Fifth Annual Research Blitz
September 2020
Part 1

UF Department of Neurology
College of Medicine
Movement Disorders
Current Projects
- DTI and DBS outcomes
- Novel stimulation parameters for movement disorders
- Gait-balance disturbances in movement disorders
- DBS outcomes in movement disorders
- Brain signal analysis in movement disorders
- Clinical Trials

Possible Resident Projects
- Retrospective analysis of gait/balance in Dystonia (championed by Dr. Janine Lopes)
- Development of a Freezing of Gait Quantification Scale in PD (championed currently by Dr. John Yu)
- Novel stimulation parameters in Dystonia, PD and ET (currently championed by Dr Joshua Wong)
- DTI and DBS outcomes in various movement disorders (multiple fellows involved)
Current Projects

- Neurodegeneration and fluctuations in DLB (diffusion-weighted MRI, EEG)
- Speech changes in PD after DBS
- Ataxia in ET after DBS
- Characterizing tremor in young-onset PD
- Effects of early vs. late levodopa in PD
- Clinical Trials (sub-investigator)

Possible Resident Projects

- Speech changes in PD after DBS (retrospective study, imaging correlate data analysis)
- Ataxia in ET after DBS (prospective study)
- Parkinson's Outcomes Project (retrospective, early vs. late levodopa)
- Tremor in YOPD (prospective study)
**Main goal:**
Develop algorithms to automatically select and adjust DBS settings based on neurophysiology and imaging

**Possible Resident Projects**

- **Data collection**
  - Neurophysiology data (in clinic/OR)
  - Peripheral signals recorded at home
  - Demographic from Fixel INFORM data base

- **Data analysis**
  - Open loop DBS
  - Adaptive/guided DBS
  - Algorithms Selecting DBS settings
  - Acute recordings
  - Chronic recordings
  - Hz ?
  - Contact ?
  - µs ?
Current Projects

• NPF TARGET-PD Clinical Trial (wearable sensors in PD)
• PD SIT + FIT: Utilization of a Portable Chair-Based Elliptical Home Exerciser for Patients with Parkinson’s Disease
• Tremor and myoclonus physiologic analyses

Possible Resident Projects

• Movement disorders case reports
• Fixel INFORM database retrospective studies
Current Projects

• Deep Brain Stimulation of Globus Pallidus Interna for Freezing of Gait in PD
• Evaluation of Non-motor Symptoms after Deep Brain Stimulation in PD
• Review of DBS Troubleshooting Referrals to a Tertiary Movement Disorders Center

Other Projects

• Case Report
• Retrospective Studies from Fixel INFORM Database
Irene Malaty, M.D.

**Current Projects**
- Clinical Trials
- Database-driven quality improvement projects in Parkinson disease
- Impact of Tourette syndrome in children and adults

**Possible Resident Projects**
- Movement disorders case reports
- Fixel INFORM database retrospective studies
- Parkinson's outcome projects data analysis projects
- Impact of COVID-19 pandemic on Tourette syndrome (TS) patients
- Persistence of comorbidities in TS adults
- Hoarding behaviors
- Anxiety in Parkinson disease
McFarland lab

- **Parkinson/neurodegenerative disease models**
  - Rab GTPase proteins – mediate toxic protein buildup, “seeding”
  - Synuclein/tau models in cells, brain slice culture
  - Preclinical models with AAV

- **PSP/Atypical Parkinsonism Clinical-Research Initiative**
  - PSP and MSA prevalence, care practices, complications
  - Mood disorders in Atypical Parkinson’s: apathy, brain circuitry
  - Clinical trials

- **PD/APD Biomarkers**
  - MRI biomarkers (Dr. Vaillancourt)
  - PD cognitive subtypes, dementia, and biomarkers (Dr. Price)
  - Neuroimmune markers, IBD, LRRK2/GBA in PD (Dr. Malu Tansey)

- **Huntington disease**
  - Motor phenotype and neuropsychiatric symptoms (ENROLL-HD registry)
  - RAN proteins, biomarkers in HD (Dr. Ranum)
  - Clinical trials
Michael S. Okun, M.D.

