

Past FAMEPRO Projects (2017-2018)

The aim of this initiative is to provide guidance and support to faculty members to conduct and complete clinical research projects and to prepare and disseminate results through clinical scholarship.



Molecular Profiling of Cholangiocarcinoma

PI: Wei Chen, MD, PhD

Mentor: Gerald Lozanski, MD

Cholangiocarcinoma is a heterogenous group of aggressive adenocarcinomas arising from the biliary epithelium, which include gallbladder adenocarcinoma, intrahepatic, and extrahepatic cholangiocarcinomas. The estimated 5-year survival is only 15% (localized intrahepatic) and 30% (localized extrahepatic). Cholangiocarcinomas are frequently inoperable and often recur after operation. These patients are in need of more effective treatment. We aim to identify molecular signatures in cholangiocarcinoma for prognostic and therapeutic implications.



Evaluation of Tools for Breast Cancer Screening Decision Making in Women 75 and Older

PI: Heather Hirsch, MD

Mentor: Bhuvana Ramaswamy, MD

Breast cancer screening recommendations for women aged 75 and older vary between different organizations such as the United States Prevention Task Force and the American Cancer Society; however there is strong consensus that routine mammograms do not offer benefit in individuals with high five year mortality risk. Despite this, many women over 75 are receiving mammograms leading to increased risk of adverse events with limited benefits. This study will focus on piloting existing educational tools and decision aids for women >75 years to ensure more appropriate breast cancer screening recommendations and to facilitate conversations between patients and providers.



Provider Perceptions on the Timing of Removal of Long-acting Contraceptive Methods

PI: Michelle Isley, MD, MPH
Mentor: Lisa Keder, MD

Providers promote use of long-acting reversible contraception (LARC), including intrauterine devices and implants, because LARCs are highly effective methods. While there is a recommended maximum length of time for LARC use, there is no formal recommended minimum time of use. LARC device removal usually requires a visit to a provider. Women perceive resistance from providers when LARC removal is requested due to undesired symptoms or side effects prior to product expiration. This results in patient frustration, and in some cases, damage to the provider-patient relationship. There is a gap in knowledge about how providers feel about removal of LARC methods prior to product expiration. We propose to assess provider attitudes and practices about the timing of LARC removal.



Perioperative Use of Gabapentin to Improve Analgesia and Decrease Opioid Use in Rhinoplasty

PI: Leslie Kim, MD and Jarett Heard, MD
Mentors: Michael Guertin, MD

Gabapentin is a non-opioid medication that has been shown to be effective in treating numerous pain conditions. It has been under investigation as an effective analgesic for acute perioperative pain for the past two decades. Its reported use in head and neck surgery is limited, although a recent systematic review found it to have a significant beneficial effect on perioperative pain relief and analgesic consumption. The aim of our proposed study is to assess whether the use of gabapentin in the perioperative period safely decreases postoperative pain and opioid medication usage by at least 33% in patients undergoing functional and/or cosmetic rhinoplasty.



Mismatch Repair Deficiency in Breast Cancer: It's Association with Immune Checkpoint System and Clinical Outcome

PI: Zaibo Li, MD, PhD

Mentors: Anil Parwani, MD, PhD

Mismatch repair (MMR) proteins are DNA mutation repair proteins. Cancers with deficient MMR (dMMR) are predicted to have increased mutation-associated neoantigens that might be recognized by the immune system, causing immune attack to cancer cells. Programmed death 1 (PD1) and its ligand PD-L1 are important checkpoint immune molecules that limit these attacks. Although the association of dMMR with PD1/PD-L1 expression has been well established in colorectal and endometrial cancer, such association has never been explored in breast cancers. Triple-negative breast cancer (TNBC) and HER2-positive BC are more aggressive than hormone receptor-positive/HER2-negative BCs and show increased immune response reflected by higher level of tumor infiltrating lymphocytes (TILs) including CD8-positive T cells. In this study, we aim to investigate the incidence of dMMR and its association with checkpoint immune makers (PD1, PD-L1 and CD8) and clinical outcome in TNBC and HER2-positive BC.



Evaluation of the Psychological Characteristics Impacting Spinal Cord Stimulation Treatment

PI: Jose Moreno, MD

Mentor: Kristin Kuntz, PhD

Spinal cord stimulation (SCS) has been widely used to address chronic pain conditions for patients that respond poorly to conventional pain management interventions. The mechanism of action of SCS, however, has been poorly understood. Specifically, there has yet to be a consensus on the non-technical aspects of implantation that play a role in patient outcomes. Research has demonstrated that certain psychosocial factors may impact the effectiveness of SCS. This retrospective and prospective analysis will identify pre-implantation physical and psychological variables that have an impact on the success of SCS, and additional outcomes such as opioid therapy use.



