

Thirty-five percent of these had significant (>F2) liver fibrosis at baseline and half had elevated ALT (mean 47.5, SD \pm 55 IU/ml). Forty-three percent switched to TAF from another oral antiviral. Most switched due to lack of coverage by health insurance. DISCUSSION/SIGNIFICANCE OF FINDINGS: HOPE is a CHB cohort dedicated to collecting research samples and providing antiviral treatment. It is the foundation for the CHB translational research program at the University of Maryland School of Medicine. The availability of paired viremic and virally suppressed, HIV/CHB, and resolved HBV research samples are strengths of HOPE.

Data Science/Biostatistics/Informatics

17547

Transitions of Care among Patients with Diabetes in the Deep South: Factors Associated with Hospital Readmissions

Cassidi C. McDaniel and Chiahung Chou

Auburn University Harrison School of Pharmacy

ABSTRACT IMPACT: Because diabetes disproportionately affects residents in the Deep South, identifying factors increasing the risk of hospital readmissions unique to this population can translate to tailored interventions and strategies to improve transitions of care and patients' health outcomes. OBJECTIVES/GOALS: Patients with diabetes (PWD) are susceptible to hospital readmissions due to inadequate transitions of care (TOC). To better understand how to improve TOC, the objective of the study is to identify factors associated with readmissions among PWD in Alabama disproportionately affected by diabetes. METHODS/STUDY POPULATION: This retrospective cohort study utilizes electronic health record data from an urban health system in Alabama. The study population includes adults (\geq 18 years old) diagnosed with diabetes who were hospitalized between 2016 and 2020. Women who are pregnant during hospitalization or diagnosed with gestational diabetes are excluded. Patient's index hospitalization is identified with a 3-month washout period preceding admission. The primary outcome is all-cause 30-day readmission. Characteristics are compared between patients with and without readmissions. Factors significantly associated with readmissions are identified with multiple logistic regression, adjusted for potential confounders. RESULTS/ANTICIPATED RESULTS: The sample size is expected to be around 30,000 individual PWD. Anticipated results include estimation of the all-cause 30-day readmission rate experienced by the PWD in Alabama. It is expected that various factors will be associated with either higher or lower odds of readmission, interpreted via odds ratios and 95% confidence intervals. Factors investigated are driven by previously identified risk factors of readmission from the literature, including but not limited to sociodemographic variables, lab values (A1C, glucose, serum albumin, serum sodium, etc.), vital signs (blood pressure), comorbidities, medications, length of stay, insurance coverage, geographic location, and social history. DISCUSSION/SIGNIFICANCE OF FINDINGS: Findings will establish evidence-based knowledge about TOC for PWD in the Deep South, specifically Alabama. Identifying factors associated with readmissions among PWD in Alabama will inform TOC intervention studies tailored to populations in the Deep South to effectively mitigate readmissions.

22566

Identifying metabolic mechanisms linking prenatal acetaminophen exposure to childhood attention-deficit hyperactivity disorder*

Neha S. Anand¹ and Xiaobin Wang²¹Johns Hopkins School of Medicine; ²Johns Hopkins Bloomberg School of Public Health