Tourette Syndrome Closed Loop Deep Brain Stimulation (NIH R01)
Parkinson’s Disease Mobile Computing for Deep Brain Stimulation (Remote programming) (NIH R01)
Development of an Imaging Biomarker for Parkinson’s and Parkinsonism (NIH U01)
Residents interested in research training and fellowship (NIH R25)

Tourette DBS “Closed Loop”

Remote DBS programming

New DBS Visualizations

Parkinson’s Imaging Biomarkers
Available to work with residents on projects related to:

Huntington's Disease
Quality Improvement in PD care
Medical Education
Case reports
Current Projects

- Effect and safety of Ketones in PD
- DBS troubleshooting projects in patients with PT, Dystonia and ET.
- Remote DBS programming and non motor symptoms assessment in PD patients
- Gait and balance changes in tremor
- Clinical Trials

Possible Resident Projects

- Movement disorders case reports
- Fixel INFORM database retrospective studies
- Parkinson's outcome projects data analysis projects
- DBS troubleshooting retrospective data analysis
- Retrospective chart review to assess the effect of Rytary (Carbidopa/levodopa ER) on non-motor symptoms in PD
- Cervical dystonia and head tremor projects.
**Current Projects**
- Gait changes post-DBS between STN and GPi
- Case Reports

**Possible Resident Projects**
- Gait changes in functional movement disorder patients
- Gait changes in cervical dystonia patients pre and post-botulinum toxin injection
- Clinical trials
Aparna Wagle Shukla, M. D.

- Dystonia
  - Physiology of Blepharospasm, Cervical dystonia, lingual dystonia
  - Exercise and dystonia
  - rTMS and dystonia
  - DBS and dystonia
  - Imaging networks for dystonic tremor
  - Physiological characterization of tremor
  - Effects of VIM DBS

- Tremor
  - Physiology of essential tremor in comparison to PD tremor
  - Physiology and gait in orthostatic tremor
  - DBS for PD tremor
  - DBS for MS tremor, DBS for rubral tremor

- Dystonia + Tremor

DBS for PD tremor
ABC
(Aging, Behavioral, Cognitive)
ABC Division (Brain Aging, Behavioral, and Cognitive Neurology)

• Memory / Dementia Clinics
• Brain Health
• Neuro-Palliative Care
• Behavioral Neurology
• Neuropsychiatry
• Traumatic Brain Injury
• Neurological Sleep (part)
• Neuro-Geriatrics
Melissa J. Armstrong, MD, MSc

- Background in quantitative & qualitative research

- Research areas: Lewy body dementia, values affecting medical decisions (especially in older adults), shared decision making, patient-family-clinician communication, patient engagement

- Project opportunities for residents:
  - Retrospective chart reviews relating to Lewy body dementia and/or treatment for psychosis in Parkinson disease
  - Survey of individuals with parkinsonism regarding perceived discrimination
  - Open to resident QI project ideas, especially those relating to improving communication

- Funded research:
  - End of life experiences in dementia with Lewy bodies (R01; enrollment starting fall-winter 2020)
  - Investigating experiences giving and receiving dementia diagnoses (interviews with clinicians, patients, families) (Florida Department of Health; in process)
  - Florida Alzheimer Disease Research Center (enrollment starting fall 2020)
DeKosky Research Opportunities

- Relationships between previous surgeries and risk of neurodegenerative diseases
- Identification of genetic variation in hepatic enzymes and risk of Alzheimer's disease
- CSF studies in patients with normal pressure hydrocephalus (NPH)
- Epidemiology of neurotropic viral exposure and risk of cognitive impairment (with Dr. Amy Vittor)
Dr. Heilman, Behavioral Neurology: Possible Resident Research

1) FLACA is well known to our residents, but still needs to be standardized.

2) Ideomotor Apraxia (IMA): There is no good test to assess patients with Alzheimer’s disease (AD) or stroke for IMA, this study would be to develop a test.

3) Aphasia-Stroke: In patients with impaired comprehension, a) can decrease sensory input improve comprehension (e.g., will eye closure improve comprehension? b) will midline command (close eyes, open mouth, sit up) be better understood than hand commands (make a fist, point, spread fingers apart.

