subjects were classified as having MetS if they had ≥3 of the following: waist circumference ≥40 inches for men or ≥35 inches for women, triglyceride ≥150 mg/dL, HDL-C for men ≤40 mg/dL; women ≤50 mg/dL, pre-hypertension, or fasting glucose ≥110 mg/dL. We used multiple logistic regression in STATA 14 survey module to examine the relation between MetS components and CVD adjusting for age, gender, race/ethnicity, education, smoking, alcohol, albuminuria, glomerular filtration rate, C-reactive protein, uric acid and white blood count. To assess the racial/ethnic variation, we examined the same model in each race/ethnic group. RESULTS/ANTICIPATED RESULTS: Of the 3212 subjects, 78% were Whites, 10% were Blacks, and 15% had CVD. MetS components, CVD, and uric acid varied significantly by race/ethnicity ($p < 0.05$). In the multivariate model, HDL-C level [odds ratio (OR) = 1.5; 95% confidence interval (CI) = 1.1–2.0], triglyceride level (OR = 2.0; CI = 1.4–2.9), and elevated uric acid (OR = 1.4; CI = 1.1–1.9) were independently related to CVD ($p < 0.05$). While CVD was independently related to HDL-C, triglyceride, and elevated uric acid in Whites ($p < 0.05$), it was associated with pre-hypertension and triglyceride in Blacks ($p < 0.05$) and no predictors in Hispanics ($p > 0.05$). DISCUSSION/SIGNIFICANCE OF IMPACT: Elevated uric acid, HDL-C, and triglyceride levels are significant independent predictors of CVD among population with MetS. These predictors varied by race/ethnicity. Health care providers should be vigilant in the management of MetS components and control of uric acid level in each racial/ethnic group to prevent the CVD risk among the population with MetS.

2189

Scrambler therapy: Potential new treatment for central neuropathic pain?

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OBJECTIVES/SPECIFIC AIMS: Central neuropathic pain is a severely disabling consequence of conditions that cause tissue damage in the central nervous system (CNS) such as multiple sclerosis (MS) and neuromyelitis optica (NMO). It impacts mood, mobility and quality of life, but is often refractory to common treatments. Scrambler Therapy is an emerging non-invasive pain modifying technique that utilizes transcutaneous electrical stimulation of nociceptive fibers with the intent of re-organizing maladaptive signaling pathways. It has been examined for treatment of peripheral neuropathy with favorable safety and efficacy outcomes, but its use in central neuropathic pain has not been reported. We aim to explore acceptability and safety of Scrambler Therapy through a Phase II sham-controlled trial in NMO, and describe its use to date in central neuropathic pain. METHODS/STUDY POPULATION: Two patients with longstanding central neuropathic pain who failed multiple drug trials were treated as proof-of-concept, supporting the recent launch of a Phase II randomized controlled trial in NMO where patients receive 10 daily Scrambler treatments versus sham. Safety and acceptability from those recruited to date will be reported. Acceptability is measured by adherence and responses to patient surveys. RESULTS/ANTICIPATED RESULTS: We plan to recruit 22 patients, randomized 1:1 into experimental and sham arms. We will present acceptability and safety data for Scrambler use in patients with NMO who have been recruited by the time of this conference, as well as effectiveness data from two cases that have been completed outside of the trial. One case involved a 65-year-old woman with a 4-year history of central neuropathic pain following a C3-C5 TM. Her numerical rating scale (NRS) pain score was reduced to 0/10 from a baseline score of 5/10. The second case involved a 52-year-old woman with a 13-year history of pain following a medullary cavernoma bleed. Her baseline NRS pain score was 9/10, which was reduced to 0.5/10 post-treatment. No adverse events were reported. Pain relief was sustained at 30 days' post-treatment. DISCUSSION/SIGNIFICANCE OF IMPACT: We are investigating the acceptability and efficacy of Scrambler Therapy for central neuropathic pain treatment in NMO. Proof-of-concept was supported by two patients whose pain scores improved considerably more in response to this treatment than with previous pharmacologic and non-pharmacologic interventions. Results from this trial may support future investigation in other disorders that cause damage in the CNS, including MS and TM.

