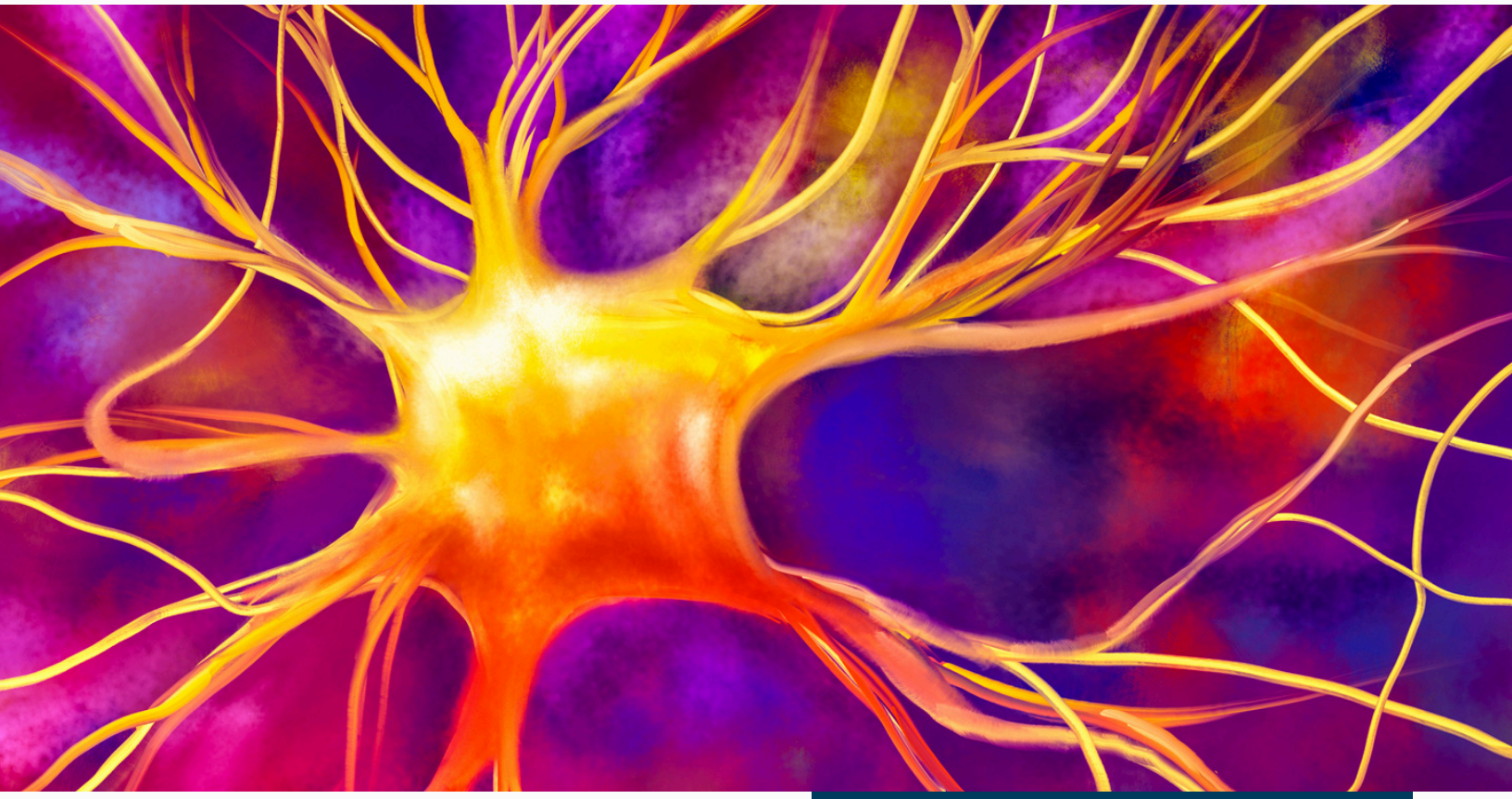
MAY 2025| ISSUE 5

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

The Clinical Neurosciences Newsletter



IN THIS ISSUE

The GW Medical Faculty Associates
2150 Pennsylvania Avenue
NW Washington, D.C. 20037
202-741-3000

OUR NEWS

The Epilepsy Center at George Washington University Hospital was awarded the NAEC accreditation for the year 2025

Dr. Ted Rothstein's article in BMC neurology on depletion of CGM in COVID-19 long haulers has helped institutions in scanning such patients, with brain fog for 2 years following COVID.

