Research Week 2020

The association between cortisol and aggression in children with ADHD and emotional dysregulation: A proposal to analyze cross-sectional data from the MADDY study

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Abstract

Introduction

Attention-deficit hyperactivity disorder (ADHD) is a pervasive neurodevelopmental disorder characterized by symptoms of inattention and hyperactivity. In up to 50% of cases, children with ADHD have additional symptoms of emotional dysregulation including anger, irritability, or aggression. Aggression confers considerable additional risk for adverse health outcomes like illicit drug use and suicide. Aggression is associated with changes in cortisol, a steroid hormone involved in the stress response. The literature on the direction of the association is inconsistent and must be better characterized. Dysregulated cortisol may represent a treatment target in children with ADHD and symptoms of aggression.

Objective. We will assess the association between urinary cortisol and the severity of aggression in children who have ADHD plus symptoms of emotional dysregulation.

Methods

Data for this analysis are derived from the baseline assessmentof a multi-site, randomized, controlled trial: The Micronutrients for ADHD in Youth (MADDY) Study. The study enrolled children aged 6-12 with a diagnosis of ADHD and symptoms of emotional dysregulation such as anger, irritability, or aggression. Using a cross-sectional study design, we will measure the association between urine cortisol levels and the severity and impairment of aggressive symptoms at baseline. Aggressive symptoms were measured using three subscales of the Child and Adolescent Symptom Inventory, Version-5 (CASI-5): Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and peer conflict (PC) subscales. To test our hypotheses, we will use two methods: multivariable linear regression to model continuous outcomes (symptom severity) and logistic regression to

model binary outcomes (impaired; yes/no). Models will be adjusted for potential confounding variables.

Results

The study is on-going.

Conclusion

Our results will serve to better characterize the relationship between cortisol and aggressive behavior in children with ADHD. Further characterizing the pathophysiology of aggression in this population of children may refine treatment strategies and improve health outcomes across the lifespan.