

Category :**Nutritional support**

A13 - Alternative substrates in the critically ill subject (asics): a feasibility study

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Introduction:

Ketogenic feeding (KF) might reduce muscle loss in critical illness (CI). We performed a randomised controlled feasibility study to see if Intensive Care Unit (ICU) patients can be recruited into a study of enteral KF; if feed can be prepared, administered, tolerated, and raises plasma and urine ketone body levels.

Methods:

Patients recruited ≤ 48 hrs after ICU admission in two UK ICUs; randomised to 10d KF or standard feed (SF) enterally. Inclusion: (i) >18 yrs old (ii) prescribed enteral feed (iii) likely mechanical ventilation >48 hrs, on ICU ≥ 5 d survival ≥ 10 d (iv) multi-organ failure (SOFA score >2 in >2 areas). ClinicalTrials.gov NCT04101071[1]. Dietitian-prescribed modular KF: reconstituted on ICU [80% fat (40-80% medium chain triglycerides (Betaquik®, VitaFlo)); 20% protein (Renapro®, Stanningley Pharma); 5% carbohydrate (Maxijul®, Nutricia)]. Data were collected for feasibility of recruitment, retention (receipt of 10d randomised feed and those on ICU ≥ 5 d if <10 d feed); Adverse Events (AEs); blood glucose levels; urine/plasma ketone body levels.

Results:

Of 286 patients screened, 29 recruited, 24 retained (12/14: SF; 12/15 KF). It was possible but laborious to calculate and prepare feed constituents to meet patients' daily nutritional needs, and for bedside nurses to give it. No related or unexpected serious AEs were found. AE rates for episodes of daily vomiting and high gastric residual volume (GRV; >350 mls) were similar in SF and KF arms; episodes of diarrhoea (3d in a row) were more prevalent with KF than SF (76.92% vs. 52.33%, respectively). Daily blood glucose concentration remained ≥ 3.9 mmol/L in all KF patients but was ≥ 10 mmol/L in a greater proportion of SF than KF patients (57.48% vs. 26.85%, respectively). KF was associated with mild plasma ketosis (up to 2.7 mmol/L) and a greater urinary ketosis (up to 8 mmol/L).

Conclusion:

Enteral KF in ICU patients is safe, tolerated and induces ketone body production. Ready-made feed would improve feasibility.

References: