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The association of gastrointestinal symptoms and hypertension in persons living with HIV on HAART

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OBJECTIVES/SPECIFIC AIMS: The advent of Highly Active Antiretroviral Treatments (HAART) has allowed HIV-positive individuals to live longer in recent years. This has resulted in a higher incidence of mortalities occurring in these individuals due to cardiovascular pathologies, as opposed to deaths due to HIV. Even with long-term HAART, persons living with HIV (PLWHIV) still exhibit inflammation, which is associated with deleterious cardiovascular outcomes. PLWHIV on HAART have a higher prevalence of hypertension, which is associated with an increased risk of cardiovascular events. Moreover, chronic inflammation has been shown to be related to the translocation of microbes and endotoxins across the gastrointestinal tract. Such microbial translocation (MT) is increased in individuals with digestive disorders and their associated symptoms (e.g., diarrhea, abdominal pain, and nausea). This study aims to explore the pathologies common to both MT-induced inflammation and cardiovascular symptoms by examining the associations between gastrointestinal symptoms and hypertension in PLWHIV on HAART. **METHODS/STUDY POPULATION:** The sample included 351 PLWHIV on HAART. Pre-existing de-identified data were analyzed. Sample demographics included 56.98 % African Americans, 41.31% Caucasians, ages 20–66 years (mean age = 43.65 years), 21% female, 89% male, HIV viral load, CD4 counts. Self-reported data from the Symptom Co-Morbidity Questionnaire and Socio-demographic questionnaire were analyzed with SPSS v.24. **RESULTS/ANTICIPATED RESULTS:** In total, 86 PLWHIV (24.50%) stated that they have hypertension; 39 subjects (45.3%) reported having diarrhea, 30 subjects (34.8%) reported nausea, and 12 (13.9%) reported constipation and vomiting. Among ethnicities with hypertension and gastrointestinal symptoms, African Americans compared with Caucasians had a higher percentage of diarrhea (28% vs. 17%), nausea (21% vs. 11%), constipation (11% vs. 2%), and vomiting (8% vs. 5%). Women compared with men reported a higher percentage of nausea (28% vs. 24%) and constipation (8% vs. 6%). Men compared with women reported a higher percentage of diarrhea (38% vs. 7%) and vomiting (8% vs. 5%). **DISCUSSION/SIGNIFICANCE OF IMPACT:** These data support the need for targeted screening to include both blood pressure and associated gastrointestinal symptoms. Further studies supporting these results may assist practitioners to target treatments that may prevent cardiovascular comorbidities.

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The association of preoperative functional capacity and outcomes for head and neck cancer patients undergoing definitive surgical treatment

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OBJECTIVES/SPECIFIC AIMS: To study the role functional capacity plays in surgical outcomes for head and neck cancers. **METHODS/STUDY POPULATION:** In this single-institution cohort study, we combined preoperative anesthesia assessment information with oncology registry data for newly-diagnosed patients with squamous cell carcinoma of the oral cavity, pharynx, and larynx (HNSCC) treated with definitive surgery at Siteman Cancer Center from 2012 to 2016. Patient-reported exercise capacity was assessed as metabolic equivalents. Metabolic equivalents < 4 was defined as poor functional capacity. The primary outcome measure was overall survival (OS). Kaplan-Meier survival analysis was used to compare the survival of patients with poor functional capacity (PFC) and patients with normal functional capacity (NFC). Cox proportional hazard regression was used to explore the independent prognostic role of functional capacity on overall survival after controlling for other factors. **RESULTS/ANTICIPATED RESULTS:** A total of 671 patients underwent surgical treatment for HNSCC. The average age was 62 years (range: 19–94 years). Majority of the patients were male (n = 481; 72%), White race (n = 589; 88%), and smokers (n = 528; 79%). Of 671 patients, 22% (n = 146) had PFC. Two-year OS rate in PFC patients was 70% compared with 85% in NFC patients (15% difference; 95% CI: 7%–23%). Unadjusted Cox proportional hazard analysis showed that PFC patients had 2.2 times higher risk of death (95% CI: 1.5–3.2) than NFC patients. After adjustment for age at surgery, BMI, preoperative weight loss, comorbidity score, tumor site, and TNM stage the magnitude of the association between functional capacity and OS decreased (aHR = 1.3; 95% CI: 0.88–1.98). **DISCUSSION/SIGNIFICANCE OF IMPACT:** Poor functional capacity is associated with decreased overall survival, but the magnitude of the association, while clinically meaningful, decreases after controlling for other important patient and

tumor factors. Nevertheless, we believe preoperative functional capacity status is an important patient factor to consider when discussing prognosis and attempting risk stratification. We also believe that functional capacity may be associated with 30-day unplanned readmissions and 90-day complications and are currently performing chart review to ascertain this information.