Dr. Ted Rothstein has been invited to make a keynote speech at the International conference on immunology in Berlin, Germany.

Dr. Henry Kaminski's paper titled 'Standardization of Myasthenia Gravis Outcome Measures in Clinical Practice. A Report of the MGFA Task Force.' was published in *Muscle Nerve*, April 2025. Panel of US experts provide recommendations on formalizing examinations in clinical practice to assure consistency. This is particularly important with insurance companies using these measures to review new high cost medications.

Dr. Henry Kaminski's paper titled 'Serum fibrinogen is not elevated in patients with myasthenia gravis.' was published in *MGNet Investigators*, April 2025. Laboratory for MG Research at GW performed the critical work of validating other scientists findings. We countered a report of fibrinogen being a universal biomarker for myasthenia gravis.

Dr. Henry Kaminski's paper titled 'A Quantitative Study of Factors Influencing Myasthenia Gravis Telehealth Examination Score.' was published in *Muscle Nerve*, April 2025. The GW NeuraTech Laboratory continued to refine understanding of challenges in performing quantitative telemedicine examinations.

Dr. Henry Kaminski's paper titled 'Can Non-Thymomatous Late-Onset Myasthenia Gravis Benefit From Thymectomy? A Systematic Review and Meta-Analysis.' was published in *Eur J Neurol*, March 2025.
Laboratory for MG Research identified that thymectomy for patients over 50 years is superior than medical therapy

WHAT'S NEW IN NEUROLOGY

WHAT'S NEW

Neurofilament Light Chain in ALS: A Transformative Biomarker for Diagnosis, Prognosis, and Therapeutic Monitoring

1. Non-Invasive Testing Now Clinically Feasible

Ultrasensitive assays have enabled accurate and reproducible NfL quantification in blood, replacing the need for lumbar puncture. Blood NfL levels correlate strongly with CSF levels, expanding accessibility in both clinical and research settings.

2. Therapeutic Trials Now Use NfL as a Core Outcome

Recent ALS trials—including those testing tofersen, an antisense oligonucleotide for SOD1-ALS—have shown that NfL levels significantly decrease with treatment, even when clinical benefit is modest. This demonstrates NfL's value as an early marker of therapeutic efficacy.

3. Early Prediction in Genetic ALS

In familial ALS cohorts, elevated serum NfL levels precede symptom onset by up to 12–18 months, suggesting a powerful role for NfL in staging preclinical ALS and designing preventive trials.

4. Stratification by Phenotype and Progression Rate

Studies show NfL levels vary by disease phenotype—higher in patients with predominant upper motor neuron signs or bulbar onset—and help distinguish fast vs. slow progressors, aiding personalized care.

5. Inclusion in Biomarker Panels and Predictive Algorithms

NfL is being integrated into multimodal biomarker panels (with GFAP, pNfH, imaging markers) and AI-driven prognostic tools, enhancing diagnostic specificity and disease modeling.

6. Movement Toward Clinical Guidelines

Consensus is growing around formally incorporating NfL into ALS diagnostic and prognostic algorithms, potentially revising criteria such as El Escorial to include NfL as a supportive biomarker.

WHY IT MATTERS

Neurofilament light chain (NfL) is a structural protein abundantly expressed in large-caliber myelinated axons. Upon axonal injury or degeneration, NfL is released into the cerebrospinal fluid (CSF) and eventually into the bloodstream. Over the past decade, NfL has emerged as a non-specific but highly sensitive biomarker of neuroaxonal damage across a wide range of neurodegenerative diseases, including:

- **Alzheimer's disease**
- **Frontotemporal dementia (FTD)**
- **Parkinsonian syndromes (PSP, MSA)**
- **Multiple sclerosis (MS)**
- **Huntington's disease**
- **Traumatic brain injury and stroke**

NfL levels are consistently elevated in these conditions and correlate with disease burden, progression, and in many cases, response to treatment. However, one of the strongest and most validated clinical utilities of NfL to date is in ALS.

Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disorder affecting upper and lower motor neurons. In ALS, NfL levels in both CSF and blood are markedly elevated, reflecting ongoing axonal degeneration.

- **Diagnostic Aid: NfL helps distinguish ALS from mimic syndromes such as cervical myelopathy or motor neuropathies. It is especially useful in early or atypical presentations.**
- **Prognostic Power: Higher baseline NfL levels are strongly associated with faster disease progression and shorter survival. In large prospective studies, patients with elevated NfL had significantly worse outcomes.**
- **Monitoring Disease Course: NfL levels tend to remain stable within individuals, making them a reliable biomarker for tracking disease trajectory.**
- **Evaluating Treatment Response: Declining or stabilized NfL levels in response to therapy suggest slowing of neurodegeneration, making it an important pharmacodynamic biomarker in clinical trials.**
- **Pre-symptomatic Detection: In individuals with familial ALS mutations (e.g., C9orf72, SOD1), NfL begins to rise months to years before symptom onset, providing a critical window for early intervention studies.**

Interview with
Dr. Geet paul

Interview with
Dr. Geet Paul

Please tell us about your background and your current role?

My background is in Physical Medicine and Rehabilitation, and I completed a fellowship in Sports Medicine and Interventional Pain. I currently serve as the Division Director for Rehabilitation Medicine as well as the Division Director for Interventional Pain Management. The conditions I treat include non-operative sports injuries, joint pain, neck and back pain as well as neuropathic pain.

Please tell us about your expertise with ultrasound and plasma injections?

During my residency and fellowship, ultrasound training was a strong focus, and I've continued to use it daily. Diagnostic ultrasound plays a significant role in my day-to-day practice. It provides real-time, point-of-care imaging that helps us evaluate musculoskeletal issues on the spot—especially useful in sports and rehab medicine. Traditionally, if a patient comes in with shoulder pain, we would get an X-ray and potentially wait weeks for an MRI to be approved and done. With diagnostic ultrasound, I can assess right away whether the patient has a rotator cuff tear, tendinopathy, a labral tear, or arthritis.
Ultrasound isn't just for diagnosis, it's also used to guide treatments. I commonly use it for shoulder, intra-articular knee and hip injections, and more. These are deep structures where blind injections can be challenging. Ultrasound allows use to be more accurate with the injections.

Platelet-rich plasma (PRP) falls under umbrella of regenerative medicine, which is a growing area in nonoperative sports medicine. With PRP, we inject the patient's own platelets to help reduce inflammation and promote healing. The mechanism is still being understood; however it is thought to decrease the amount of inflammatory markers. This makes it particularly useful in chronic tendinopathies or mild-to-moderate osteoarthritis. The effects tend to last longer than traditional steroid injections and it is much safer.
Unfortunately, PRP isn't covered by insurance yet, so it's an out-of-pocket treatment for most patients. But as more robust research emerges, I believe insurance companies will eventually begin to recognize its value.

Interview with
Dr. Geet Paul

Looking at the broader field, how do you think pain medicine has evolved over the years?

Pain medicine has come a long way. It used to be very medication-heavy. Now, we have a wide variety of interventional procedures available. One area that's particularly exciting is neuromodulation. For instance, spinal cord stimulation and peripheral nerve stimulation help modulate pain signals before they reach the brain. These technologies are evolving rapidly, and the devices are getting smaller and more efficient. Recently it has been approved for painful diabetic peripheral neuropathy. This has allowed us to help several people suffering with chronic pain.

We're also seeing more minimally invasive procedures for conditions that previously required open surgery. For example, sacroiliac (SI) joint fusion can now be done percutaneously using allograft bone. Patients suffering with chronic SI joint pain now have an option that allows for quick recovery and proven functional improvement. Another example is the Intracept procedure which was recently developed to help treat vertebrogenic pain. Treatment for this condition was very limited prior to the Intracept procedure.
We're excited to have the opportunity to perform many of these cutting-edge procedures at GW.

Speaking of GW, what do you think sets us apart from other facilities in the area?