ABSTRACT IMPACT: This study has implications for understanding early developmental mechanisms of ADHD and for guidelines regarding safe use of acetaminophen during pregnancy. OBJECTIVES/GOALS: Prenatal acetaminophen exposure has been associated with childhood attention-deficit hyperactivity disorder (ADHD), but the underlying mechanism is unknown. This prospective birth cohort study aims to identify linkages between specific metabolites in umbilical cord plasma and the association of prenatal acetaminophen exposure and ADHD. METHODS/STUDY POPULATION: The sample was a subset of the Boston Birth Cohort that included 583 mother-newborn dyads followed at Boston Medical Center from 1998 to 2018. Metabolites were measured from cord plasma collected at birth. Based on existing literature, the analyses focused on candidate metabolites involved in neuroendocrine, inflammation, and oxidative stress pathways. The outcome was physician-diagnosed ADHD between the ages of 3 and 16 years. Exploratory analyses and multiple logistic regressions were used to examine the association of these candidate metabolites with both unmetabolized cord plasma acetaminophen levels and with incident risk of ADHD, adjusting for covariates of maternal and child characteristics. RESULTS/ANTICIPATED RESULTS: Of the 583 children, 257 had ADHD and 326 had neurotypical development. Two promising results have been found thus far. 5-methoxytryptophol (5-MTX), a neuroendocrine molecule which also has antioxidant and immunomodulatory properties, was inversely associated with acetaminophen and ADHD risk. For children below the median cord 5-MTX level, the odds of ADHD were 3.29 (95% CI [1.56, 7.16], $p=0.002$) for the third tertile of acetaminophen compared to the first tertile. This association attenuated among those above the median 5-MTX level: 2.23 (95% CI [0.98, 5.21], $p=0.059$), suggesting a protective effect. Tryptophan, an essential amino acid and precursor of serotonin, was positively associated with acetaminophen and ADHD. Next steps include mediation analysis with tryptophan and analyses for other metabolites. DISCUSSION/SIGNIFICANCE OF FINDINGS: This study identifies cord plasma metabolites as possible modifiers or mediators linking prenatal acetaminophen exposure and childhood ADHD, which may offer insight into a mechanistic pathway. The study findings have implications for FDA, clinical, and public health guidelines regarding safe use of acetaminophen during pregnancy.

28201

A cross-sectional study of dietary patterns and nutrient intakes in the oldest old*

Ashley C. Flores¹, Yi-Hsuan Liu¹, Xiang Gao¹, G. Craig Wood², Brian A. Irving³, Christopher D. Still², Gordon L. Jensen⁴ and Diane C. Mitchell¹¹The Pennsylvania State University; ²Geisinger Health System;³Pennington Biomedical Research Center; ⁴University of Vermont

ABSTRACT IMPACT: Understanding dietary patterns and nutrient intakes of the aging population may help address concerns and

dietary guidelines regarding their nutritional needs. **OBJECTIVES/GOALS:** The objective of this study is to test the hypothesis that a healthy dietary pattern in the oldest old (aged 80 years and older) is related to greater compliance with dietary recommendations and better nutrient intake profiles. **METHODS/STUDY POPULATION:** We conducted a cross-sectional study of 122 participants aged 82 to 97 years old from the Geisinger Rural Aging Study (GRAS) cohort in rural Pennsylvania (n = 56 men and 66 women). The main outcome measures of the investigation were the daily nutrient intakes and food group intakes evaluated from the average of three 24-hour dietary recalls. The dietary patterns were determined by cluster analysis from 28 food groups. Diet quality and adherence to the Dietary Guidelines for Americans was assessed by the Healthy Eating Index (HEI)-2015 and the Dietary Screening Tool (DST). Recommended intakes were determined by the Recommended Dietary Allowances (RDAs) or Adequate Intakes (AIs). **RESULTS/ANTICIPATED RESULTS:** Less than 50% of participants met the dietary recommended intakes for vitamins D, E, K, B6, dietary fiber, zinc, potassium, and calcium. The more-nutrient-dense cluster was characterized by higher intakes of fruits and vegetables. The less-nutrient-dense cluster was characterized by higher intakes of foods including desserts and sweets. After adjusting for age, sex, and energy intake, participants in the more-nutrient-dense dietary pattern had a higher intake of vitamins A, D, K, C, fiber, and potassium ($p < 0.05$ for all). After adjusting for age and sex, participants in the more-nutrient-dense pattern had better diet quality assessed by the (HEI)-2015 ($p < 0.001$) and DST ($p = 0.006$). **DISCUSSION/SIGNIFICANCE OF FINDINGS:** Among the oldest old, many participants were found to have nutrient intakes lower than the recommended levels for fundamental nutrients suggesting that dietary guidance in addition to a dietary pattern more aligned with dietary guidelines may be beneficial for supporting healthy aging.

43412

Exploring the link between allostatic load and mortality risk in U.S. Black men of different age groups*

Duane J. Wallace II, MPH¹ and Roland J. Thorpe, Jr., PhD

¹Johns Hopkins University School of Medicine; ²Johns Hopkins Bloomberg School of Public Health

ABSTRACT IMPACT: This research study will provide evidence for public policy, systemic changes, and other interventions to address the adverse impacts of prolonged stress exposure experienced by young Black men. **OBJECTIVES/GOALS:** Previous studies have demonstrated a strong association between allostatic load (i.e., stress-induced cumulative biological risk) and mortality in the Black American population. The aim of this study is to examine the association between allostatic load and mortality in Black men and to determine if the relation varies by age. **METHODS/STUDY POPULATION:** Data from the third National Health and Nutritional Examination Survey (NHANES III, 1988-1994), linked to the 2015 National Death Index Public Release File, will be used for Black male adults 18 years or older. Allostatic load score includes nine biomarkers: albumin, C-reactive protein, total cholesterol, high-density lipoprotein, hemoglobin A1C, waist-to-hip ratio, systolic blood pressure, diastolic blood pressure, and pulse rate. The number of variables for which the participant's scores fall in the quartile of highest clinical risk are added together to create a summary score. Cox proportional-hazard analyses is employed to estimate the associations between allostatic load and all-cause mortality for the total

sample and stratified by age, adjusting for selected characteristics. **RESULTS/ANTICIPATED RESULTS:** We hypothesize that the association of allostatic load with mortality will be greater among younger, compared to older, Black men. Young Black men (ages 25-44) are at particular risk of adverse impacts of chronic stress and allostatic load, due to their experience of chronic discrimination, systemic racism, racial battle fatigue, and mundane, extreme, environmental stress. Furthermore, the allostatic load-mortality association may be attenuated for older Black men due to a survival effect. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** If the association between allostatic load score and mortality is stronger in young Black men, it would provide evidence for early identification of a group with high risk of premature mortality, and for public policy, systemic changes, and other interventions to address the adverse impacts of prolonged stress exposure experienced by young Black men.

49156

Effects of Race and Demographics on Use of Physical Restraints in the Emergency Department

Ambrose H Wong, MD, MSEd, Travis Whitfill, MPH, Emmanuel C. Oluabunwa, MD, MBA, Jessica M. Ray, PhD, James D. Dziura, PhD, Steven L. Bernstein, MD and Richard Andrew Taylor, MD, MHS
Department of Emergency Medicine, Yale School of Medicine

ABSTRACT IMPACT: Within three EDs in a regional health system in Connecticut, African American race, male gender, non-Hispanic ethnicity, lack of private insurance, and homelessness were associated with significant odds of being physically restrained during a visit. **OBJECTIVES/GOALS:** Agitated patient encounters in the Emergency Department (ED) are on the rise, and physical restraints are used to protect staff and prevent self-harm. However, these are associated with safety risks and potential stigmatization of vulnerable individuals. We aim to determine factors that are associated with odds of being restrained in the ED. **METHODS/STUDY POPULATION:** We conducted a retrospective cohort analysis of all patients (≥ 18 yo) placed in restraints during an ED visit to three hospitals within a large tertiary health system from Jan 2013-Aug 2018. We undertook descriptive analysis of the data and created a generalized linear mixed model with a binary logistic identity link to model restraint use and determine odds ratios for various clinically significant demographic factors. These include gender, race, ethnicity, insurance status, alcohol use, illicit drug use, and homelessness. Our model accounted for patients nested across the three EDs and also accounted for multiple patient visits. **RESULTS/ANTICIPATED RESULTS:** In 726,417 total ED visits, 7,090 (1%) had associated restraint orders. Restrained patients had an average age of 45, with 64% male, 54% Caucasian and 29% African American. 17% had private insurance, 36% endorsed illicit substances, 51.4% endorsed alcohol use and 2.3% were homeless. African Americans had statistically significant odds of being restrained compared to Caucasians with adjusted odds ratio (AOR) of 1.14 (1.08,1.21). Females (AOR 0.75 [0.71, 0.79]) had lower odds of being restrained compared to males while patients with Medicaid (AOR 1.57 [1.46, 1.68]) and Medicare (AOR 1.70 [1.57, 1.85]) had increased odds compared to the privately insured. Illicit substance use (AOR 1.55 [1.46, 1.64]), alcohol use (AOR 1.13 [1.07, 1.20]) and homelessness (AOR 1.35 [1.14, 1.16]) had increased odds of restraint use. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** We showed statistically significant effects of patient demographics on odds of restraint use in the ED. The increased odds based on race,