2280

Subjective, physiological activation and habituation, and response to written trauma narrative exposure

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OBJECTIVES/SPECIFIC AIMS: Emotional processing theory and some observations suggest that activation of subjective and physiological distress during therapeutic exposure and habituation across exposure sessions are key to improvement. This study sought to determine whether initial subjective and physiological activation and between-session habituation would predict PTSD symptom reduction after a series of written trauma narrative exposure sessions. METHODS/STUDY POPULATION: In total, 29 urban-residing African-American participants with PTSD participated in four 30-minute writing sessions. Writing sessions 1 and 2 were 12 hours apart and session 3 and 4 were performed 1 week later, also 12 hours apart. PTSD symptoms were measured at baseline, after session 2, and 1 week after all 4 writing sessions with the Clinician Administered PTSD Scale. During each session, Subjective Units of Distress Scores (SUDS) were assessed 4 times and heart rate was measured continuously. RESULTS/ANTICIPATED RESULTS: Participants exhibited PTSD symptom improvement and habituation of subjective distress, but not physiological arousal, across writing sessions. First session baseline-corrected SUDS maximum and SUDS decrease from the initial to the final writing session were both positively associated with symptom improvement. DISCUSSION/SIGNIFICANCE OF IMPACT: Increased subjective, but not physiological, distress in the first exposure session and diminished subjective distress across sessions may be a helpful marker of emotional processing for clinicians and predictor of symptom improvement after written trauma narrative exposure.

2138

Susceptibility to social influence is associated with alcohol self-administration and subjective alcohol effects

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OBJECTIVES/SPECIFIC AIMS: Peer groups are one of the strongest determinants of alcohol use and misuse. Furthermore, social influence plays a significant role in alcohol use across the lifespan. One of the factors that most consistently predicts successful treatment outcomes for alcohol use disorders is one's ability to change their social network. However, the concept of social influence as defined by suggestibility or susceptibility to social influence has not yet been studied as it relates to drinking behavior and acute subjective response to alcohol. Our objective was to examine the relationship between suggestibility and alcohol consumption and responses, using an intravenous alcohol self-administration (IV-ASA) paradigm in social drinkers. METHODS/STUDY POPULATION: Healthy, social drinkers (n = 20) completed a human laboratory session in which they underwent the IV-ASA paradigm. This consisted of an initial 25-minute priming phase, where participants were prompted to push a button to receive individually standardized IV alcohol infusions, followed by a 125-minute phase during which they could push the button for additional infusions. IV-ASA measures included the peak and average breath alcohol concentration (BrAC) and number of button presses. Subjective responses were assessed using the Drug Effects Questionnaire (DEQ) and Alcohol Urge Questionnaire (AUQ) collected serially during the session. Participants completed the Multidimensional Iowa Suggestibility Scale (MISS) to assess suggestibility. The Alcohol Effects Questionnaire (AEFQ) was used to assess alcohol expectancies and the Timeline Followback questionnaire measured recent drinking history. RESULTS/ANTICIPATED RESULTS: After controlling for drinking history, greater suggestibility significantly predicted greater average BrAC, greater peak BrAC, and a greater number of button presses ($p = 0.03$, $p = 0.02$, $p = 0.04$, respectively) during the early open bar phase. Suggestibility significantly predicted subjective alcohol effects following the priming phase which included "Feel," "Want," "High," and "Intoxicated" and was trending for "Like" ($p = 0.02$, $p = 0.03$, $p = 0.01$, $p = 0.03$, $p = 0.054$, respectively) as well as AUQ ($p = 0.03$). After controlling for drinking history, suggestibility significantly predicted "Feel," "Like," "High," and "Intoxicated" peak scores during the open bar phase ($p = 0.03$, $p = 0.009$, $p = 0.03$, $p = 0.03$, respectively). There was no association between suggestibility and "Want More" alcohol. Suggestibility was positively associated with three positive expectancies (global positive; $p = 0.04$, social expressiveness; $p = 0.005$, relaxation; $p = 0.03$), and one negative expectancy (cognitive and physical impairment; $p = 0.02$). DISCUSSION/SIGNIFICANCE OF IMPACT: These results indicate that social drinkers that were more suggestible had higher alcohol consumption, greater acute subjective response to alcohol, and more positive alcohol expectancies. As such, susceptibility to social influence may be an important determinant of alcohol consumption, and may provide insight

https://doi.org/10.1017/cts.2018.183 Published online by Cambridge University Press

into harmful drinking behavior such as binge drinking. Future analyses should examine the impact of suggestibility on alcohol-related phenotypes across the spectrum of drinking from social to binge and heavy drinking patterns.

