sham stimulation group, with all other study procedures being the same in both groups. Participants will completed 2 days of baseline testing, 5 consecutive days of brain stimulation during speech training, 2 days of post-testing, and a 1-month follow up. All outcome measures will be completed immediately before and after the 5 days of brain stimulation, as well as at follow-up. as of submission, 10 subjects have completed the study. Data collection is ongoing. RESULTS/ANTICIPATED RESULTS: Expected results. Questions this study aims to answer: 1) Does a more intensive training period lead to decreased stuttering? We expect that both groups will show improvements in speech fluency immediately after training. We expect that those in the active group will continue to exhibit improved speech fluency at 1 month follow up. 2) Does a more intensive training period lead to changes in brain activity? We expect that both groups will exhibit increased activity in auditory/motor regions immediately after training. We expect that the active group will continue to exhibit an increase in activity in these regions at 1 month follow up. DISCUSSION/SIGNIFICANCE OF IMPACT: This is the first RCT study involving brain stimulation in adults who stutter. We expect to provide preliminary evidence for the effectiveness of tDCS as an augmentative agent for increased speech fluency in adults who stutter during a brief, intensive training paradigm. We also expect to be able to provide information on the effects of tDCS on brain activity in speech and auditory-motor regions of the brain. The findings will add to the growing body of literature suggesting that developmental stuttering is a neurodevelopmental disorder with roots in timing and rhythmic aspects of speech motor control and auditory-motor integration.

3096

Estimation of the Prevalence of Cesarean Delivery for the Extremely Preterm Fetus in Breech Presentation

Alissa Dangel[1], Janis L Breeze[1], Gordon Huggins[1], Michael House[2] and Kumaran Kolandaivelu[3]
[1]Tufts University; [2]Tufts Medical Center and [3]MIT

OBJECTIVES/SPECIFIC AIMS: Cesarean delivery is typically performed in the extremely preterm period (23 to 28 weeks) when the fetus is in breech presentation to avoid the potential risk of head entrapment by an insufficiently dilated cervix during a vaginal delivery. Assessment of the prevalence of extremely preterm breech cesarean delivery would help to appropriately guide future clinical interventions designed to increase the feasibility of vaginal delivery for this sub-group of patients. METHODS/STUDY POPULATION: We performed a cross-sectional study of the 2106 U.S. National Vital Statistics birth certificate database to estimate the prevalence of cesarean deliveries performed during the period of gestation from 23 to 28 weeks with a fetus in breech presentation. RESULTS/ANTICIPATED RESULTS: An analysis of the total births in the 2016 registry (3,945,875) was performed. The gestational age was limited to the target range of 23 0/7 to 27 6/7 weeks. Multiple gestation deliveries were excluded. This yielded 16,092 births of which 4,849 were noted to have breech presentation. The proportion of cesarean deliveries performed for singleton breech fetuses at this gestational range was 87% (4,203/4,849). DISCUSSION/SIGNIFICANCE OF IMPACT: The probability of undergoing a cesarean delivery for an extremely preterm fetus in breech presentation is notably higher (87%) when compared to an overall cesarean delivery rate of 31.9%. Specific interventions to allow for vaginal delivery in this particular sub-group of the obstetric population would be useful to reduce maternal morbidity by increasing vaginal deliveries. Future work will attempt to address innovative solutions to prevent head entrapment by the cervix in this particular population and ultimately avoid cesarean delivery.

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Evaluation of risk factors for progression from carbapenem-resistant Enterobacteriaceae bacteriuria to an invasive infection

Jessica Howard-Anderson[1], Rebekah Blakney[2], Christopher Bower[1], Mary Elizabeth Sexton[1], Sarah W. Satola[1], Monica M. Farley[1] and Jesse T. Jacob[1]
[1]Emory University and [2]Georgia Emerging Infections Program

