primary studies - published RCT

Comparison of low, medium, and high carbohydrate formulas for nighttime enteral feedings in cystic fibrosis patients.

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Study design (if review, criteria of inclusion for studies)

RCT crossover

Participants

10 young adult cystic fibrosis patients with moderate to advanced lung disease, age 17 to 24 (mean 21.4 years). 8 patients had severe, and two moderate obstructive pulmonary disease; 9 used nighttime oxygen therapy.

Interventions

1000 kcal/M2 of a low (Pulmocare), medium (Ensure Plus), and high (Vivonex HN) carbohydrate formula in random order

Outcome measures

Basal energy expenditure (BEE), indirect calorimetry. VO2, VCO2, VCO2-/VO2, minute ventilation, Transcutaneous oxygen saturation

Main results

Basal energy expenditure (BEE) without feedings averaged 120% of that predicted by the Harris-Benedict equation. The metabolic expenditure by indirect calorimetry during nighttime feedings was 25 to 36% greater than the BEE. Oxygen consumption (VO2) increased 21 to 27% during nighttime feedings with no difference between formulas. VCO2 increased 29% for Pulmocare, 46% with Ensure Plus, and 53% with Vivonex HN. The increase in VCO2 with Pulmocare was significantly less than Ensure Plus (p less than 0.05) and Vivonex HN (p less than 0.005). The respiratory quotient (RQ) (VCO2-/VO2) for Pulmocare (0.88) was the same as the BEE, but increased with Ensure Plus (1.00), and Vivonex HN (1.08). The 41% increase in minute ventilation with Vivonex HN was greater than the 25 to 28% increase observed for Pulmocare and Ensure Plus (p less than 0.05). Transcutaneous oxygen saturation fell no more than 2% with all formulas. PCO2 changed +/- 5 torr during enteral feedings with similar changes in any patient with all formulas.

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See also

JPEN J Parenter Enteral Nutr. 1990 Jan-Feb;14(1):47-52.

Keywords

Adolescent; Adult; Carbohydrates; Enteral Nutrition; Food; non pharmacological intervention - devices OR physiotherapy; non pharmacological intervention - diet; Supplementation; Chest physiotherapy;