2273

Synthetic cannabinoid usage among psychiatric inpatients

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OBJECTIVES/SPECIFIC AIMS: Synthetic cannabinoids (SC) are widely available and are associated with acute psychosis. Our recent study indicated that SC using psychiatric inpatients admitted in 2014 had more psychotic symptoms, aggression, and agitation compared with cannabis [marijuana (MJ)] using patients. The current study will review more charts and will characterize the demographics and presentations of current SC Versus MJ using patients. METHODS/STUDY POPULATION: A chart review was conducted of patients admitted to a New York City inpatient dual diagnosis psychiatric unit from 2014 to 2016. Inclusion criteria were self-reported current SC use or MJ use, or urine toxicology (+) for MJ. RESULTS/ANTICIPATED RESULTS: In total, 585 charts met inclusion criteria, 168 reported current SC use (40 f, 128 m SC users; 122 f, 295 m MJ users). SC using patients were younger ($p = 0.050$), more likely to be Black ($p = 0.003$), and homeless or living in a shelter ($p = 0.001$). SC users were also more likely to be agitated (OR: 2.26) and aggressive (OR: 2.04) and have psychotic symptoms (OR: 3.03) compared with MJ users. SC users received more PRN medication ($p < 0.001$) and had longer lengths of stay ($p = 0.001$). DISCUSSION/SIGNIFICANCE OF IMPACT: Results demonstrate that current SC users had a different demographic profile compared with current MJ users. Our results also support our previous findings: SC using patients were more likely to be agitated and aggressive and were more likely to demonstrate positive psychotic symptoms.

2477

Targeting pulsatile load to increase exercise capacity and quality of life after TAVR for severe aortic stenosis

Anupam Kumar and Julio Chirinos

OBJECTIVES/SPECIFIC AIMS: The objective of the study is to test the effect of oral inorganic nitrate on the primary outcomes of exercise capacity and quality of life in patients who have undergone TAVR for severe aortic stenosis. We will also test the effect of the study drug on various physiology endpoints, including systemic vasodilator response to exercise, LV diastolic function and myocardial strain, late systolic LV load and pulsatile arterial wave reflections. METHODS/STUDY POPULATION: This is a randomized double-blind crossover clinical trial, in which 24 subjects who underwent TAVR for severe AS 3 or more months before enrollment will receive the following 2 interventions, in randomized order: (1) Potassium nitrate (KNO_3), at a dose of 12–18 mmol/day by mouth for ~4 weeks, or (2) Potassium chloride (KCl), at a dose of 12–18 mmol/day by mouth for ~4 weeks. A 1-week washout period will be introduced between the 2 interventions. RESULTS/ANTICIPATED RESULTS: We hypothesize that sustained oral administration of potassium nitrate will lead to improvement of exercise capacity and quality of life in this population. DISCUSSION/SIGNIFICANCE OF IMPACT: His study will have a significant impact on assessment and management of patients after TAVR. We will gain a better understanding of physiologic abnormalities leading to exercise intolerance after TAVR. In addition, there are currently no proven therapies that improve exercise capacity in this population.

