A1c, LDL, and HDL levels were collected; ECGs and echocardiograms were also interrogated. RESULTS/ANTICIPATED RESULTS: Out of 58 patients, 22 (38 %) displayed a pathogenic variant in the LMNA gene. In total, 71% of patients (41/58) had an abnormal ECG and echocardiogram; 40% (23/58) of the patients displayed an arrhythmia on the ECGs (13 in the patients with LMNA variants and 10 in the non-LMNA group). The likelihood of having an arrhythmia was significantly higher in the patients with LMNA variants versus those without (odds ratio of 3.4, CI: 1.1–10.6). DISCUSSION/SIGNIFICANCE OF IMPACT: The overall prevalence of abnormal ECHO and/or ECG is high at 45/58 (78 %) in FPLD. Patients with LMNA variants have a 3.4 times increased risk of developing cardiac arrhythmias compared to those without. We recommend vigilant, monitoring for cardiac disease in FPLD and for arrhythmias in patients with FPLD and LMNA variants.

2034

Effect of balanced crystalloids on renal outcomes among critically ill adults does not differ from 0.9% saline across baseline risk of renal outcomes

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OBJECTIVES/SPECIFIC AIMS: Traditional clinical trials typically enroll a homogenous population to test the efficacy of an intervention. Pragmatic trials deliberately enroll a more diverse population to enhance generalizability, but doing so may increase heterogeneity of treatment effect among subpopulations. For example, the effect of a treatment on an outcome may vary based on patients' sex, comorbidities, or baseline risk of experiencing the outcome. We hypothesized that heterogeneity of treatment effect by baseline risk for the outcome could be demonstrated in a large pragmatic clinical trial. METHODS/STUDY POPULATION: We performed a prespecified secondary analysis of a recent pragmatic trial comparing balanced crystalloids Versus 0.9% saline among critically ill adults. The primary endpoint of the trial was major adverse kidney events within 30 days of ICU admission, censored at hospital discharge (MAKE30). MAKE30 is a composite outcome of all-cause mortality, new renal replacement therapy, or persistent renal dysfunction. Using a previously published model with high predictive accuracy for MAKE30 (area under the curve = 0.903), we calculated the baseline risk of MAKE30 for all trial participants. We then developed a logistic regression model for MAKE30 with independent covariates of fluid group assignment, baseline risk of MAKE30 as a nonlinear continuous variable, and the interaction between group assignment and MAKE30 baseline risk. RESULTS/ANTICIPATED RESULTS: Among 15,802 patients from 5 intensive care units enrolled in the original trial, 126 had missing variables for predicted risk of MAKE30. Mean predicted risk of MAKE30 among all patients was 15.4%; median was 4.4% (interquartile range 2.2%–17.1%). Predicted risk of MAKE30 did not significantly differ between groups ($p = 0.61$ by Mann-Whitney *U*-test). The incidence of MAKE30 in the trial was 14.9%, and the prediction model was well-calibrated overall (AUC = 0.891). In a logistic regression model examining the interaction between group assignment and predicted risk of MAKE30, group assignment significantly affected MAKE30 (odds ratio saline: balanced 1.13, 95% CI: 1.02–1.27, $p = 0.02$), but we observed no interaction between the effect of group assignment on MAKE30 and patients' predicted risk of MAKE30 at baseline ($p = 0.66$ for interaction term). DISCUSSION/SIGNIFICANCE OF IMPACT: In a large pragmatic trial demonstrating a significant difference in the primary outcome of MAKE30 between balanced crystalloids and saline, a previously published model accurately predicted MAKE30 using baseline factors. However, contrary to our hypothesis, the baseline risk of MAKE30 did not modify the effect of fluid group on the observed incidence of MAKE30. Our analysis could not account for unmeasured confounders and may be underpowered to detect a significant interaction. Our findings suggest that the impact of balanced crystalloids versus normal saline on renal outcomes in critically patients is consistent across all levels of risk.