4) Spatial Neglect-Stroke: Influence of distractibility on allocation of spatial attention. For example, a) will looking at a line for 20 sec. before bisection alter bias? b) will attempting to bisect compound lines (one line with two segments of different thickness) alter bias.

5) Vertical Spatial Bias with AD: With AD there is often more atrophy of parietal than temporal lobe, Will this cause a vertical attentional bias?

6) Breath Holding in Patients with Mild Cognitive Impairment (MCI). Certain forms of breath holding can increase the activation of the vagus nerve. Activation of vagus nerve can improve memory. Can breath hold improve the memory of patients with MCI?

7) Aging: With aging and right hemisphere deterioration (right hemi-aging) when viewing emotional pictures, they will they be more expressive of happy than sad emotions when compared to younger participants.
• TRACS Database Utilization to Develop Standardized Objective Measures to Identify Main Symptom Trajectory and Target Concussion Management

Vision: Better Understand Genome to Syndrome

Predictors of RBD Progression

R01 Fundable Score
Collaboration w/ David Vaillancourt

This Could Be You!
Trainee Research Award from AHS on Objective Exam Measurement of Posttraumatic Migraine
Current Projects

• Remote delivery of specialty interdisciplinary care to patients with LBD – telemedicine study
• Patterns of care in LBD – OneFlorida database study

Possible Resident Projects

• OneFlorida database retrospective studies
• Fixel INFORM database retrospective studies
• Case reports
• Review articles
Neal Weisbrod

• “Responses to a Standardized Approach to Advance Care Planning in Cognitive Disorders Clinic”
  • Enrolling new patients and performing ACP discussion at 3 month followup
  • Pre and post 3 month follow up surveys to evaluate depression, anxiety, hopelessness
  • Comparing to another cognitive disorder clinic provider without routine ACP

• Enrollment will be complete in 6/2021 and then opportunities for involvement in write up and data analysis will be available.

• Collaboration on case reports from the inpatient service.
Basic Sciences
Leverage genetically-determined forms of neurodegenerative disease for insight into sporadic cases
- Earliest cellular events beginning years or decades before diagnosis
- Parkinson’s disease, ALS, Huntington’s disease
- Parkin, LRRK2, GBA, TDP-43, Ht
- Intracellular trafficking, endo-lysosomal function, mitochondrial Complex I

- Propagated cell lines
- Primary cultured neurons
- cKO and KI mouse models
- Patient and CRISPR engineered iPSCs

Clinically-based hypothesis → Novel phenotype/molecular insight → Mechanism → Relevance to all cases
Neurogenetics of Dystonia and young-onset Parkinson’s disease

- Develop gene panels for a CAP-accredited genetic testing service
- Clinicogenetic correlative research
- Pedigree mapping for novel gene identification
- Whole genome sequencing to inform patient selection and outcomes from their elective surgery.

Drs. Farrer & Shukla
E. m.farrer@ufl.edu
Sequencing for seizure disorders

- Clinical development of whole exome & genome sequencing
- Research discovery for physicians/patients/families
- Training opportunity in applied neurogenetics

Drs. Farrer & Kalamangalam
E: m.farrer@ufl.edu
Focus on Neurobiology of Disease and Pathophysiology, we also work on Preclinical Drug Discovery. Mouse/Worm Genetics and Neuroscience Research Lab

We study the role of striatum/basal ganglia and cerebellum, in the pathogenesis of movement disorders. We use conditional knockout & knockin mice, complemented by genetic manipulations in C. elegans.

We use optogenetic, chemogenetic, patch clamp recording methods.

Mouse/worm models of Dystonia, Restless Legs Syndrome, ALS/FTD

Animal models of DYT1 and DYT11 dystonia, funded by NIH, DOD, and Tyler’s Hope for a Dystonia Cure, Inc.

Animal models and pathophysiology of restless legs syndrome, funded by NIH.

