individuals, PPV was lower among those completing vaccination (12% vs. 16% for incomplete vaccination; p = 0.04) and among those initiating vaccination at <21 years of age (9% vs 26% for 21+y; p<0.0001). DISCUSSION/SIGNIFICANCE OF IMPACT: Among a population with low HPV vaccine coverage, the decrease in dysplasia prevalence among vaccinated individuals is resulting in a subsequent decrease in PPV of cervical cytology, particularly in those initiating vaccination prior to 21 years of age and among those completing the series. Confirmation of these results will call for changes in screening strategies for vaccinated individuals. CONFLICT OF INTEREST DESCRIPTION: Acelity: Industry grant for an investigator-initiated industry-sponsored clinical trial. Tesaro: Site PI for industry-sponsored clinical trial. NOTE: Funding from the industries above are unrelated to the research presented in the abstract.

4100

Chronic Pain in Refugee Torture Survivors

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OBJECTIVES/GOALS: An estimated 87% of torture survivors, or 27 million people globally, suffer from chronic pain such as brachial plexopathy from upper extremity suspension or lumbosacral plexus injury from leg hyperextension. However, a vast majority of pain is undetected by evaluators due to a lack of diagnostic tools and confounding psychiatric illness. This diagnostic gap results in exclusive psychological treatment rather than multimodal therapies, substantially limiting rehabilitation, placing vulnerable individuals at higher risk of drug abuse, and increasing healthcare expenditures. We hypothesized that the novel application in torture survivors of a validated pain screen can supplement the UNIP and improve its sensitivity for pain from approximately 15% to 90%, as compared to the reference standard. METHODS/STUDY POPULATION: In this prospective, blind comparison to gold standard study, 25 patients who survived torture by World Medical Association definition first received the standard evaluation protocol for torture survivors (United Nations Istanbul Protocol, UNIP) by a trained evaluator, and subsequently received a validated pain screen (Brief Pain Inventory Short Form, BPISF) followed by a non-invasive examination by a pain specialist physician (reference standard). The primary outcome was the diagnostic and treatment capability of the standard protocol (index test) versus the validated pain screen (BPISF), as compared to the reference standard. RESULTS/ANTICIPATED RESULTS: Providers using only the UNIP detected and treated pain in a maximum of 16% of patients as compared to 85% of patients who were diagnosed with pain by the reference standard. When employed, the validated pain screen had a sensitivity of 100% [95% CI: 72% - 100%] and a negative predictive value of 100%, as compared to a sensitivity of 24% [95% CI: 8% - 50%] and negative predictive value of 19% by the index test. The difference in the sensitivity of the UNIP as compared to the BPISF was significant, with p <0.001. DISCUSSION/SIGNIFICANCE OF IMPACT : These data indicate that the current global standard assessment of torture survivors, the United Nations Istanbul Protocol, should be supplemented by the use of a validated pain screen to increase the accuracy of chronic pain diagnosis. This would change the standard medical assessment of 70.8 million people globally, a number that

continues to rise by nearly 45,000 people each day. ClinicalTrials.gov protocol number NCT03018782.

4220

Cognitive Function and Relationships with Intervention Dropout, Adherence and Weight Loss

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OBJECTIVES/GOALS: Greater cognitive function (CF) is associated with adherence to prescription medications, better program adherence and weight loss (WL) following bariatric surgery. The purpose of this study was to evaluate the association between baseline CF, intervention dropout, adherence and 3-month WL. METHODS/STUDY POPULATION: 107 (M_{age} = 40.9 yrs.), overweight/obese (BMI = 35.6 kg/m^2) men (N = 17) and women (N = 90) completed a 3-mo. WL intervention. Participants were asked to attend weekly behavioral sessions, comply with a reduced calorie diet and complete 100 min of moderate intensity physical activity (PA)/wk. CF tasks including Flanker (attention), Stroop (Executive control) and working memory, body weight and cardiovascular fitness (covariate) were assessed at baseline and 3-mos. Session attendance, adherence to PA and diet prescriptions and number of off-diet episodes were recorded weekly. RESULTS/ANTICIPATED RESULTS: Results indicated that attention was positively correlated with session attendance (p = 0.016), adherence to the diet ($p<0.01$) and PA ($p = 0.023$). Executive control was positively correlated with WL ($p = 0.042$). Working memory (two tasks) was also positively correlated with WL ($p = .017$ and $p = .025$). Analysis of variance (ANOVA) indicated that baseline attention ($p = .012$) was positively related to WL and negatively associated with drop out ($p<.05$). Hierarchical linear regression showed executive control ($p = .036$, $R^2 = .054$) and working memory ($p = .013$, $R^2 = .073$ and $p = .017$, $R^2 = .068$) were associated with WL when controlling for fitness. DISCUSSION/SIGNIFICANCE OF IMPACT: These results suggest that stronger baseline attention is associated with completion of a 3-mo. WL intervention. Executive control and working memory are associated with amount of WL achieved. Additional, larger and longer trials to assess the role of baseline CF on WL and evaluating the impact of interventions designed to improve CF on WL are indicated.

