Medium-chain triglyceride supplementation may increase working memory in older adults: A pilot study

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BACKGROUND

Medium-chain triglycerides (MCT), unlike other types of fats, are quickly digested into medium-chain fatty acids (MCFA), which are metabolized by the liver into energy in the form of ketone bodies. Ketone bodies are then transported to the brain for energy supply. In Alzheimer’s disease (AD), the brain becomes less efficient in glucose uptake and metabolism, resulting in an energy deficiency. The only backup source of energy for the brain is ketones. In this study we examined the potential for MCT to serve as a fuel source during energy deprivation, such as what is observed in AD.

METHODS

Healthy males and females aged 60 to 77 years (n=13) consumed MCT oil (40% caprylic acid, 28% capric acid, 32% lauric acid) for 7 weeks as part of a preliminary phase 1 clinical trial to examine the safety and dosage effects. The National Institutes of Health (NIH) Executive Abilities: Measures and Instruments for Neurobehavioral Evaluation and Research (EXAMINER) neuropsychological battery was administered pre- and post-intervention to examine working memory and executive functions. Participants could discontinue at any time during the intervention period.

RESULTS

Repeated measures ANOVA showed significant (α=.05) improvement in performance on the NIH EXAMINER for the N-Back-1 (p=.02, powerobserved=0.69), N-Back-2 (p=.03, powerobserved=0.59) and Set Shifting heterogenous-task (p=.03, powerobserved=0.65). Despite the changes in these tasks, no significant changes were observed in the remaining tasks including Dot Counting, Flanker, Continuous Performance Task (CPT) or Anti-Saccades.

CONCLUSION

MCT oil may improve working memory in older adults. However, a further longitudinal study with a larger sample size is required to validate these preliminary results.

CONFLICT OF INTEREST

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