

Health Equity & Community Engagement

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Impact of Preeclampsia on the Incidence of Breast Cancer in the Black Women's Health Study

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ABSTRACT IMPACT: This study will be the first to explore the relationship between preeclampsia and breast cancer risk using the largest cohort of Black women in the US, and it will guide future research and potentially inform clinical practice to reduce breast cancer disparities in this population. **OBJECTIVES/GOALS:** Black women are disproportionately impacted by preeclampsia. This disorder induces hormonal changes that may contribute to diseases such as breast cancer. However, there is a lack of clear data on the relationship between preeclampsia and breast cancer, and few previous studies included Black women. This study will work to fill this knowledge gap. **METHODS/STUDY POPULATION:** We prospectively assessed the association between preeclampsia during pregnancy and risk of breast cancer in 43,040 parous women in the Black Women's Health Study, a nationwide cohort of Black women who were ages 21 -69 at enrollment in 1995. Through 2017, we confirmed 1,968 incident diagnoses of invasive breast cancer. Approximately 6% of parous women reported a diagnosis of preeclampsia; characteristics of the population at baseline are shown in Table 1. We used multivariable Cox proportional hazards models to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for risk of breast cancer overall. We used age as the time scale and adjusted for breast cancer risk factors including parity, age at first birth, age at menarche, and body mass index (BMI) at age 18. **RESULTS/ANTICIPATED RESULTS:** Compared to parous women without a history of preeclampsia, women with a history of preeclampsia in any pregnancy were not at an increased risk of breast cancer overall (HR 0.98; 95% CI 0.81, 1.18). These preliminary results suggest that history of preeclampsia is not an important risk factor for breast cancer overall in Black women. Our analyses are ongoing to evaluate whether the association may vary by estrogen receptor status or within subgroups of the population defined by age, menopausal status, BMI, and time since last pregnancy. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** Findings from this study will provide unprecedented knowledge on the association between hypertensive diseases during pregnancy and incidence of breast cancer in the largest cohort of Black women in the U.S.

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Use of an Outcomes Continuum to Describe Disparities in COVID-19: Data from the OneFlorida Research Consortium

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ABSTRACT IMPACT: Identifying differential COVID-19 progression across the disease continuum may help policymakers and service providers better identify or predict gaps in services and resources

and develop precision strategies to support COVID-19 patients where the need is mostly needed. **OBJECTIVES/GOALS:** Single institution studies have documented COVID-19 disproportionately affected US racial and ethnic minority groups compared to Whites. However, few population-wide data studied severity and death in multiracial populations. We aim to examine the current disparity in the COVID-19 continuum, including hospitalizations, severity, and death. **METHODS/STUDY POPULATION:** Data on 67,094 laboratory documented COVID-19 cases nested from the state-wide 'OneFlorida' research consortium through August 3, 2020, were assessed to decide differences and disparities in COVID-19 outcomes. A COVID-19 outcome continuum outlining the proportions of cases transitioning from diagnosis to death was constructed (Figure 1). OneFlorida partners provide health care to more than 40% of Floridians in the nation's third-largest and very diverse state. OneFlorida partners encompass hospitals, practice/clinic settings, and physicians, which provide care for 15 million patients across all of Florida's 67 counties. It is part of the Patient-Centered Outcomes Research Institute (PCORI). **RESULTS/ANTICIPATED RESULTS:** Among cases, 25,443 (37.9%) were non-Hispanic Whites, 11,709 (17.5%) were non-Hispanic Blacks, and 16,119 (24.0%) were Hispanics. Among COVID-19 patients, Blacks and Hispanics had a higher frequency of emergency department (ED) visits (45.7% and 46.0%, respectively), whereas admission rates were higher in Blacks (15.6%) and Whites (15.9%) than in Hispanics (11.5%). Blacks had the highest rates of intubation (3.6%) and in-hospital deaths (2.7%) compared to Whites (2.5% and 2.3%, respectively) and Hispanics (1.3% and 1.4%, respectively), Figure 1. When rates were indexed to the state census data, Blacks had the worst rates across the disease continuum (infection to death). In comparison, Hispanics had higher rates of ED visits but lower rates of intubation and death, Table 1. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** Outcomes continuum is a useful tool at an individual-level to assess care outcomes and at population-level as a framework to analyze the proportion of population with COVID-19 that progress to each successive disease stage. This will help policymakers to better identify gaps in services and develop precision strategies to support COVID-19 patients.

40339

Characterizing the impact of social and structural determinants of health on racial and ethnic disparities in COVID-19 outcomes using electronic health record (EHR) data

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ABSTRACT IMPACT: This study will help to characterize the root causes of racial and ethnic disparities in viral respiratory outbreaks and determine the extent to which this is unique to the COVID-19 pandemic, so that preventative interventions can be designed for future pandemics and epidemics. **OBJECTIVES/GOALS:** The causes of racial and ethnic disparities in COVID-19 clinical outcomes are multifactorial but include social inequity driven by structural racism. This study seeks to characterize the patterns of these disparities by linking patient-level EHR data with population-level socio-demographic measures. **METHODS/STUDY POPULATION:** This retrospective review of adult patients tested for SARS-CoV-2 in the UHealth System will compare rates of COVID-19 infection, hospitalization, in-hospital mortality and 30-day mortality across

