worsening of cervical disease. OBJECTIVES/GOALS: We previously reported that persistence/progression of cervical intraepithelial neoplasia-2 (CIN2) was uncommon in women living with HIV (WLH) from the Women's Interagency HIV Study (WIHS, now MWCCS). Here we examined additional factors that may influence CIN2 natural history. METHODS/STUDY POPULATION: A total of 337 samples from 94 WLH with a confirmed CIN2 diagnosis were obtained from the MWCCS. 42 cervicovaginal HPV types and 34 cervicovaginal cytokines/chemokines were measured at CIN2 diagnosis (94 samples) and 6-12 months prior to CIN2 diagnosis (79 samples). Covariates, including CD4 count and vaginal pH, were abstracted from core MWCCS visits. Logistic regression models were used to explore CIN2 regression (CIN1, normal) vs. persistence/progression (CIN2, CIN3). Log rank tests, Kaplan Meier method, and Cox regression modeling were used to determine CIN2 regression rates. RESULTS/ANTICIPATED RESULTS: The most prevalent HPV types were HPV54 (21.6%) and 53 (21.3%). 33 women (35.1%) had a subsequent CIN2/CIN3 diagnosis (median 12.5 years follow-up). Each additional hr-HPV type detected at the pre-CIN2 visit associated with increased odds of CIN2 persistence/progression (OR 2.27, 95% CI 1.15, 4.50). Higher vaginal pH (aOR 2.27, 95% CI 1.15, 4.50) and bacterial vaginosis (aOR 5.08, 95% CI 1.30, 19.94) at the CIN2 diagnosis visit associated with higher odds of CIN2 persistence/progression. Vaginal pH >4.5 at CIN2 diagnosis also associated with unadjusted time to CIN2 persistence/progression (log rank p=0.002) and a higher rate of CIN2 persistence/progression (adjusted hazard ratio [aHR] 3.37, 95% CI 1.26, 8.99). Cervicovaginal cytokine/chemokine levels were not associated with CIN2 persistence/progression. DISCUSSION/SIGNIFICANCE OF FINDINGS: We found relatively low prevalence of HPV16/18 in this cohort. Elevated vaginal pH at the time of CIN2 diagnosis may be a useful indicator of CIN2 persistence/progression and the rate of persistence/progression.

92180

Prevalence of Clostridioides difficile strains found in Texas soil

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ABSTRACT IMPACT: This work investigates C. difficile strains in soil as a potential exposure for gut colonization and community-acquired infection of C. difficile. OBJECTIVES/GOALS: Identifying environmental sources of C. difficile can inform how non-hospital reservoirs can potentially contribute to C. difficile exposure and subsequent gastrointestinal colonization. The objective of the study was to identify C. difficile and toxin genes across various soil sources. METHODS/STUDY POPULATION: This was a cross-sectional study utilizing soil samples obtained throughout Texas, USA. All samples were collected between August and November of 2019 and 2020. Samples were taken from human and animal high contact areas, such as recreational parks. Samples were stored at -80oC until processing. DNA extractions were performed using the DNeasy Powersoil Pro Kit (Qiagen) per manufacturer's instructions. Real-time PCR was also performed on extracted DNA using the Microbial DNA qPCR Multi-Assay Kit for Clostridium difficile Pathogenicity (Qiagen) for the identification of C. difficile, toxin A (TcdA), and toxin B (TcdB) genes. RESULTS/ANTICIPATED RESULTS: A total of 137 soil samples including dry dirt, sand, and wet soil near water sources were collected and processed for the presence of C. difficile. These included samples from parks and trails (42.3%), water sources (36.5%), and other public spaces (21.2%). C. difficile was identified in 59 (43.1%) soil samples: 6 (4.4%) with Toxin A and 2 (1.5%) with toxin B production. C. difficile was most prevalent among samples taken from parks and trails (50.0%), followed by other public spaces (48.3%), and water sources (32.0%). The median (IQR) Cq value for the C. difficile gene was 39.24 (33.45-40.47) among samples that tested positive. DISCUSSION/SIGNIFICANCE OF FINDINGS: We identified a high prevalence of Clostridioides difficile in soil samples, though toxin gene detection prevalence was low. Future studies will analyze other sources, including water and varying surface samples to obtain a comprehensive view of C. difficile in the environment.

Clinical Trial

44613

Plan for a Retrospective Evaluation of a Multi-Modal Weight-centric Prediabetes Intervention

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ABSTRACT IMPACT: By demonstrating the feasibility of a multimodal, interdisciplinary intervention for prediabetes, the current project aims to provide a template for the prevention of diabetes and associate comorbid conditions. OBJECTIVES/GOALS: To determine if a multi-modal, interdisciplinary intervention delivered to a group of prediabetic patients will result in reduced rates of diabetes progression. This project is a retrospective evaluation that will exam the feasibility and possibly efficacy of this intervention. METHODS/STUDY POPULATION: We will enroll 50 participants for the clinic, aged 21-60 inclusive. Patients will have a Body Mass Index >27kg/m2 with a diagnosis of prediabetes. Patients must be non-pregnant, using approved contraception, and agree to not become pregnant for 1 year after enrollment. After enrollment, the initial treatment period is for 1 year and includes a 12 week low calorie diet plan, a 6-month intensive behavioral and lifestyle modification plan followed by a 6 month behavior reinforcement extension. Weight management medications may be used if appropriate for the patient from a clinical perspective during the 6-month intensive behavioral/lifestyle modification. RESULTS/ANTICIPATED RESULTS: It is anticipated that there will be decreased weight with a mean weight loss goal of approximately >10%. Furthermore, it is expect that there will be improvement of other markers of metabolic disease. These include improvement of lipid values (LDL-C, HDL-C, Triglycerides, Total Cholesterol) as well as blood pressure with expected blood pressures of below 130/80 in greater than 50% of participants. Finally, It is expected that 50% or greater participants will have improvement of glycemic control. It is anticipated that greater than 50% of participants will have improvement of glycemic control and achieve normoglycemia. These values will be determined based upon fasting glucose or A1c. DISCUSSION/SIGNIFICANCE OF FINDINGS: The significance of this intervention is enormous. By demonstrating feasibility in this trial, we can work toward both assessing efficacy and possibly dissemination of this model program. If these interventions provide durable changes at scale, this could help slow the epidemic of obesity and obesity related comorbid conditions.

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