I think one of the biggest strengths at GW is the collaborative culture. There's a strong partnership between the interventional pain team, PM&R, orthopedics, and neurosurgery. Such teamwork really benefits the patients, as they get the best possible care tailored to their condition.
Also, because we're in an academic medical center, we're often at the forefront of new technologies. Device companies often approach us for early adoption and training. My colleague, Dr. Davari, and I frequently collaborate with industry to bring cutting-edge treatments to our patients. We're also actively involved in research and training, with medical students, residents, and fellows rotating through our program. It's rewarding to pass on what we've learned to the next generation of providers.

Interview with
Dr. Geet Paul

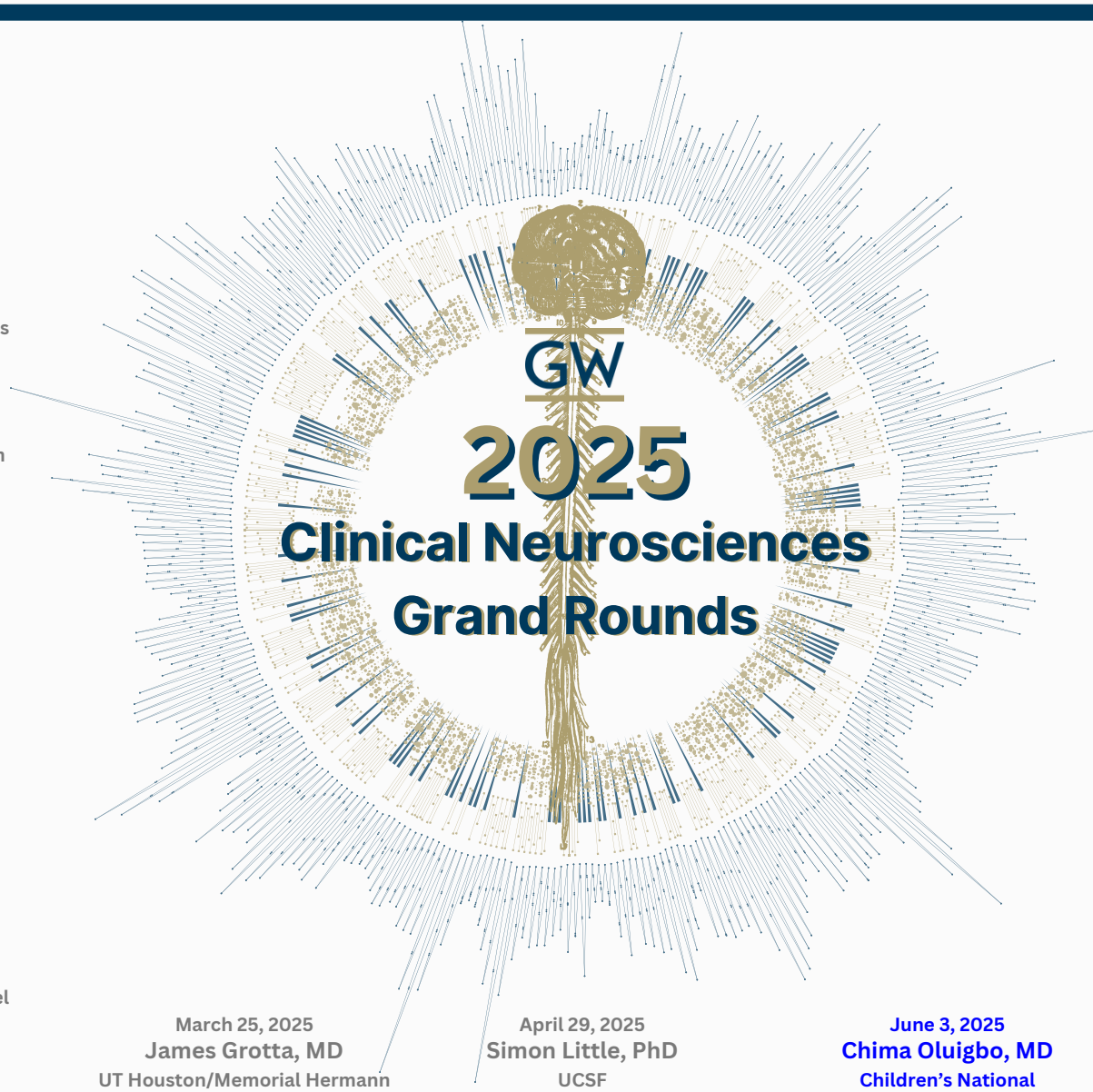
How long have you been at GW, and what do you enjoy most about working here?

