remains low. Shared decision-making (SDM) may increase awareness and help patients select and follow through with informed options for diabetes prevention that are aligned with their preferences.The objective was to test the effectiveness of a prediabetes SDM intervention. METHODS/STUDY POPULATION: This was a cluster-randomized controlled trial in 20 primary care clinics within a large regional health system. Participants were overweight/obese adults with prediabetes (BMI>24 kg/m2 and HbA1c 5.7-6.4%) were enrolled from 10 SDM intervention clinics. Propensity score matching was used to identify control patients from 10 usual care clinics.Intervention clinic patients were invited to participate in a face-to-face SDM visit with a pharmacist who used a decision aid (DA) to describe prediabetes and four possible options for diabetes prevention; DPP, DPP +/− metformin, metformin only, or usual care. RESULTS/ANTICIPATED RESULTS: Uptake of DPP and/or metformin was higher among SDM participants (n=351) than controls receiving usual care (n = 1,028; 38% vs. 2%, p<.001). At 12-months follow-up, adjusted weight loss (lbs.) was greater among SDM participants than controls (−5.3 vs. −0.2, p < .001). DISCUSSION/SIGNIFICANCE OF IMPACT: A prediabetes SDM intervention led by pharmacists increased patient engagement in evidence-based options for diabetes prevention and was associated with significantly greater uptake of DPP and/or metformin at 4-months and weight loss at 12-months. Prediabetes SDM may be a promising approach to enhance prevention efforts among patients at increased risk.

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Effects of exercise and a very low fat diet in metabolically abnormal obese adults

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OBJECTIVES/SPECIFIC AIMS: People with metabolically abnormal obesity (MAO), defined as those with insulin resistance and high intrahepatic triglyceride, are at high risk for developing type 2 diabetes and cardiovascular disease. Weight loss through reduced energy intake and increased physical activity has profound impacts on improving cardiometabolic function. However, the specific additional effects of exercise training with diet-induced weight loss on metabolic function are equivocal. METHODS/STUDY POPULATION: A comparative trial is ongoing in MAO adults undergoing 8-10% weight loss induced by a very-low fat plant-based (PB) diet with structured exercise training (n=8) compared to the same weight loss induced by the PB diet alone (n=3). RESULTS/ANTICIPATED RESULTS: Preliminary results indicate that, PB diet with or without exercise training results in significant weight loss concomitant with enhanced insulin sensitivity, reduced intrahepatic triglyceride, reduced 24-hour postprandial glucose response, reduced fat mass, and reduced diastolic blood pressure. Those undergoing PB diet with exercise training had greater improvements in muscular strength and cardiorespiratory fitness than those undergoing PB diet alone. Differences between intervention groups for other cardiometabolic measures are not yet known. DISCUSSION/SIGNIFICANCE OF IMPACT: Each of the interventions resulted in improved cardiometabolic measures; however the extent of the differences between the interventions is not yet clear. It is hypothesized that compared with weight loss induced by a PB diet, the same weight loss induced by a PB diet and structured exercise training will i) cause greater improvement in skeletal muscle insulin sensitivity, ii) will attenuate the usual decline in muscle mass while increasing strength, and iii) result in greater increases in left ventricular diastolic function. The long-term objective of this proposal is to provide a foundation for future studies evaluating mechanisms for the effects of exercise in cardiometabolic disease prevention and therapy.

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Effects of intranasal ketamine on uncontrolled cancer related pain

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OBJECTIVES/SPECIFIC AIMS: If intranasal ketamine can be utilized for pain control in cancer patients, this could provide them with superior analgesia and better quality of life, without the risk of significant respiratory depression associated with opioid medications. We seek to obtain preliminary data via a clinical trial addressing safety, feasibility, and utility of this novel technique for the treatment of persistent uncontrolled cancer pain. These findings would be an important initial step towards testing the effectiveness of intranasal ketamine as a non-opioid medication for cancer pain used as potential maintenance outpatient therapy. These initial findings would be applied to a subsequent trial to determine the effectiveness and associated toxicities of ketamine in a larger sample of cancer patients, and address the compelling need to identify new, successful management therapies for cancer pain. Specific Aims: 1. To evaluate (pharmacodynamic) effects of NAS ketamine on Patient Reported Outcomes (PROs), such as pain scores, side effects, depression, quality of life, and functional status. A clinical trial will be conducted where NAS ketamine will be given to a sample of patients with cancer related pain. Patient Reported Outcomes (PROs), such as pain scores, depression, quality of life, and functional status will be noted on Numerical Pain Rating Scale (NPRS), Montgomery Asberg Depression Rating Scale (MADRS), and Edmonton Symptom Assessment (ESAS), Eastern Cooperative Oncology Group (ECOG) and Patient Reported Outcome Measurement Information System (PROMIS) scales respectively. 1. To measure pharmacokinetics of NAS ketamine through analysis of ketamine and its metabolite norketamine to determine pharmacokinetic properties. During this clinical trial blood samples will be drawn at specified intervals and sent for analysis. 3. To determine opioid sparing effect of NAS ketamine. Opioid use will be measured by documenting use of rescue medications prior to and during the study and by evaluating total opioid consumption prior to and during the study. METHODS/STUDY POPULATION: Study sample: In the search for improved therapies for chronic cancer pain, medications with novel mechanisms of action have been sought. One such promising pharmacologic approach is ketamine. We specifically intend to measure utility of ketamine in patients with pain related to cancer or cancer treatment. Ketamine has shown to reverse central sensitization and opioid tolerance in rat models. Since ketamine is Scheduled III in United States and has abuse potential, we do not intend for ketamine to replace opioids, but use in patients who have failed opioid therapy. Since the investigators of the study practice at Emory, subjects will be from oncology and pain clinics (the supportive oncology clinic, oncology clinics, the pain clinic and Acute Pain Service) at Emory. The trial will be conducted at the Phase 1 Unit of the Winship Cancer Institute (WCI) at

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