar, DO

Physical Medicine & Rehabilitation Resident, PGY-2 | UW Health

This is a case report about a 60-year-old male with a long-standing history of chronic exertional compartment syndrome. He was diagnosed at about 26 years of age and over the years underwent 3 bilateral fasciotomies. He returned to clinic, 8 years after his last surgery, with recurrent symptoms including pain, tightness, numbness and tingling in the bilateral calves, as well as difficulty with walking and descending steps. He was unsure about further surgery, and elected to try Botulinum toxin injections for his symptoms. A total of 150 units were injected into his bilateral calves. He followed up virtually 9 months after the injections and reported complete resolution of symptoms at rest. He had a period of a few months after the injections that he was pain free with activity as well, but at the point of follow up he did have some pain return in the calves when walking > 2 mph.

### 11:35 **Restless Arms Syndrome: A Case Report**

Daniel McKee, MD

Physical Medicine & Rehabilitation Resident, PGY-2 | UW Health

This is a case report about medication-induced restlessness of the upper extremities in a middle-aged male status post intradural tumor resection of the thoracic spine. The patient reported ongoing, irresistible urges to move his upper extremities after taking nightly gabapentin for neuropathic pain. He also reported a history of severe restlessness with use of pregabalin. While at inpatient rehabilitation, his gabapentin was replaced with amitriptyline and the patient reported complete resolution of the restless arm sensations in addition to successful treatment of his neuropathy.

### 11:42 **A Mistaken Diagnosis of Amyotrophic Lateral Sclerosis: A Case of Multiple Lumbar Nerve Root Schwannomas**

Thomas Mehner, DO

Physical Medicine & Rehabilitation Resident, PGY-2 | UW Health

This case presents a unique disease process which can present with similar clinical features and electrodiagnostic findings to ALS. A 52-year-old man presented for EDX study to evaluate progressive left leg weakness over eleven years and widespread fasciculations. The EDX findings appeared consistent with bilateral L3-S1 radiculopathies or segmental anterior horn cell disease affecting the lumbosacral cord region. A lumbar MRI was then obtained and revealed multiple enhancing masses along the distal spinal cord with mass effect. The patient subsequently underwent a T11-L1 laminectomy and resection of five tumors in the L5 root, which pathology determined were schwannomas.

### 11:49 **Closing Remarks**

Nalini Sehgal, MD



### **Keynote Speaker**

Sandip Biswal, M.D., is a musculoskeletal radiologist who obtained his fellowship training in Musculoskeletal Imaging at University of California San Diego and Molecular Imaging at University of California Los Angeles. He was previously faculty and Co-Section Chief of Musculoskeletal Imaging at Stanford University and has recently joined as Visiting Professor of Radiology at the University of Wisconsin Madison. For the past couple of decades, he has been fascinated with how pain is managed, and he thought the medical profession could do a significantly better job of diagnosing and treating pain syndromes. It has been his goal and passion to develop translatable clinical molecular imaging methods to more accurately pinpoint the source and location of one's pain. Using positron emission tomography (PET) and tracers designed to seek nociceptive or inflammatory-specific receptors, cells or ion channels, his group has been developing a variety of imaging methods to accurately identify the exact peripheral source of pain generation. After initially developing and validating these methods preclinically, he now currently conducts clinical trials imaging pain generators for the past 8 years utilizing both FDA-approved (off-label) and new PET

radiotracers to 'image pain' and inflammation. His group has imaged over 250 patients using this new PET/MR imaging approach and have 'cured' pain or significantly decreased pain in a growing subset of patients. He is looking forward to other sites adopting this approach and helping those suffering from chronic pain.

### **Judges**

Michelle Poliak-Tunis, MD

Assistant Professor (CHS)

Program Director, Physical Medicine and Rehabilitation Residency

Department of Orthopedics and Rehabilitation Medicine

Walton Schalick III, MD, PhD

Adjunct Clinical Professor

Department of Orthopedics and Rehabilitation Medicine

Michael Suer, MD

Assistant Professor (CHS)

Department of Orthopedics and Rehabilitation Medicine

Nathan Rudin, MD

Professor (CHS)

Department of Orthopedics and Rehabilitation Medicine

## 2022 Award Recipients

First Prize: Ashley Mohan, DO

Runner-Up: Alyssa Warden, DO

## Evaluation

To access the event evaluation, open the camera app on your phone. Hold your phone so that the QR code appears in view. Tap the notification to open the link associated with the QR code.



## Mark your calendars!

The tentative date for the 2024 UW Multidisciplinary Pain and Physical Medicine and Rehabilitation Research Day is Friday, May 10, 2024. Further details to come later this year.