I've been at GW since 2017, so almost eight years now. What I love most is the people. The department has an incredible team, and there's a strong sense of camaraderie. Whether it's in the clinic, in the OR, or outside of work for a happy hour, it feels like a family.
I also love the teaching aspect. It's meaningful to me to train students and fellows, just like my mentors trained me. That's a big part of what keeps me motivated.

Do you have any final thoughts or messages you'd like to share with the readers?

I just want to express my appreciation for all the referrals we receive from the different departments at GW. Our team is deeply committed to patient care. We see a wide range of cases, from straightforward to complex, and we always strive to give each patient the highest level of care.

Whether it's sports medicine, interventional pain management, or regenerative medicine, we have the tools and expertise to make a real difference. We're always open to collaboration and communication, so if there's anything we can do to support your patients, we're just a call away.



January 7, 2025
Carlos Sanchez, MD
The George Washington University
Title: Cellular Engineering of Autologous Glioblastoma Specific T cells

January 14, 2025
Mark J. Edwards, MD
King's College London, United Kingdom
Title: TBD

January 28, 2025
Victor Wang, MD
Sutter East Bay Medical Group
Title: Headache Medicine in the LGBTQIA Community: Sex, Drugs, and Everything in Between

February 4, 2025
Saleem Abdulrauf, MD
The George Washington University
Title: TBD

February 11, 2025
Cheryl Bushnell, MD
Atrium Wake Forest Baptist Health
Title: Advancing Blood Pressure Management after Stroke: A New Model of Care

February 18, 2025
Aline Herlopian, MD
Yale University
Title: HFO and the Epilepsy Networks

February 25, 2025
David Hafler, MD
Yale University
Title: The Underlying Cause of Multiple Sclerosis

March 4, 2025
Dimitri Sigounas, MD
The George Washington University
Title: TBD

March 11, 2025
Erik St. Louis, MD
Mayo Clinic
Title: TBD

March 18, 2025
Raman Sankar, MD,PhD
UCLA
Title: TBD

March 25, 2025
James Grotta, MD
UT Houston/Memorial Hermann
Title: TBD

April 1, 2025
Justin Kwan, MD
National Institute of Health
Title: TBD

April 8, 2025
Chase Foster, MD
Johns Hopkins University
Title: TBD

April 15, 2025
Pierre Fayad, MD
University of Nebraska
Title: TBD

April 22, 2025
David Auerbach, PhD
Upstate Medical University
Title: Looking Beyond the Classically Studied Organ: Bedside-to-Bench Approaches to Study Electrical Disturbances in the Brain and Heart

April 29, 2025
Simon Little, PhD
UCSF
Title: Closed Loop/adaptive DBS

May 6, 2025
Donald Shields, MD
Spartanburg Regional Healthcare
Title: TBD

May 13, 2025
Casey Albin, MD
Emory School of Medicine
Title: Interesting Subjects within NCC

May 20, 2025
John Schreiber, MD
Children's National
Title: TBD

May 27, 2025
James Mastrianni, MD,PhD
University of Chicago
Title: TBD

June 3, 2025
Chima Oluigbo, MD
Children's National
Title: TBD

June 10, 2025
Steven Zeiler, MD,PhD
John's Hopkins University
Title: TBD

June 17, 2025
John Stern, MD
UCLA
Title: TBD

June 24, 2025
Alberto Espay, MD
University of Cincinnati
Title: TBD

Connect with us

Thank you

The GW Medical Faculty Associates
2150 Pennsylvania Avenue
NW Washington, D.C. 20037
202-741-3000

THE GEORGE WASHINGTON UNIVERSITY HOSPITAL

THE GEORGE WASHINGTON UNIVERSITY MEDICAL FACULTY ASSOCIATES MFA