

THE IMPACT OF INDIRECT CALORIMETRY GUIDED FEEDING PROTOCOL ON CLINICAL OUTCOMES IN CRITICALLY ILL PATIENTS: A RANDOMIZED CONTROLLED TRIAL (THE IC STUDY)

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ABSTRACT

Background: International guidelines recommend the use of indirect calorimetry (IC) to measure energy requirements in critically ill patients. This study aimed to assess the effects of IC-guided nutrition vs standard-nutrition care on clinical outcomes in critically ill patients

Methods: Sixty mechanically ventilated patients expected to stay in intensive care unit (ICU) more than 3 days were randomized into a group in which energy needs were determined by IC (IC-group) and a group prescribed with 25kcal/kg/day reflecting standard care (SC-group). The primary outcome was the ICU length of stay(LOS). Secondary outcomes included change in quadriceps muscle layer thickness (QMLT, ultrasound) during the first 10 days of ICU admission, hospital-LOS, duration of mechanical ventilation, ICU mortality and 28-day-in hospital mortality.

Results: Mean energy requirement was similar in both groups. The IC group received 85.63%, whereas the SC group received 76.83% of their energy goals (P=0.002). The protein intake was higher in the IC group (89.58% vs 77.66%, p=0.007). Both groups had a median of 8.0 days ICU-LOS (p=0.424). QMLT was decreased in both groups by 21.9% vs. 25.3% at day10 (p < 0.001), respectively. However, there were no significant differences observed in muscle mass changes and other secondary clinical outcomes between the groups.

Conclusion: IC-guided nutrition did not appear to affect significantly any clinical outcomes compared to the SC group due to the limitation in Sample size. Clinicaltrials.gov identifier no. **NCT04479254**

Keywords: Critical illness, Nutrition, Indirect calorimetry

Acknowledgement: The authors wish to thank the medical staff at the IIUM-Medical Centre Intensive Care Unit.