TOLERANCE, ADHERENCE AND ACCEPTABILITY OF A KETOGENIC 2.5:1 RATIO, NUTRITIONALLY COMPLETE, MEDIUM CHAIN TRIGLYCERIDE-CONTAINING LIQUID FEED IN CHILDREN AND ADULTS WITH DRUG-RESISTANT EPILEPSY FOLLOWING A KETOGENIC DIET

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Introduction:

To investigate incorporating a ready-to-use 2.5:1 ratio liquid feed into a ketogenic diet (KD) in children and adults with drug-resistant epilepsy.

Method:

Following a three-day baseline, patients (n=19; age: 19 years (SD 13), range: 8-46 years) followed a KD for 28 days (control period), then incorporated ≥200mL/day of a ready-to-use liquid feed, made with a ratio of 2.5g of fat to 1g of protein plus carbohydrate and including medium chain triglycerides ((MCTs); 25.6% of total fat/100mL) for 28 days as part of their KD (intervention period). Outcome measures (control vs intervention period) included gastrointestinal (GI) tolerance, adherence to KD and intervention feed, dietary intake, blood β-hydroxybutyrate (BHB) concentration, seizure outcomes, health-related quality of life (HRQoL), acceptability and safety.

Results:

Compared to the control period, during the intervention period, the percentage of patients reporting no GI symptoms increased (+5% (SD 5), p=0.02); adherence to the KD prescription was similar (p=0.92) but higher in patients (n=5) with poor adherence (<50%) to KD during the control period (+33% (SD 26), p=0.049); total MCT intake increased (+12.1g/day (SD 14.0), p=0.002), driven by increases in octanoic (C8; +8.3g/day (SD 6.4), p<0.001) and decanoic acid (C10; +5.4g/day (SD 5.4), p<0.001); KD ratio decreased (p=0.047), driven by a non-significant increase in protein intake (+11g/day (SD 44), p=0.29); seizure outcomes were similar (p=0.043) but improved in patients (n=6) with the worst seizure outcomes during the control period (p=0.04); and HRQoL outcomes were similar. The intervention feed was well adhered to (96% (SD 8)) and accepted (\geq 88% of patients confirmed).

Conclusion:

These findings provide an evidence-base to support the effective management of children and adults with drug-resistant epilepsy following a KD with the use of a ready-to-use, nutritionally complete, 2.5:1 ratio feed including MCTs.