racial and ethnic groups. Race and ethnicity are determined by patient self-report in the EHR. Univariable and multivariable regression analyses will be used to assess the association of these outcomes with socio-demographic factors. Potential confounders that will be adjusted for include Charlson Co-morbidity Index, disease severity and likelihood of readmission. Using chi-square tests, we will assess differences in the race/ethnicity distributions between this cohort and those from the 2009 H1N1 Pandemic and the 2018-19 influenza season. RESULTS/ANTICIPATED RESULTS: Of the first 459 patients hospitalized for COVID-19 in March and April 2020, race/ethnicity were: 194 Hispanic (42.3%), 104 non-Hispanic Black (22.6%), 83 non-Hispanic white (18.1%), 43 Asian (9.4%), and 35 other or unknown race (7.6%). There were significant differences in the race/ethnicity distribution compared to the cohort of patients hospitalized for viral respiratory infection during the 2018-19 influenza season ($n=254$, $p < 0.001$): 58 Hispanic (22.8%), 52 non-Hispanic black (20.4%), 116 non-Hispanic white (45.7%), 15 Asian (6%), and 13 other or unknown race (5.1%). Our anticipated results include further adjusted analyses and comparisons to the 2009 pandemic. We will compare COVID-19 prevalence and outcomes by race/ethnicity with other viral infection outbreaks, adjusting for confounders. DISCUSSION/SIGNIFICANCE OF FINDINGS: Initial hospitalizations for COVID-19 at our institution are notable for a high proportion of Hispanic patients and smaller proportion of non-Hispanic whites, in contrast to the prior year. Our study will demonstrate the extent to which racial and ethnic disparities are typical in viral respiratory outbreaks, which can guide future interventions.

Translational Science, Policy, & Health Outcomes Science

10351

Antibiotic Use for Respiratory Syncytial Virus in the Middle East: A Surveillance Study in Hospitalized Jordanian Children

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ABSTRACT IMPACT: Antibiotic stewardship guidelines should consider the barriers clinicians in low- and middle-income countries face due to limited biomarkers for determining the etiologic pathogen for viral infections like respiratory syncytial virus (RSV) that have a similar presentation to bacterial infections. OBJECTIVES/GOALS: We aimed to evaluate antibiotic administration practices in children who were hospitalized at a government-run hospital in Amman, Jordan, where point-of-care testing is limited. We hypothesized those with RSV are more likely to be administered antibiotics during their hospitalization than children without RSV. METHODS/STUDY POPULATION: We conducted a cross-sectional cohort study in Jordanian children hospitalized with history of acute respiratory symptoms and/or fever from 2010 to 2013. Admitting diagnoses were dichotomized into suspected viral (e.g., bronchiolitis) and bacterial-like infection (e.g., sepsis, pneumonia). Stratifying by sex, we performed a polytomous logistic regression adjusting for age, underlying medical condition, maternal education, and region of residence to estimate prevalence odds ratios (PORs) and 95% confidence intervals for macrolides, broad-, and narrow-spectrum

antibiotics during hospitalization. Sensitivity and specificity of admission diagnoses and laboratory results were compared. RESULTS/ANTICIPATED RESULTS: Children with a suspected viral-like admission diagnosis, compared to those with suspected bacterial-like, were 89% less likely to be administered a narrow-spectrum antibiotic (POR: 0.11; $p < 0.001$). There were slight differences by sex with males having a lower prevalence than females of narrow-spectrum or broad-spectrum antibiotic administration; but they had a higher prevalence of macrolide administration. Overall, children with RSV had a 30% probability (sensitivity) of being assigned to a suspected viral infection; whereas RSV-negative children had an 85% probability (specificity) of being assigned to a suspected bacterial infection. DISCUSSION/SIGNIFICANCE OF FINDINGS: Children with a suspected viral-like infection were less likely to receive an antibiotic; however, when evaluating the accuracy of admission diagnosis to RSV-laboratory results there were considerable misclassifications. These results highlight the need for developing antibiotic interventions for Jordan and the rest of the Middle East.

11010

The diagnostic accuracy of procalcitonin for urinary tract infection in hospitalized older adults

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ABSTRACT IMPACT: This work seeks to improve the diagnostic accuracy of urinary tract infection among hospitalized older adults and mitigate antibiotic overuse in this population. OBJECTIVES/GOALS: Primary objective: To determine the diagnostic accuracy of serum procalcitonin (PCT) for the diagnosis of symptomatic urinary tract infection (UTI) in hospitalized older adults. Secondary objectives: (1) To develop a predictive model for the diagnosis of UTI; (2) To determine the ability of PCT in discriminating between lower and upper UTI. METHODS/STUDY POPULATION: We performed a prospective observational cohort study of 228 participants from a single institution. The study population included older adults (age 65 or older) who were hospitalized on the general medicine wards with a possible or suspected urinary tract infection (UTI). Upon obtaining informed consent, serum procalcitonin (PCT) was processed on remnant blood samples collected from the emergency department. We performed additional data collection through the electronic health record to obtain demographic information, clinical characteristics, and other laboratory and imaging results. Clinicians were surveyed for the diagnosis of UTI and charts were adjudicated by independent reviews of the medical record by infectious diseases experts to determine the primary endpoint of symptomatic UTI. RESULTS/ANTICIPATED RESULTS: We anticipate that serum procalcitonin predicts the presence of symptomatic urinary tract infection (UTI) by demonstrating an area under the receiver operating characteristic curve of at least 0.85. A predictive model developed in our cohort for the diagnosis of symptomatic UTI will be improved by the addition of serum PCT to the prediction model. Finally, we anticipate the serum PCT will accurately discriminate between upper and lower UTI. DISCUSSION/SIGNIFICANCE OF FINDINGS: Diagnosis of symptomatic UTI in hospitalized older adults is challenging and may lead to overuse of antibiotics and the development of antibiotic resistance in this vulnerable patient population. Serum procalcitonin offers a novel diagnostic strategy