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Adverse Childhood Experiences are associated with a higher prevalence of asthma among adolescents with sickle cell disease

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ABSTRACT IMPACT: This research highlights Adverse Childhood Experiences as a potential risk factor and intervention target contributing to the disproportionate number of individuals with sickle cell disease affected by asthma, a well-established catalyst to the increased morbidity and mortality impacting this high-risk population. **OBJECTIVES/GOALS:** Adverse Childhood Experiences (ACEs) are strongly associated with asthma. A disproportionate number of individuals with sickle cell disease (SCD) also have asthma. Asthma is strongly associated with increased SCD morbidity and mortality. This study compared the prevalence of asthma among children and adolescents with SCD with and without ACEs. **METHODS/STUDY POPULATION:** This retrospective cohort study involved 45 children and 30 adolescents with SCD. ACEs were captured using the Center for Youth Wellness Adverse Childhood Experiences Child and Teen Questionnaires, which encompass the original 10 ACEs as well as 7 (child) and 9 (teen) expert-recommended ('expanded') ACEs. ACE exposures were categorized as: Original 0-1 vs. ≥ 2 ; Original + Expanded 0-1 vs. ≥ 2 . Asthma prevalence was compared among ≥ 2 and 0-1 ACE groups using the chi-square (or Fisher's exact) test. A binary logistic regression was performed to predict the likelihood of asthma while adjusting for characteristics (age, household income and gender) that were statistically different among ACE comparison groups at baseline. **RESULTS/ANTICIPATED RESULTS:** Among the 45 child participants, 64% had a history of asthma; whereas 50% of teens had a history of asthma. Asthma prevalence was higher among teens with ≥ 2 vs. 0-1 Original ACEs (89% v. 33%, $p=0.014$). A history of ≥ 2 ACEs remained significant ($p=0.024$) among teens after adjusting for age, household income and gender. There was no significance in asthma prevalence among child ACE comparison groups. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** Adolescents with ≥ 2 ACEs had a higher prevalence of asthma compared to subjects with 0-1 ACE. This study, coupled with the cumulative nature of ACEs and the graded-dose response relationship between ACEs and poor health outcomes, highlight the need for larger, longitudinal studies examining the relationship between ACEs, asthma and SCD outcomes.

Clinical Trial

Clinical Epidemiology

41502

Does dietary fat composition predict short-term elevations in lipid levels in adults on a modified Atkins diet?

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ABSTRACT IMPACT: Our work provides guidance on whether dietary fat intake influences serum cholesterol levels in response to

ketogenic diet therapy in adults with epilepsy. **OBJECTIVES/GOALS:** The modified Atkins diet (MAD) is used in the management of drug-resistant epilepsy in adults. Some patients on MAD show an increase in serum levels of total cholesterol and low-density lipoprotein (LDL) cholesterol. We explored whether dietary fat composition predicts short-term elevations in serum lipid levels in diet-naive adults who begin MAD. **METHODS/STUDY POPULATION:** Participants self-reported their diet intake with 3-day food records at baseline, 1 month and 2 months. Food records were analyzed using Nutrition Data System for Research software. Fasting serum levels of total cholesterol (TC), high-density lipoprotein (HDL) cholesterol, and triglycerides were also collected and LDL level calculated at baseline, 1 month, and 2 months. **RESULTS/ANTICIPATED RESULTS:** 38 patients submitted complete food records at each study visit (baseline, 1 month, and 2 month). Compared to baseline diet intake, there was a significant reduction in daily carbohydrate intake at 1 and 2 months ($p<0.001$) and a significant increase in daily fat intake at 1 and 2 months ($p<0.001$). There was also a significant increase in daily saturated fatty acid (SFA) intake at 1 and 2 months ($p<0.001$), daily mono-unsaturated fatty acid (MUFA) intake at 1 and 2 months ($p<0.001$), and daily cholesterol intake at 1 month ($p<0.05$) and 2 months ($p<0.001$), but no change in daily poly-unsaturated fatty acid (PUFA) intake over time. Compared to baseline, there was a significant increase in serum LDL at 1 month ($p<0.001$) and 2 months ($p<0.01$) and an increase in serum TC at 1 month ($p<0.01$) but not 2 months. **DISCUSSION/SIGNIFICANCE OF FINDINGS:** Despite a significant increase in total fat, saturated fat and mono-unsaturated fat intake as well as an increase in total cholesterol and LDL levels following MAD initiation, dietary fat composition appears to minimally predict serum lipid values in the short term.

79885

Self-Weighing in Adolescents with Obesity: Attitudes of Teens and their Parents.

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ABSTRACT IMPACT: Obesity is a quickly growing pandemic that negatively impacts health, and clinicians and clinics must employ all evidence-based tools (such as self-monitoring) to help patients control their weight. **OBJECTIVES/GOALS:** The objective of this study was to understand patient and parent perspectives on using daily self-weighing for adolescents with obesity who are seeking obesity treatment. The secondary objective was to understand perspectives on connecting smart-scales to the electronic medical record for messaging, feedback, and reminders between visits. **METHODS/STUDY POPULATION:** Thirty adolescents with obesity who were seeking obesity treatment at a tertiary pediatric weight management clinic were recruited into a single-arm feasibility study to create and assess a connection between blue-tooth scales and the electronic medical record. These adolescents and their parents were then approached about conducting exit interviews about their experience in the feasibility study – their perspectives on connecting bluetooth scales connected to the electronic health record and using daily self-weighing at home to help them reach their healthy weight goals. The interviews were conducted by a trained interviewer who was not a PI or Co-I on the feasibility study, recorded, and transcribed. The interviews were organized on themes including technical challenges, mood, stress, clinic feedback. **RESULTS/ANTICIPATED RESULTS:** The main theme expressed by participants and parents was related to past experiences of their weight loss journey. Sub-themes included: