ABSTRACT

Purpose: As one ages, ketones and fats become more important relative to glucose in brain metabolism. A highly concentrated Medium Chain Triglyceride (MCT) product, with a proprietary high-concentration MCT ketogenic product, and five (5) controls consumed a placebo. Subjects who were prospectively and randomly placed in either the placebo or intervention groups and were blinded as to group assignment. At both baseline and at 30 days, cerebral electroencephalographic (EEG) function was scored prior to placement in the headgear, and then onto the subject. Before measurement, electrical contact points were assessed. Once contact was adequate, the test was started with an auditory reaction time test which simultaneously not only measured auditory reaction time (time to test completion), but also voltage potentials (tens of millivolts). The subjects then continued two trail making tests (both of which used time to completion as the metric), which recorded time to completion. Each test was pre-tested by a practice test to ensure the subject understood the instructions.

METHODOLOGY

The study was designed as a clinical human pilot trial performed with a prospective, randomized, blinded, placebo-controlled design. The mean age for the control group was 39.4 ± 9.42 years and 40 ± 6.42 years for the intervention group. Among participants, 52% were female and 48% were male. The subjects had to agree that they would not alter dietary or exercise regimens while in the study. All subjects read and signed an informed consent form and the study was approved by the CCHSS Institutional Review Board.

RESULTS

Subjects were assigned by a 2:1:5 randomization ratio to either the intervention group (N=12) or the placebo group (N=5). Pre and post-assessment occurred at time points and after four weeks. The profile included an EEG test for basic brain function (WaviMed, Boulder, CO). In this part of the profile, the subjects were informed of what to expect with both headgear placement and testing. In accordance with manufacturer directions, the correct size headgear was measured, cerebral electroencephalographic (EEG) function was scored prior to placement in the headgear, and then onto the subject. Before measurement, electrical contact points were assessed. Once contact was adequate, the test was started with an auditory reaction time test which simultaneously not only measured auditory reaction time (time to test completion), but also voltage potentials (tens of millivolts). The subjects then continued two trail making tests (both of which used time to completion as the metric), which recorded time to completion. Each test was pre-tested by a practice test to ensure the subject understood the instructions.

DISCUSSION/CONCLUSION

With the limited subject numbers, this pilot study may be considered an investigational trial. It would be anticipated that these results could be projected on a larger population. However, given the wide range of benefits from MCT products reported in the past, including positive cognitive changes, these results are not surprising.

Strongly ketogenic MCT products, as exemplified by the proprietary formulation used in this study, which contains a very high concentration of caprylic acid demonstrate particular promise for increased cognitive and visual function in middle aged adults.

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