C9ORF72 knockout and BAC mouse models for ALS/FTD, funded by NIH.
RNA Methylation in Neurodegeneration
-Karen McFarland, PhD

• RNA Methylation: “epitranscriptome”
  • Transcriptome plasticity
  • Allows for precise tuning of proteome

• N6-methyladenosine (m6A) are the most abundant RNA modification
  • The m6A pathway modifies adenosine (A) residues to m6A
    • Added by methyltransferases/“writer” enzymes
    • Removed by demethylases/“eraser” enzymes
    • Effects mediated by RNA binding protein/“readers”

• m6A modifications influence behavior and neuronal function and are necessary for responses to neuronal injury and pathology

• Our unpublished data demonstrates that RNA expression levels of m6A pathway members are altered following amyloid treatment *in vitro*

• Questions/project ideas:
  • Are changes in m6A seen in amyloid models *in vivo*?
  • Are protein levels of m6A pathway members altered?
  • What effect do m6A modification have on neurodegeneration and pathology?
  • Are transcripts differentially methylated in Alzheimer’s models? Which ones?
**GOAL:** Understand the molecular mechanisms underlying Alzheimer’s disease in fly models

**Available project:** Screening of 1,500 human genes for their ability to suppress Aβ42+Tau pathology in the fly brain

**Opportunities to learn:** genetics, molecular and cellular biology, transcriptomics, histology and optogenetic technologies

**AD Flies display:**
- Aβ42 aggregates
- Phospho Tau
- Neuronal death
- Memory decline
DBS Brain Bank

Microbiota

PD

Metabolomics

Immunotherapy

Comparison of survival in peripherally injected M83 mice treated with ACT

Figure 5a. Survival plot showing decreased time to terminal state (paralysis) for heterozygous M83 mice bilaterally treated with ACT vs pan-DC.

Time post-injection (days)

Percent survival

PD

T+DC

5b
Neurocritical Care
#GuardiansOfTheNeuroaxis GOTN
Babi, Busl, Maciel, Pizzi, Robinson, Ameli, Roth
Neurocritical Care Research Team

• 2 Research Coordinators III — Jessica Spana (WW) & Rebecca Wichman

• 60 undergrad students (and counting! Thanks, KM!!), 3 medical students, 1 PhD student, 4 neurocritical care fellows

• Collaborations with College of Engineering, College of Pharmacy, College of Public Health & Health Professions, College of Veterinary Medicine

• University of Utah, Yale University, Mayo Clinic, Versailles Hospital, Columbia University Medical Center

• Expectations for housestaff role: learning about developing study design and regulatory aspects of human research, analyses and interpretation of data, leadership role on data collection. You get to practice to be a PI if you are up for the challenge!
• Saving the Survivors of Cardiac Arrest – Maciel
  • Improving neuroprognostication:
    • MOCHA and SPARE trials: prospective international multicenter observational trial (clinicaltrials.gov NCT03261089) aiming at developing a multimodal prognostic algorithm. SPARE is a substudy in Brazil where there is minimal WLST
    • Cost-effectiveness of delayed final neuroprognostic assessments: collaboration with the Economics department.
  • Enhancing knowledge re cardiac arrest survivors: retrospective database UF, BU, Yale & CCERMC – lots of clinically impactful scientific questions to be answered.
  • Unveiling mechanistic factors in HIBI: rodent models of cardiac arrest, 2 photon imaging
  • Novel therapies in post-anoxic status epilepticus: VIGAB-STAT, pilot trial of single load of Vigabatrin in the management of post-anoxic status as adjunct therapy. John Malta

• Improving Neuroprognostication in Acute Brain Injury – Busl, Maciel, Ameli, Roth
  • SPIN: Self-fulfilling Prophecy In Neuroprognostic studies. Several subprojects: cardiac arrest, ICH, SAH, status, TBI. Systematic review of neuroprognostic studies specifically investigating the quality of reporting of WLST, modes of death, timing of death and WLST, blinding of treatment team on tool being investigated.
• Saving the Survivors of Cardiac Arrest – Maciel

  • Improving neuroprognostication:
    • MOCHA and SPARE trials: prospective international multicenter observational trial (clinicaltrials.gov NCT03261089) aiming at developing a multimodal prognostic algorithm. SPARE is a substudy in Brazil where there is minimal WLST
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  • Enhancing knowledge re cardiac arrest survivors: retrospective database UF, BU, Yale & CCERMC – lots of clinically impactful scientific questions to be answered.

  • Unveiling mechanistic factors in HIBI: rodent models of cardiac arrest, 2 photon imaging, electrophysiology, pericytes, Brain Tsunamis

• Novel therapies in post-anoxic status epilepticus: VIGAB-STAT, pilot trial of single load of Vigabatrin in the management of post-anoxic status as adjunct therapy.

John Malta
• **Pregabalin in acute symptomatic seizures – Maciel, Busl**
  • Multicenter collaboration (Yale, UF) to demonstrate the performance of PGB as adjunct therapy in refractory acute symptomatic seizures. Mitesh Patel. Epi division partnering (Christine Smith)

• **Acute pain management in SAH – Busl, Maciel**
  • Database of SAH describing status quo: rates of narcotic use during index hospitalization and prescription of narcotics upon discharge, and effect of cortical spreading depolarization modulators in overall outcome of SAH. Nick Nelson, Brandon Lucke-Wold
  • **BLOCK-SA**H: pilot project of anesthetic block to PPF evaluating safety and efficacy of local treatment in HA control and opioid requirements. Partnership with Anesthesia and Neurosurgery
  • **Pain SAH survey**: Interdisciplinary international survey of acute headache management practices on aneurysmal SAH

• **Gut microbiome - Roth**
  • Characterization of microbiome-gut-brain axis in patients with acute brain injury
  • Translational research from bench to bedside, learn about modern lab techniques (multiomics processing) and bioinformatics
Neurocritical Care

- Sickbay Multiparametric monitoring of neurocritically ill patients—Busl, Maciel, Pizzi, Roth, Ameli
  - Sickbay software licensed to capture multiparametric physiologic data with continuous waveform recording. **Abdullah Bin-Zahid, Nick Nelson**
    - AI to assess intracranial compliance, clinical phonocardiography and external pulse recording
    - Partnership with Nick Napoli (NASA, COE; Thanks Dr. DeK!!) and Derek Merck (EM)

- Critical Care EEG Monitoring Research Consortium—Maciel
  - Multicenter collaboration (50+sites)
  - Cardiac Arrest Taskforce: UCSF is primary site. Observational retrospective study collecting 500+ subjects with MRI and EEG.
  - Post-traumatic Epilepsy: Yale is primary site. Observational retrospective case control study aiming to identify EEG features in the acute phase that are associated with increased risk of epilepsy development. **Christine Smith**

- Evaluation of corneal reflex testing methodology—Robinson, Busl, Maciel
  - Comparison of the yield of corneal reflex (interpalpebral distance delta) using different stimuli: saline drop, puff of air, cotton tip applicator pressure in unconscious patients. **Abdullah Bin-Zahid**

- Neuroprognostic performance of critical care fellows – Maciel, Babi
  - Prospective study investigating the performance of critical care fellows predicting the discharge outcome of patients with and without acute brain injuries in whom neurocritical care is involved.
Neurocritical Care

• Moya-moya – Maciel
  • Interdisciplinary international survey of perioperative practices on moyamoya syndrome undergoing revascularization
  • Retrospective database at UF – 50+ cases
  • Prospective database and possible QI project

• Neurocritical Care Driven Organ Resuscitation in DBD to Improve Donation Yield – Busl, Maciel
  • Neurocritical care consultation leading the management of the potential brain dead donor. Great opportunity to learn critical care 1:1 with attending (DI management, hemodynamics, procedures) and compassionate bedside skills. Will assess time from BD to OR for harvesting, organ retrieval yield, allograft function
  • Nursing satisfaction: pre-/post- survey following launch

• Predictors of Positive Intracranial Flow on Nuclear Scan During Brain Death Determination – Robinson
  • Multicenter study of all nuclear brain studies characterizing predictors of non-confirmatory brain death testing to identify flaws in the brain death determination process.
Neurocritical Care

• ICU EEG Teaching – Maciel, Babi
  • ICU EEG library: spearhead development of international library for the CCERMC
  • UF-Emory ICU EEG online course: recording of lectures, and development of an online educational module

• ICU Emergencies Simulation – Babi
  • In-vivo simulation in ICU of acute neurological emergencies with transdisciplinary team: roles, call outs for safety, and other QI metrics (IRB:202000255)
  • In-vivo simulation in ICU for the management of acute respiratory compromise in mock covid19 respiratory crisis (IRB:20200993)

• Emergency Endotracheal Intubation by non-anesthesiologists: Airway outcomes and complication – Babi (IRB: 202000687)
  • Retrospective and prospective study on airway outcomes in the neuro-intensive care unit, evaluation of factors associated with endotracheal intubation, complication rates, and predictors of complications.

