Comparison between applying Faisy equation and Harris-Benedict equation to critically ill elderly patients with chronic respiratory failure receiving prolonged mechanical ventilation (PMV): A randomized trial in a southern Taiwan regional teaching hospital

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Introduction

The elderly with lung injury who develop respiratory failure often require tracheostomy and PMV, with which nutrition problems of the hypoalbuminemia and anasarca due to chronic critical illness syndromes caused by adult kwashiorkor-like malnutrition. The major purpose of this study was to investigate of the nutrition status and weaning efficacy among prolonged mechanically ventilated critically ill elderly patients with adult kwashiorkor-like malnutrition by using the Faisy equation versus Harris-Benedict equation as energy requirements assessment method.

Methods

A total of 78 the PMV patients from a teaching hospital in Chi Mei sub-acute respiratory care center divided by randomly assigned to the experimental and control group. In the total of 78 PMV patients in the experimental group, 57 patients received Faisy equation and Harris-Benedict equation to critically ill elderly patients with chronic respiratory failure. The elderly with lung injury who develop respiratory failure often require tracheostomy and PMV, which nutrition problems of the hypoalbuminemia and anasarca due to chronic critical illness syndromes caused by adult kwashiorkor-like malnutrition, the nutrition status and weaning efficacy among prolonged mechanically ventilated critically ill elderly patients with adult kwashiorkor-like malnutrition were monitored every month. Use GNRI nutritional assessment tools to assess the patient's nutritional risk and using statistical software SPSS/PASW18 statistical analysis of experimental results.

Results

Results of nutrition therapy intervention were Faisy equation show that proportion of the severe non-nutritional risk dropped to 33.3% from the 46.7 percent non-nutritional risk from 8.9% to 15.6% results of nutrition therapy intervention were Harris-Benedict equation show that proportion of the severe non-nutritional risk from 24% to 27.3%, the proportion of non-nutritional risk remained 27.3%, GNRI of the both groups have significant difference, p = 0.001. For BMI <20 (kg/m^2) patients, the results of nutrition therapy intervention, Faisy equation shows mean serum albumin concentration (2.67 ± 0.4 vs 3.02 ± 0.5 g/l, p = 0.001) lower than Harris-Benedict equation (2.19 ± 0.5 vs 2.46 ± 0.3 g/l, p = 0.125) with a significant difference. Successfully weaned ratio between the two groups had no significant difference 67.6% vs 70.4% (p = 1.000).

Discussion

In this study, Basic data from the clinical subjects were found to have an Adult-kwashiorkor-like malnutrition. The main nutritional problems: hypoalbuminemia (Hypoalbuminemia), generalized edema (Anasarca), while the low serum albumin (Hypoalbuminemia) may cause chronic ill patients worse prognosis and increased hospital morbidity, mortality and length of hospital stay. For weaning elderly patients with critical ill, Faisy equation provided 29.65 ± 2.7 kcal/kg/day (p = 0.001) with added calorie (0.125) with a significant difference. Successfully weaned ratio between the two groups had no significant difference 67.6% vs 70.4% (p = 1.000).

In this study, Basic data from the clinical subjects were found to have an Adult-kwashiorkor-like malnutrition.

Conclusions

Use Faisy equation to evaluate the resulting calories and protein, the experimental results confirm that the group of elderly people with severe respiratory failure can improve GNRI.

References