2265

Effect of dietary approaches to stop hypertension (DASH) diet on hemodynamic markers in advanced heart failure patients

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OBJECTIVES/SPECIFIC AIMS: The central aim of the study is to examine the effect of a Dietary Approaches to Stop Hypertension (DASH) diet on hemodynamic, cardiometabolic, and inflammatory markers in advanced heart failure patients with implanted hemodynamic monitoring devices. METHODS/STUDY POPULATION: This pilot study will employ a clinical feeding trial using a 1-group pre-post test design with an anticipated sample size of n = 36 (n = 20 plus 44% expected attrition). Heart failure patients 18+ years of age with English language literacy, classified as NYHA functional stage III, regardless of ventricular ejection fraction, who have undergone CardioMEMS™ hemodynamic monitoring device (St. Jude Medical, Atlanta, GA, USA) implantation and have received optimized heart failure therapy for 3+ months will be recruited at Piedmont Athens Regional Hospital in Athens, GA. The study is divided in (a) a calibration (self-selected diet) and (b) a DASH feeding intervention phase (each 21 days in length). The DASH meals will strictly follow meal planning guidelines published by the National Heart, Lung, and Blood Institute of the National Institutes of Health, and be prepared under the supervision of a registered dietitian at the University Health Center in Athens, GA. The DASH diet is a heart-healthy eating pattern that is focused on adequate consumption of fruits, vegetables, whole grains, low-fat dairy, fish, poultry, beans, nuts, and vegetables oils while emphasizing limited intake of foods containing saturated fat, such as fatty red meats, full-fat dairy products, and tropical oils, such as coconut, palm kernel, and palm oils, as well as sugar-sweetened beverages and sweets. Participants will visit the University of Georgia Clinical and Translational Research Unit on 3 occasions at baseline, upon completion of the calibration phase, and following completion of the intervention phase for repeated collection of anthropometric (height, weight, waist and hip circumference, percent body fatness), cardiometabolic (blood pressure, blood glucose, HbA1C, lipid panel, basic metabolic panel, BNP, NT-proBNP, troponin I, MR-proADM, sST2), functional status (6-min walk test), inflammatory (IL-1a, IL-1b, IL-6, TNF-a), and self-reported measures (demographic and economic characteristics, health, chronic diseases, perceived stress, heart failure-related quality of life, social support, sleep quality, food insecurity, tobacco smoking status, healthcare utilization, medication adherence). Hemodynamic marker (pulmonary artery pressure, heart rate) and pharmacotherapy information (medication count, type, strength, and dosing) will be obtained from through retrospective assessment of EHR data. Descriptive statistics [percentage, mean (SD), median (IQR), mode, range] will be used to describe sample characteristics at each of the study visits, as well as characteristics of participants' self-selected diets during the calibration phase. To measure changes in hemodynamic, cardiometabolic, and inflammatory markers pre-post DASH diet intervention, we will use paired Student *t*-tests (normal distribution) or Wilcoxon rank-sum tests (non-normal distribution), as appropriate. Data collection will be carried out between February and November 2018. RESULTS/ANTICIPATED RESULTS: The study builds upon previous studies showing improvement of ventricular function, arterial stiffness, oxidative stress, and blood pressure after short-term consumption of a sodium-restricted DASH diet in heart failure patients with preserved ejection fraction, and will provide new information on the cumulative effect of short-term adherence with a DASH diet on indicators of heart failure complications, including hemodynamic, cardiometabolic, and inflammatory markers. In addition, it will give better insight on heart failure patients' habitual dietary intake in the context of other sociodemographic, economic, health, and social factors. DISCUSSION/SIGNIFICANCE OF IMPACT: Findings from the proposed study will provide key knowledge of dietary influences on ventricular function in order to define evidence-based diet therapy needed for the early prevention of HF complications in advanced heart failure patients.