• Utilization and Impact on housestaff Training of Non-Physician Advanced Practice Providers in Neuro-Intensive Care Units of Academic Medical Centers – Babi (IRB: 20200691)
  • Multi-Center (Academic Centers) survey of neurocritical care PDs, faculty, housestaff, residents and advanced practice providers on impact of non-physician clinicians in the neuro-intensive care unit.
• Development and implementation of residency system-level patient safety reviews to reduce rate of medical errors, misses and near-misses – Babi, Wilson

• Development of a Neurocritical Care Education Curriculum for APP training – Ameli, Babi
Neurocritical Care

• COVID-19 Efforts – Pizzi, Busl, Robinson
  • Impact of COVID19 pandemic in resources allocation and outcomes of neurocritical care patients: NCS driven initiative and Fr consortium
  • Characterization of neurologic manifestations of COVID19 – International observational multicenter database & NCS driven initiative
  • CICERO - Combination of anti-Inflammatory drugs mitigate Cytokine storm in Covid-19
  • Investigating Prevalence and Impact of Neurologic Manifestation in COVID-19 Positive Patients: A OneFlorida Research Consortium Study – collaboration with Maria Bruzzone
    • Retrospective analysis of neurologic manifestations amongst Floridians Jan 2020 – present
    • Funded through CTSI

• Medi-gators – Ameli, Robinson
  • Characterization of the void of shadowing opportunities for pre-health students due to the pandemic
  • Implementation of virtual shadowing program to address this void
Epilepsy
Kalamangalam

Research interests

- EEG in epilepsy – intracranial and scalp – sleep-wake states, spikes, seizure analysis
- MR imaging of epilepsy – novel paradigms and sequences
- Brain stimulation
- Cognition, behavior, sensation – various themes

Short term projects (3-6 months, resident driven)

- Medication withdrawal in EMU – questionnaire survey of US centers
- Seizures in the EMU – questionnaire/telephone survey + chart review
- Medication responsiveness in the epilepsies – retrospective chart review
- Handedness, language dominance and recovery from neurological deficit (joint project with neuropsychology)
- Behavior in epilepsy (joint with Dr Cibula and Dr Ken Heilman)
- Miscellaneous case reports
Cibula

Research interests

• Pedagogy in EEG and epilepsy
• Epilepsy and behavior
• Practice issues in epilepsy

Short term projects (3-6 months, resident driven)

• (Ongoing) Christine Smith: co-incidence of sepsis and status epilepticus- needs assistance with data collection

Others:
• Correlation of adverse childhood experiences and seizure control/ med compliance
• Elfasi: development of EEG flashcard quiz with Kahoot
• Changes in prescription habits for rescue medications before and after COVID
• ED utilization for seizures pre & post COVID
Bruzzone

Research interests

- Epilepsy and metabolomics (e.g. lipid metabolomics in catamenial epilepsy)
- Post acute symptomatic seizure outcomes
- EEG and neuro degeneration

Short term projects (3-6 months, resident driven)

- Evolution of EEG patterns over time in patients with focal epilepsy
- EEG in neurotoxicity (e.g. cefepime)
- Epilepsy and COVID-19
- Long term seizure outcomes in patients with ictal interictal continuum patterns on the ICU
Mitro(panopoulos)

Research interests

- RNS/DBS for epilepsy and optimization of neuromodulation
- Autoimmune epilepsy (epidemiology and treatment)
- Postraumatic epilepsy (early onset vs late onset) fMRI/EEG
- Transcranial Magnetic Stimulation and functional mapping
- SEEG and epilepsy localization for surgical resection
- EEG neurophysiology in neurodegenerative disease