4392

Comparative Analysis of Vascular Hemodynamics in a Young Biracial Cohort

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OBJECTIVES/GOALS: We investigated hemodynamic measures in young black and white adults below the age of 50 years to identify mechanisms that may predispose blacks to more CVE. METHODS/STUDY POPULATION: We recruited 276 young blacks and white adults in Jackson, MS (mean age: 33±9 years; 70% women; 57% Black;). Participants had clinical and vascular tonometry parameters obtained. Vascular measures included carotid femoral pulse wave velocity, central and peripheral pulse pressure

(CPP and PPP), characteristic impedance (Z_c), augmentation index, and forward pressure wave. Race-specific characteristic means and proportions were tested using Student's T- or Chi-square tests. After further sex stratification, significant variation in characteristics among sex within race were tested using nested ANOVA. RESULTS/ANTICIPATED RESULTS: Characteristics of the study group stratified by race were found to be similar. Vascular measures stratified by race revealed blacks to have significantly higher Z_c (p = 0.03) and PPP (p = 0.03) than whites. DISCUSSION/SIGNIFICANCE OF IMPACT: In this study of vascular hemodynamics in young black and white participants we found differences in Z_c and PPP. Findings suggest that differing relations between proximal aortic diameter and wall stiffness may contribute to the racial disparity in CVE in adults. This finding could offer an explanation to the beneficial effects of treatment modalities that target aortic stiffness in blacks.

4439

Comparing the Impact of Adding an Educational Video Presentation to Universal Self-Consent for Remnant Clinical Biospecimens: A Single Blind Randomized-Control Trial

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OBJECTIVES/GOALS: BURRITO is an efficient strategy that provides full disclosure in the electronic medical record of a patient's preference in real time. BURRITO uses printed materials only to inform patients and has a <50% rates of consent. We hypothesized that adding an informational video to the printed materials would increase donations. METHODS/STUDY POPULATION: This study was IRB-approved and was considered minimal risk. The BURRITO self-consent workflow process (Soares et. al, Biopreservation and Biobanking, IN PRINT) was developed in an outpatient cardiology clinic. In the same clinic, patients were randomized to receiving printed materials only (standard procedure) or the printed materials plus a 2.5-minute informational video (intervention) while waiting for the physician in the exam room. Randomization occurred at the level of the day in clinic. Patients were blinded to the nature of the study. Following the presentation of information, the patient's decision on consent for donation was documented in the electronic record by ancillary clinical staff. Rates of consent were analyzed by a statistician not involved in the experiment and after completion of trial. RESULTS/ANTICIPATED RESULTS: Thirty-five clinic days were randomized to either intervention (17 days) or standard (18 days), and a total of 255 patients decided during their visit to either "opt-in" or "opt-out" to donating remnant biospecimens for future research. One hundred patients opted to defer deciding (28%). No significant demographic differences were noted between the study arms. The rate of consent was 73% vs. 58% in the intervention group and the control group, respectively (p-value = 0.014). This represents an increase in the odds of consenting with an informational video by 96% (OR = 1.96, 95% CI = 1.15 to 3.34). DISCUSSION/SIGNIFICANCE OF IMPACT: This is the first randomized trial to show that an informational video with printed materials is superior for when patients are self-consenting to opt-in for clinical remnant biospecimen donation. This result adds to the evidence that the BURRITO process plus video (BURRITOv) is an effective approach for biospecimen universal consenting.

4188

Consistent Differences in Lumbar Spine Alignment Between Low Back Pain Subgroups and Sexes during Clinical and Functional Sitting Tests*

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OBJECTIVES/GOALS: Test the validity of a system for subgrouping people with CLBP by comparing lumbar spine alignment in two CLBP subgroups and sexes during clinical tests of maximum flexed and extended sitting and a functional test of preferred sitting. METHODS/STUDY POPULATION: Using the Movement System Impairment classification system, 154 participants with CLBP were subgrouped based on the predominant direction of altered movement and alignment patterns and symptoms during a standardized examination. Participants performed a functional test of preferred sitting followed by clinical tests of maximum flexed and extended sitting in random order. Reflective markers were place superficial to T12, L3 and S1 spinous processes. 3D marker co-ordinate data were collected using an 8 camera motion capture system. Sagittal plane lumbar curvature angle (LCA), defined as the angular distance between T12, L3, and S1 landmarks was calculated for each test. A three-way mixed effect ANOVA model was used to examine the following effects: test, subgroup, sex, test*subgroup, test*sex, subgroup*sex. RESULTS/ANTICIPATED RESULTS: Test: Lumbar alignment patterns were different for flexed [LCA = 7.4° (6.1, 8.7)], extended [LCA = −22.6° (−23.9,−21.3)], and preferred [LCA = −3.8° (−5.2,−2.5)] sitting tests. LBP subgroup: Rotation-extension [LCA = −7.5° (−8.7,−6.3)] had more extended lumbar alignment than rotation [LCA = −5.2° (−6.2,−4.2)]. Sex: Women had more extended lumbar alignment [LCA = −10.3° (−11.2,−9.3)] than men [LCA = −2.5° (−3.7,−1.2)]. Test*sex: The difference in lumbar alignment between women and men was smaller during the flexed sitting test [women = 4.2° (2.5, 5.9), men = 9.9° (7.8, 12.1)], compared to extended [women = −27.5° (−29.2, −25.8), men = −17.0° (−9.2, −14.8)] and preferred [women = −7.4° (−9.1, −5.8), men = −0.3° (−2.5, 1.8)]. The test*subgroup (p = 0.84) and subgroup*sex (p = 0.87) interactions were not significant.

4491

Cumulative Childhood Trauma Load Across Race in Individuals with Alcohol Use Disorder

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OBJECTIVES/GOALS: Our objective was to investigate racial differences in experiencing multiple categories of childhood trauma (CT) and the differential impact on alcohol use in individuals with alcohol use disorder (AUD). We hypothesized that there would be a differential additive effect of CT categories endorsed and drinking behaviors between racial groups. METHODS/STUDY POPULATION: Participants were recruited through the NIAAA screening protocol where they completed alcohol-related assessments including a 90-day Timeline Followback (TLFB) and the Alcohol Use Disorder Identification Test (AUDIT). Structured Clinical Interviews for DSM disorders were conducted to identify participants with lifetime alcohol dependence (DSM-IV) or AUD (DSM-5) (N = 1152).