Characterization of Biopsychosocial Factors that Impact Fragility Fracture Outcomes and Secondary Fall Risks

PI: Carmen Quatman, MD, PhD

Mentor: Janice Kiecolt-Glaser, PhD

Falls are the leading cause of injury in older adults and result in 40% of hospitalizations in the US, with costs related to falls expected to reach \$54.9 billion by 2020. One in 7 falls results in fragility fracture (fractures caused by low-energy falls). Despite improvements in surgical and medical management techniques, up to 50% of fragility fracture patients show substantial decline in daily function and have up to a 30% risk for mortality within 1 year. Additionally, there is mounting evidence that biopsychosocial (BPS) variables such as frailty, nutrition, social support, and cognitive impairment affect medical outcomes for older patients. The aim of this project is to utilize a retrospective study design of 24 years of fall related data in older patients to better understand the biopsychosocial variables commonly obtained during hospitalization that may affect outcomes and risks for secondary injurious falls.



Fractional CO2 Laser Therapy for Survivors of Breast and Gynecologic Cancers

PI: Allison Quick, MD

Mentor: Maryam Lustberg, MD

The genitourinary syndrome of menopause (GUSM) is a constellation of symptoms, including vaginal dryness and dyspareunia that result from estrogen depletion. Unfortunately, survivors of breast and gynecologic cancers are commonly affected by the GUSM as a result of cancer treatments including chemotherapy, hormone therapy, and radiation therapy. Limited treatment options exist for these women, and as a result, the quality of life of many cancer survivors is affected. However, fractional CO2 laser therapy is a new emerging nonhormonal treatment for the GUSM that remodels vaginal tissue to a premenopausal state. We are proposing a pilot study to determine the feasibility and efficacy of fractional CO2 laser therapy in women with a history of breast or gynecologic cancer who have one or more persistent symptoms of the GUSM.



Posterior Reversible Encephalopathy in patients with hemoglobinopathies post

hematopoietic stem cell transplant: A Multi-center retrospective databasey

PI: Hemalaha Rangarajan, MD

Mentor: Sarah O'Brien, MD

Hematopoietic stem cell transplant (HCT), a curative option for patients with hemoglobinopathies such as sickle cell disease (SCD) and beta-thalassemia (β -Thal) major, can be associated with considerable morbidity. Posterior reversible encephalopathy syndrome (PRES) a complication manifesting as headache, visual disturbances and seizures can cause intracranial hemorrhage, neurocognitive sequelae, and death. PRES is seen in 4.6%-34% of HCT recipients with higher incidence in patients with hemoglobinopathies. It is unknown if improvements in supportive care and increase in number of HCT using alternative donors (non-sibling matched donors) have altered the incidence of PRES in patients with hemoglobinopathies. Therefore, we aim to conduct a multicenter epidemiological study to ascertain the prevalence of PRES post-HCT in patients with hemoglobinopathies and the presence of associated risk factors (use of steroids, calcineurin inhibitors, hypertension and graft-versus-host disease), by utilizing the Pediatric Health Information Systems database (PHIS).



Resolving Her2 Discrepancies in Breast Cancer Using Genomic Profiling

PI: Ronquin Ren, MD, PhD

Mentor: Daniel M. Jones, MD, PhD

HER2 activation in breast cancer is used to determine whether patients should receive adjuvant anti-HER2 immunotherapy with trastuzumab (Herceptin) therapy. Immunohistochemistry (IHC) detects protein overexpression and fluorescent in-situ hybridization (FISH) detects gene

amplification but either method can produce equivocal results in up to 15% of cases and results from the two approaches do not always match. This leads to physician difficulties in deciding which patients need to receive trastuzumab. Next-generation sequencing (NGS) provides a newly available method to assess HER2 gene copy number status independent of FISH analysis. In this study, we will attempt to validate the clinical application of NGS testing in HER2 gene analysis as a tool to help resolve equivocal or discordant cases with a single additional method.



HLA Genotypes in Patients with Staphylococcus Infection Associated Glomerulonephritis

First Place Winner

Winner

PI: Anjali Satoska MD

Mentor: Tibor Nadasdy, MD

Our research focuses on studying whether there is greater predilection for certain HLA haplotypes to develop Staphylococcus infection associated glomerulonephritis (SAGN). Antibiotics are the mainstay of treatment, but drug resistance is rampant and chronic renal failure ensues in the majority of patients. Only a subset of patients develops renal complications due to immune complex glomerulonephritis. Our hypothesis is that there are some host genetic factors that increase susceptibility for inappropriate T cell immune responses leading to persistent immune complex formation against bacterial antigens, leading to severe glomerulonephritis.