Short term projects (3-6 months, resident driven)

- Cerebral amyloid angiopathy and epilepsy (chart review and imaging)
- CBD/THC extraneous use and epilepsy (chart review and survey)
- Occipital lobe epilepsy phenomenology
Research interests

• Neuromodulation and brain function
• Transcranial Magnetic Stimulation and functional mapping
• Medical education in epilepsy

Short term projects (3-6 months, resident driven)

• Neuromodulation therapy case report and literature review
• Outcome of seizure control in patients with low grade tumor after surgery
1. **Epilepsy Surgery Database**
   1. Database includes seizure type, localization, imaging, neuropsychological data, pathology and outcome

2. **VA Epilepsy Centers of Excellence**
   1. Epidemiology of Epilepsy in Veteran Population
   2. Recurrent TBI in Stroke and Epilepsy

3. **Motor Control Deficits during Driving Following Transient Ischemic Attack - NIH R21**

4. **Role of Acute EEG and Imaging following stroke as predictors for post-stroke seizures (Smith/Hella/Eisenschenk)**

5. **Epilepsy Surgery Outcomes in Veteran Population**

6. **Hippocampal Cell Density**
   1. Comparison of cell densities within CA1, CA2, CA3, CA4, and subiculum to seizure type, frequency, duration, imaging, neuropsychological testing, outcome
Stroke
- Resident QI projects:

Factors resulting in delays in tPA administration in the ED (Manuscript Submitted to International Stroke Conference)

Preliminary idea-sticker including time of onset, family contact and medication to be placed on a stroke alert patient by EMS prior to ED arrival (reducing time needed to acquire history resulting in tPA delays). Data to be collected prospectively and compared.

- Investigator Initiated Collaboration with Hematology Project

Analysis of anticoagulation reversal with Andexanet Alpha compared to Kcentra both evaluating outcomes and hematoma growth. Extensive datapoints already collected and can be used for numerous projects.

Investigator initiated Collaboration with Cardiology

Analysis of outcomes comparing surgical treatment of atrial fibrillation including pulmonary vein isolation and atrial appendage clipping vs. medical management alone
1. UF Stroke Retrospective review projects
   a) Outcomes of lacunar stroke in patients with and with perfusion deficits on CTP
   b) Cerebral amyloid angiopathy
      i) neuroimaging features
      ii) factors associated with recurrent ICH and CAA related inflammation

2. Review article
   a) FLAIR changes in acute stroke – DWI-FLAIR mismatch

3. National Inpatient Sample Database projects

Cerebral microbleeds
White matter hyperintensity

DWI-FLAIR mismatch
Schwamm et al, 2018
* Improving The Med Student Educational Experience With Pre-Made PPT Lectures

* Need ~3 residents (preferably 2nd and 3rd years) to help create quick lectures on 10-12

* These will be mandated in half the neurology clerkships during the 2021-2022 academic year, and Shelf exam scores and satisfactions scores will be compared.

* Participation in this project CAN BE COUNTED as a Quality Improvement Project
Christina Wilson, MD PhD

• Research interests
  • Acute stroke
  • Medical education

• Ongoing projects
  • Understanding acute stroke patient delay in presentation
    • Retrospective analysis of predictive factors
    • Prospective development of patient questionnaire, educational materials
  • Supplemental self-directed neuro-ophthalmology curriculum
Primary Prevention
• White matter disease
• Sepsis EKG Afib and

Secondary Stroke Prevention
• CYP2C19 alleles Plavix and Stroke Prevention
• Pharmacogenomics

Alexis Simpkins, MD, PhD, MSCR, FAHA
Assistant Professor of Neurology
Neurovascular Division
CAREER DEVELOPMENT

- Strategic Planning, Timelines, & Goals
- Informational Interviews to Explore Career Opportunities
- Stroke Hot Topics Discussions
- Mentorship teams
- Curriculum Vitae Preparation
- Creating an NIH Biosketch
- Presentation Skills