2420

Examining characteristics of placebo effects on trauma-related insomnia in a suvorexant trial

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OBJECTIVES/SPECIFIC AIMS: The aims of this project are to: (1) examine placebo effects on subjective and objective outcome measures, (2) determine if an increase in the placebo is associated with changes in benefit, (3) evaluate if the trauma related insomnia placebo group in our study has different side effect reports compared with insomnia placebo participants in previous suvorexant trials, and (4) (Exploratory) examine associations between the placebo group's characteristics (e.g., trauma/PTSD severity, demographics) and placebo effects. METHODS/STUDY POPULATION: The parent study is a randomized double-blind placebo-controlled clinical trial (clinicaltrials.gov ID: NCT02704754) of suvorexant for treatment of adults (age 18–55) with insomnia that started or worsened after trauma exposure. Suvorexant is a first in class orexin antagonist and is approved by the FDA for the indication of insomnia. In this 6-week trial, all participants initially take 10 mg of suvorexant/placebo, and the dose will be increased to 20 mg if participants continue to experience clinically significant insomnia symptoms

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1 week after starting the medication. Sleep outcomes will be measured by polysomnography, daily sleep diary, and the Insomnia Severity Index. RESULTS/ANTICIPATED RESULTS: We hypothesize that (1) within the placebo group data both subjectively and objectively measured outcomes will similarly show improvement in insomnia symptoms, (2) the increase of the placebo medication dose will result in an increased benefit, (3) the trauma-related insomnia placebo group will have the same type and similar rate of side effects reported in previous suvorexant trials. DISCUSSION/SIGNIFICANCE OF IMPACT: Most previous studies examining placebo effects focused on pain and depression. Information obtained from this project will complement our current understanding of placebo effects by characterizing placebo effects on trauma-related insomnia. This study will inform the development of novel strategies to maximize utility of placebos in future clinical trials.

2186

Feasibility of maternal holding during therapeutic hypothermia for infants with encephalopathy

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OBJECTIVES/SPECIFIC AIMS: Therapeutic hypothermia (TH) is a neuroprotective therapy regularly used in newborn infants following traumatic births. The infant's temperature is maintained at 33.5°C for 72 hours by a cooling blanket upon which the infant is placed. Parents are not permitted to hold their infant while TH is ongoing due to concerns for unintentional rewarming or accidental dislodging of catheters or other monitoring equipment. Our prior qualitative research with nurse and parent interviews described the inability to hold an infant during TH as a significant source of stress. We assessed the feasibility of a 30-minute period of maternal holding for infants being actively treated with TH and assessed both the maternal experience of holding and the nurse experience of supporting holding. METHODS/STUDY POPULATION: This was a feasibility study employing a mixed-methods approach. Inclusion criteria were gestational age at birth of 35 weeks or greater, absence of clinical or electrographic seizures during the first 24 hours of TH, and designation as "clinically stable" by the attending neonatologist with the infant on room air, nasal cannula, or continuous positive airway pressure. Quantitative data were obtained from vital sign monitoring every 2 minutes before, during and after holding and from maternal and nurse research surveys. Qualitative data were obtained from nurse surveys. Infant rewarming was prevented through use of a thin foam insulating barrier placed between mother and infant during holding. Adverse events were defined as a change in infant temperature greater than 0.5°C above or below 33.5°C, accidental dislodging of central lines/disruption of EEG leads or early termination of holding due vital sign instability present for greater than 2 recorded measurements including infant bradycardia defined as heart rate less than 80 beats per minute, hypotension defined as mean arterial pressure less than 40 mmHg or oxygen saturation of less than 93%. RESULTS/ANTICIPATED RESULTS: There were 10 newborn infants undergoing TH for neonatal encephalopathy (median gestational age 39.4 weeks) and their mothers (median age = 31 years) were recruited. Infants remained on the hypothermia blanket during holding and were transferred safely to their mother's arms without medical equipment malfunction/dislodgement. Holding occurred at a median of 47 hours of life. The mean temperature prior to holding was 33.4°C and at completion of holding the mean temperature was 33.5°C ($p = 0.18$). There were no significant bradycardia, hypotension or oxygen desaturation events. In total, 80% of mothers reported difficulty bonding with their baby prior to holding and 90% reported a high level of stress before holding. After holding, all mothers felt their bond was "stronger" or "much stronger" and all felt "less stressed" or "much less stressed." After holding, 75% of nurses reported that they felt a more positive emotional response to the infant. One nurse stated, "being a part of this emotional experience made me feel closer and more connected to this family and gave me a different perspective on just what they had been dealing with and feeling since giving birth to their child." In free text responses, on 5 separate occasions, nurses commented on the relaxed, calmed or less irritable appearance of the infant while being held during TH. DISCUSSION/SIGNIFICANCE OF IMPACT: In this sample of term infants treated with TH, a 30-minute period of maternal holding was not associated with increased temperature or other adverse events. Holding during TH was associated with extremely positive feedback from mothers and nurses. Future larger studies could consider assessing the impact of holding on endocrinological markers of stress and bonding, on infant glycemic control, on breastfeeding success rates, and the impact of earlier and improved bonding on the developmental outcomes of children held during their treatment with TH. Increasing the duration of holding and allowing both parents to hold on more than one occasion during the 72 hours of TH may increase the proposed benefits of this intervention.

2226

Influence of alcohol use disorder and comorbid psychopathology on discounting of delayed rewards

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OBJECTIVES/SPECIFIC AIMS: Alcohol use disorder (AUD) has been associated with greater discounting of delayed rewards relative to healthy controls. The relationship, however, has been inconsistent, likely because previous studies had relatively small sample sizes and inadequately controlled for comorbid psychopathology and substance use. In the present study, we analyzed one of the largest clinical research samples to date to assess the influence of alcohol use on delay discounting, and examine the influence of confounding variables including substance use disorder. METHODS/STUDY POPULATION: In total, 801 participants completed a delay discounting task where they chose between smaller, immediately available monetary amounts ($0–$90) and $100 available after a delay of 7–30 days. Delay discounting behavior was summarized as the natural log of k, a constant derived from a hyperbolic discounting equation. Participants also completed Structured Clinical Interviews for DSM-IV disorders, 90-day Timeline Followback interviews, and the Fagerström Test for Nicotine Dependence. Participants were divided into 4 groups: healthy controls (n = 298), past AUD (n = 69), and current AUD with (n = 224) and without (n = 210) comorbid psychopathology or substance use disorder. Kruskal-Wallis test was used to examine the effect of group on delay discounting. RESULTS/ANTICIPATED RESULTS: There were significant differences in the distribution of delay discounting scores by group ($H = 80.195$, $p < 0.001$). Healthy controls and past AUD showed lower levels of delay discounting than current AUD and current AUD + comorbidity groups with medium effect sizes (Cohen's $d = -0.635$ and Cohen's $d = -0.614$, respectively). There were nearly no differences between current AUD with and without comorbid psychopathology groups (Cohen's $d = -0.024$). The past AUD group showed almost no difference relative to the healthy control group (Cohen's $d = 0.007$). DISCUSSION/SIGNIFICANCE OF IMPACT: Individuals with current AUD were shown to discount rewards greater than those without current AUD, although comorbid psychopathology did not significantly affect discounting. Surprisingly, individuals with past AUD were more similar to controls than to those with current AUD. Our findings suggest that current problematic alcohol use is related to greater discounting of delayed rewards, but comorbid diagnoses do not significantly impact this relationship. However, once problematic patterns of alcohol use cease, delay discounting appears to return to levels comparable to healthy controls.

2547

Long-term response to treatment and disease recurrence in a prospective cohort of morphea patients

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OBJECTIVES/SPECIFIC AIMS: Morphea (localized scleroderma) is an autoimmune disease characterized that is widely thought to have a monophasic course, in which an initial period of inflammation (activity) ultimately results in scarring, atrophy, and functional impairment (damage). Understanding the long-term clinical course of morphea is important for the planning of future interventional studies, and as a tool for clinicians in determining risk for poor disease outcomes. METHODS/STUDY POPULATION: We conducted a prospective cohort study of 130 participants enrolled in the Morphea in Children and Adults Cohort over a median follow-up time of 4.3 years, to determine the rates of response to treatment and disease recurrence as measured by the Localized Scleroderma Cutaneous Assessment Tool (LoSCAT). To determine risk factors for recurrence of disease activity, survival analysis using the log-rank test was used to compare subgroups by morphea type, therapy, and age at disease onset. RESULTS/ANTICIPATED RESULTS: Within a 1-year follow-up period, 66% of patients treated with methotrexate and 46% of patients with UVA1 phototherapy had achieved complete response to treatment. In patients who had achieved response to treatment, 29% experienced disease

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