2020

The clinical implications of a positive prostate cancer screen in patients undergoing a cardiac transplant evaluation

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OBJECTIVES/SPECIFIC AIMS: Screening the general population for prostate cancer with prostate specific antigen (PSA) continues to be controversial. Patients with advanced heart failure undergoing evaluation for suitability for cardiac transplantation are often requested to undergo prostate cancer screening, with guiding evidence generated from the general population. The objective of this study is to determine the clinical implications of a positive prostate cancer screen result in this patient population. METHODS/STUDY POPULATION: A retrospective cohort study was performed on all men that were referred to a tertiary care cardiac transplant center between January 2000 and December 2015. Patients were classified as having either a "positive screen" (PSA ≥ 4 ng/mL) or a "negative screen" (PSA < 4 ng/mL) at the point of evaluation. The primary outcome of time to listing for cardiac transplant (days) was calculated from the date of referral to the date of listing. A multivariable Cox proportional hazards model was developed to assess the association between a positive prostate cancer test result and listing for cardiac transplantation. RESULTS/ANTICIPATED RESULTS: Among the 704 patients included in this study, 66 men (9.4%) had a positive prostate cancer screen result. Men with a positive prostate cancer screen were approximately 4 year older (mean 58.5 vs. 54.1 years), more likely to have a diagnosis of Ischemic Cardiomyopathy (74% vs. 53%) and require continuous mechanical support (61% vs. 16%) at the point of transplant evaluation. The median time for listing for cardiac transplant was greater in patients with a positive PSA (119 vs. 48 days, $p < 0.05$). After adjusting for age, renal function, clinical status at evaluation, history of COPD, and year of referral, patients with a positive prostate cancer screen had a reduced hazards ratio (HR) for progressing to cardiac transplant listing compared with those with a negative screen (HR 0.58, 95%CI: 0.38–0.91). DISCUSSION/SIGNIFICANCE OF IMPACT: Screening patients undergoing cardiac transplant evaluation for prostate cancer with PSA has a low diagnostic yield. An individual's PSA value is influenced by their age and clinical status at the time of screening, with a positive screen being associated with a reduced likelihood for progressing to listing for cardiac transplant.

2448

The effect of allopurinol on pediatric patients undergoing maintenance chemotherapy for acute lymphoblastic leukemia or lymphoblastic lymphoma

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OBJECTIVES/SPECIFIC AIMS: This study aims to assess the safety, feasibility, clinical benefits and pharmacodynamics of adding allopurinol to standard maintenance therapy that includes 6-mecaptopurine (6-MP) in pediatric patients with acute lymphoblastic leukemia (ALL) or lymphoblastic lymphoma. Our goal is to investigate if allopurinol improves hepatotoxicity and GI toxicity, if it safely decreases acute neutrophil count (ANC), if it reduces the 6-MP dose required during chemotherapy, and if it works through our hypothesized mechanism by lowering the levels of the toxic metabolite, 6-methylmecaptopurine (6-MMP) and by raising the levels of the active metabolite, 6-thioguanine (6-TGN). METHODS/STUDY POPULATION: This is a single arm, nonblinded pilot study of patients under age 30 years who were being treated in the maintenance phase of therapy for ALL or lymphoblastic lymphoma, and had adverse effects such as high 6-MMP:6-TGN ratio, high ANC, and high liver enzymes. Patients enrolled were started with allopurinol in addition to ongoing oral chemotherapy. Data from beginning maintenance to end of chemotherapy was collected in the electronic medical record, EPIC for the 13 patients enrolled at Johns Hopkins, and data analysis was conducted using STATA and Excel. RESULTS/ANTICIPATED RESULTS: Initial data analysis reveals that the required dose of 6-MP after addition of allopurinol to the chemotherapy regimen was significantly lower compared with that before the addition of allopurinol in 11 out of the 12 patients assessed ($p < 0.05$). Among the 10 patients that were assessed for 6MMP:6TG ratio, all had lower average 6MMP:6TGN ratios after allopurinol compared to before allopurinol; the percentage of weeks that goal 6MMP:6TGN ratio (<40) were maintained were statistically significant in 6 patients ($p < 0.05$) and close to significance in 2 other patients ($p = 0.057$). The percentage of weeks that patients maintained alanine aminotransferase levels below 120 was significantly greater after addition of allopurinol compared to before the addition of allopurinol in 9 out of 13 patients assessed, suggesting that allopurinol may be associated with reduced hepatotoxicity. Further data analysis is ongoing to assess the percentage of weeks that patients maintained goal total bilirubin, direct bilirubin, and ANC, as well as average number of admissions for infections and average number of therapy holds after allopurinol addition compared to before allopurinol

https://doi.org/10.1017/cts.2018.183 Published online by Cambridge University Press