RESEARCH

- Monthly team meetings
- Team Science Course
- Developing Scientific Questions
- Guidance with manuscript and abstract preparation
- Tips on scientific communication
- Centralizing resources and IRB protocol for chart review studies

Bonus Opportunities: Blogging; Peer Review; Presentations; R25
Neuromuscular, MS, Headache, General
MS division

• NARCRMS- work on a national consortium of MS centers
• TreatMS- work on a national consortium of MS centers
• Biomarker project- UF based project to collect specimen and look for better serum and CSF based biomarkers.
• Clinical case reports
General/HA possible resident projects

• NF-1 clinic to establish protocol, mine database and develop biomarkers.
• Retrospective chart review of thyroid disease in NF
• Headache clinic to establish protocol, mine database and develop biomarkers.
• Case reports
Spontaneous skull defects and associated neurological conditions: A retrospective chart review

Aim to collect clinical and radiological data to understand the pathophysiology of skull base dehiscence in relation to its various clinical presentations. Joint project that includes ENT group, Neurology group (Dr. Orlova, Dr. Kalamangalam), Neuroradiology.

Why: Spontaneous skull base CSF leaks is a form if pseudotumor cerebri, when chronic increased intracranial pressure can cause bone thinning eventually leading to dural exposure and tear, which results in cranial CSF leak from skull base defects. This can lead to an increase risk of meningitis, middle fossa skull base defects and herniation of dura and brain tissue through the defect is being increasingly recognized as the cause of refractory epilepsy.

How: Retrospective chart review study is approved by IRB.

Data extraction and storage: RedCap

Study population: 190+ patients with encephalocele seen at UF over period of 10 years.

Estimated time frame: completion of data extraction – 2-3 month, statistical analysis and preparation of manuscript – 2-3 month.

Contact: Dr. Orlova at Yulia.Orlova@neurology.ufl.edu or Dr. Kalamangalam at Giridhar.Kalamangalam@neurology.ufl.edu

Occipital nerve blocks in headache treatment

Aim to explore the efficacy of occipital nerve block and their safety comparing landmark technique (commonly performed in neurology office) vs ultrasound guided (commonly performed by pain management), to guide the appropriate selection of patients for procedures.

Why: Occipital nerve blocks with their local anesthetic are widely used in clinical practice. However, this procedure is not included in current guidelines for migraine management and there have been only a handful of randomized, placebo-controlled studies with various methodology and equivocal results. There is no on techniques, type and the dosage of local anesthetics, choice of medications, addition of steroids.

How: Retrospective chart review study is approved by IRB.

Data extraction and storage: RedCap

Study population: patients who had diagnosis of migraine and received occipital nerve blocks from 1/1/2015- 1/1/2019

Estimated time frame: completion of data extraction – 2-3 month, statistical analysis and preparation of manuscript – 2-3 month.

Contact: Dr. Orlova at Yulia.Orlova@neurology.ufl.edu

Chuquilin possible resident projects

• Case reports
• Case series myotonic dystrophy type 1 and 2: MS4 (M. Oliva), MS2 (G. Young) already involved (database needs some updates and analysis)
• Pain in muscular dystrophies/MDA clinic (A. Rainey)
• Axonal GBS (AMSAN, AMAN) UF experience: MS4 (G. de Paz), T. Eisenbach (PGY-2), others welcome, need to collect more data
• Education project (status epilepticus sim, reasoning exam-analysis of results).
• Other ideas: EMG satisfaction with and w/o music in room (?).
William J. Triggs, MD

Malcom Randall VAMC/UF NM
POTENTIAL PROJECT FOR RESIDENTS

- Clinical Correlation of EMG in CIDP
  - Evaluation of serial neurophysiological studies in CIDP
  - Do electrophysiological measures of demyelination parallel clinical course?
Subramony possible resident projects

- Driving abilities in myotonic dystrophy
- Social cognition in myotonic dystrophy
- Retrospective review of sleep studies in myotonic dystrophy
- Design of a “proprioceptometer”
Wymer possible resident projects

- Neuronal biomarkers in ALS: Literature review
- Respiratory decline in ALS and the ALSFRS-R: database review
- COVID and neuromuscular disease: survey and analysis
- Case reports