OBJECTIVES/SPECIFIC AIMS: To describe the epidemiology of patients with carbapenem-resistant Enterobacteriaceae (CRE) bacteriuria in metropolitan Atlanta, GA and to identify risk factors associated with progression to an invasive CRE infection. We hypothesize that having an indwelling urinary catheter increases the risk of progression. METHODS/STUDY POPULATION: The Georgia Emerging Infections Program (EIP) performs active population- and laboratory-based surveillance to identify CRE isolated from a sterile site (e.g. blood) or urine among patients who reside in the 8-county metropolitan Atlanta area (population ~4 million). The Georgia EIP performs a chart review of each case to extract data on demographics, culture location, resistance patterns, healthcare exposures, and other underlying risk factors. We used a retrospective cohort study design to include all Georgia EIP cases with Escherichia coli, Klebsiella pneumoniae, Klebsiella oxytoca, Enterobacter cloacae, or Klebsiella (formerly Enterobacter) aerogenes, adapting the current EIP definition of resistance to only include isolates resistant to meropenem, imipenem or doripenem (minimum inhibitory concentration ≥ 4) first identified in a urine culture from 8/1/2011 to 7/31/2017. Patients with CRE identified in a sterile site culture prior to a urine culture will be excluded. Within this cohort, we will identify which patients had a subsequent similar CRE isolate identified from a sterile site between one day and one year after the original urine culture was identified (termed "progression"). CRE isolates will be defined as similar if they are the same species and have the same carbapenem susceptibility pattern. Univariable analyses using T-tests or other nonparametric tests for continuous variables, and Chi-square tests (or Fisher's exact tests as appropriate) for categorical variables will compare patient demographics, comorbidities and presence of invasive devices including urinary catheters between patients who had progression to an invasive infection and those who did not have progression. Covariates with a p-value of < 0.2 will be eligible for inclusion in the multivariable logistic regression model with progression to invasive infection as the primary outcome. All statistical analyses will be done in SAS 9.4. RESULTS/ANTICIPATED RESULTS: From 8/1/2011 to 7/31/2017 we have preliminarily identified 546 patients with CRE first identified in urine, representing an annual incidence rate of 1.1 cases per 100,000 population. Most cases were K. pneumoniae (352, 64%), followed by E. coli (117, 21%), E. cloacae (48, 9%), K. aerogenes (18, 3%), and K. oxytoca (11, 2%). The mean patient age was 64 +/− 18 years and the majority (308, 56%) were female. Clinical characterization through chart review was available for 507 patients. The majority of the patients were black (301, 59%), followed by white (166, 33%), Asian (12, 2%), and other or unknown race (28, 6%). 466 (92%) patients had at least one underlying comorbid condition with a median Charlson Comorbidity Index of 3 (IQR 1-5). 460 (91%) infections were considered healthcare-associated (366 community-onset

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and 94 hospital-onset), while 44 (9%) were community-associated. 279 (55%) patients had a urinary catheter within the two days prior to the CRE culture. The analysis of patients who progress to an invasive CRE infection, including the results of the univariable and multivariable analyses assessing risk factors for progression is in progress and will be reported in the future. DISCUSSION/SIGNIFICANCE OF IMPACT: In metropolitan Atlanta, the annual incidence of CRE first isolated in urine was estimated to be 1.1 cases per 100,000 population between 2011 and 2017, with the majority of the cases being K. pneumoniae. Most patients had prior healthcare exposure and more than 50% of the patients had a urinary catheter. Our anticipated results will identify risk factors associated with progression from CRE bacteriuria to an invasive infection with a specific focus on having a urinary catheter, as this is a potentially modifiable characteristic that could be a target of future interventions.

3465

EXAMINING THE EFFECTS OF CHILDHOOD TRAUMA ON ADULT ALCOHOL CONSUMPTION: DOES RACE AND/OR SEX MATTER?

Nia Byrd[1], Bethany Stangl, Melanie Schwandt, Mehdi Farokhnia, Lorenzo Leggio and Vijay Ramchandani
[1]National Institutes of Health

OBJECTIVES/SPECIFIC AIMS: There has been substantial research showing that there are race and sex differences on alcohol use. Similarly, race and sex disparities are also seen in a variety of different factors that impact drinking behaviors and other health outcomes. One of these factors of interest is Adverse Childhood Experiences (ACEs) which is associated with an increased risk for excessive alcohol use and the harmful effects of drinking. Several studies have shown that racial minorities and females have a greater risk of ACEs, which may be partly related to various structural factors (i.e. poverty) and social norms. Although there has been a substantial amount of research done on ACEs, very few studies have looked at how their interaction with race and sex can influence alcohol-related behaviors. METHODS/STUDY POPULATION: 1,509 participants who self-identified as either Black or White were recruited through a screening protocol at the NIAAA where they completed a series of questionnaires. We categorized the participants into two groups based on the Structured Clinical Interview for DSM-IV disorders: Alcohol Dependent individuals (N=921) with either a past and/or current diagnosis and Non-dependent individuals (N=588). ACEs exposure was assessed using the Childhood Trauma Questionnaire (CTQ). We looked at both total score and the 5 subscales: emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect. Drinking behaviors were assessed using a 90-day Timeline Followback interview and the Alcohol Use Disorder Identification Test (AUDIT). The non-dependent sample was 63% White and 55% male while the alcohol dependent sample was 47% White and 70% male. We tested the interaction effects using ANOVA. RESULTS/ANTICIPATED RESULTS: In the ND sample, there were significant race*sex*ACEs effects for average drinks per day with CTQ total score ($P = 0.007$), physical abuse ($P = 0.005$), and physical neglect ($P = 0.003$). There was also a 3-way interaction with physical neglect on heavy drinking days ($P = 0.039$) and a 2-way race*ACEs interaction on AUDIT total with physical abuse ($P = 0.048$). In the AD sample, there were significant 2-way race*ACEs interactions for three drinking outcomes: heavy drinking days with physical neglect ($P = 0.009$), AUDIT-Harmful Use subscore with CTQ total score ($P = 0.028$) and physical neglect ($P = 0.001$), AUDIT-Total score with CTQ total score ($P = 0.007$), physical abuse ($P = 0.042$), sexual abuse ($P = 0.024$), and physical neglect ($P = 0.003$). There were also 3-way interactions for AUDIT-Harmful use ($P = 0.013$) and AUDIT-Total scores ($P = 0.011$) with emotional abuse. DISCUSSION/SIGNIFICANCE OF IMPACT: Our results indicate that there are both 2-way (race*ACEs) and 3-way (race*sex*ACEs) interaction effects on alcohol consumption and the related negative effects for both non-dependent and dependent samples. There were no sex*ACEs interaction effects in either sample implying that race may play a bigger role in differentiating drinking outcomes by ACEs across males and females. However, contrary to our expectations, race seemed to be protective factor for Black participants against both alcohol consumption and the negative effects despite having higher rates of ACEs exposure. Future analyses will explore personality measures as potential mediators of the relationship between ACEs and alcohol use. Also, analyses will look to see if there are any behavioral factors that may contribute to resiliency among minority populations.

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Feasibility, Acceptability, and Appropriateness of an Insertable Vaginal Cup to Manage Urinary Incontinence Among Women with Obstetric Fistula in Ghana: A Mixed Methods Study

Nessa E Ryan
New York University - H+H Clinical and Translational Science Institute

OBJECTIVES/SPECIFIC AIMS: 1. To assess feasibility (efficacy, safety, acceptability) of the menstrual cup for managing urinary incontinence among women with obstetric fistula 2. To examine pre-implementation facilitators and barriers (including appropriateness) among additional stakeholders METHODS/STUDY POPULATION: Sequential explanatory mixed methods study whereby repeated measures clinical trial results are explained by subsequent interviews with additional women with OF on coping and stigma and other stakeholders on perceptions of fistula self-management. RESULTS/ANTICIPATED RESULTS: Of the 32 patients screened, 11 were eligible (100% consent rate). At baseline, mean (±SD) leakage in ml was 63.2 (±49.2) (95% CI: 30.2-96.3) over two hours, while the mean leakage over two hours of use of the cup was 16.8 (±16.5) (95% CI: 5.7-27.9). The mean difference of 46.4 (±52.1) ml with use of the cup (95% CI: 11.4-81.4) was statistically significant ($p = 0.02$). With the cup, women experienced an average 61.0% (±37.4) (95% CI: 35.9-86.2) leakage reduction, a difference 10/11 users (91.0%) perceived in reduced leakage. One participant, reporting four previous surgical attempts, experienced a 78.7% leakage reduction. Acceptability was high–women could easily insert (8/11), remove (8/11), and comfortably wear (11/11) the cup and most (10/11) would recommend it. No adverse effects attributable to the intervention were observed on exam, although some women perceived difficulties with insertion and removal. Data collection tools were appropriate with slight modification advised. Interviews highlighted that women were already using various active coping and resistance strategies but lacked access to tools to support coping. Additional stakeholders reported the innovation was a simple, low-cost device that is an appropriate fit with ongoing fistula programming. Pre-implementation facilitators include the clear relative advantage to existing self-management strategies, the potential to build upon existing partnerships to implement, and a tension for change to

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