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Thrombotic complications in single ventricle reconstructions for single ventricle physiology congenital heart disease

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OBJECTIVES/SPECIFIC AIMS: Infants with single ventricle congenital heart disease (CHD) who undergo staged surgical reconstruction are among the pediatric patients at highest risk for thrombotic complications. Despite improvements in survival due to medical and surgical advancements, thrombotic complications are common and lead to increased morbidity and mortality, especially during the first two stages of surgical reconstruction. The burden of disease caused by thrombosis is not fully known, and the risk factors associated with thrombosis are not clear. Due to this knowledge gap, prevention of thrombosis with medication, a strategy called thromboprophylaxis, has not been standardized, leading to inadequate prevention of thrombosis. In order to understand the burden of thrombosis and then provide targeted thromboprophylaxis for thrombosis prevention, better characterization of thrombotic complications and the associated factors is needed. **Hypothesis:** I hypothesize that in infants with single ventricle CHD, the incidence of thrombosis will be more frequent after stage I versus stage II reconstruction, despite the type of shunt used. Specific demographic, clinical, and surgical variables will be associated with an increased risk for thrombotic complications, and a model to predict which subset of infants is at increased risk will be developed. **Specific Aim 1:** Characterize the incidence of thrombotic complications at different time points from stage I through stage II of the single ventricle reconstruction (SVR) pathway and determine the demographic, clinical, and surgical factors associated with thrombosis in infants with single ventricle CHD. (1) Determine the incidence of thrombosis in infants with single ventricle CHD. (2) Compare the rate of thrombotic complications between the 2 most commonly used approaches for stage I reconstruction for the group of patients with hypoplastic left heart type of anatomy [modified Blalock-Taussig shunt (MBTS) vs. right ventricle to pulmonary artery shunt (RVPAS)]. (3) Determine the factors (demographic, clinical, and surgical) associated with thrombosis in infants with single ventricle CHD. **Specific Aim 2:** Determine which subset of infants with single ventricle CHD is at increased risk of developing thrombotic complications across the first 2 stages of surgical reconstruction. (1) Test the identified demographic, clinical, and surgical variables including, but not limited to, gestational age, sex, CHD diagnosis, baseline oxygen saturation, stage of reconstruction, shunt type, and other clinical data available in a univariable and multivariable analysis and study their potential interactions to construct a novel risk predictive model specific for single ventricle CHD. **METHODS/STUDY POPULATION:** To address the specific aims, I will utilize data from the SVR clinical trial public use data set. This data set includes a prospective cohort of infants, 0–14 months of age, enrolled from any of the 15 participating clinical centers from the years 2005 to 2009. Inclusion criteria for enrollment were diagnosis of hypoplastic left heart syndrome or related single, morphologic right systemic ventricle anomaly, planned Norwood procedure, and informed consent of parent or legal guardian. No additional subjects outside of this data set will be included. Exclusion criteria were a diagnosis of single, morphologic left ventricle anomaly, preoperative identification of anatomy rendering the MBTS or RVPAS technically impossible, and any other major abnormality or acquired extra-cardiac disorder that could independently affect the likelihood of the subject meeting the primary endpoint. The complication of stroke will be excluded from the analyses of factors associated with thrombosis. The complication of thrombosis as defined in this dataset is a composite of events that include arterial or venous thrombosis, thromboembolism, and pulmonary embolism. The data was collected in such a way that it will not be possible to separate these sub-types of thrombosis. Additional thrombotic events of interest are superior vena cava occlusion and inferior vena cava occlusion. **Specific Aim 1:** Patient data will be extracted from the SVR clinical trial public use dataset to characterize the incidence of thrombotic complications at different time points from stage I through stage II of the SVR pathway and determine the demographic,