

Nutritional support of mechanically ventilated critically ill patients: comparison of different types of nutritional support before and after the implementation of an evidence based nutritional management protocol

THESIS

Submitted in partial fulfillment for the requirement of
M.D. degree in

Critical Care Medicine

By

Suzanne Fouad Mohamed Soliman
(M.B.,B.Ch.; M.Sc. Cairo University)

Supervisors

Prof. Hossam Ahmed Mowafi

Professor of Critical Care Medicine - Cairo University

Prof. Salwa Mostafa El Shebini

Professor of clinical nutrition – National Research Center

Prof. Osama Mohamed Tayeh

Assistant Professor of Critical Care Medicine – Cairo University

Faculty of Medicine

Cairo University

2009

Abstract

Malnutrition is a common problem in hospitalized patients. Early assessments of nutritional status help in identifying patients for whom nutritional interventions are needed.

The purpose of this study was to assess and compare the nutritional status of mechanically ventilated critical ill patients who were receiving different forms of nutritional support (conventional versus modified low carbohydrate high protein fat, enriched with natural source of glutamine, arginine and omega 3 plus).

Patients and methods

Eighty patients were divided into either conventional enteral nutrition, modified enteral nutrition, conventional parenteral nutrition, and, modified parenteral nutrition groups. Medical status, anthropometric and biochemical measurements were assessed at the 1st day and 14th day of admission in the intensive care unit of Cairo University Hospital.

Results

The length of ventilatory dependency was significantly positively correlated with carbohydrate intake and total leucocytic count. It was negatively correlated with serum level of albumin, prealbumin, haemoglobin, arm muscle area and triceps skinfold thickness. Time required for weaning depends on serum level of albumin and phosphate.

Patients in all groups had abnormal mean biochemical values at the 1st day of admission. Subjects in the modified groups showed a significant increase in prealbumin and transferrin after 14th days. Subjective global assessment is considered a good nutritional marker with specificity 91% and sensitivity 90%. Subjects receiving modified enteral and parenteral nutrition showed slight increase in anthropometric measurements at the 14th day after admission but with no statistical significant difference.

Conclusion

Patients in all groups were malnourished when admitted to the ICU. They showed an improvement in the nutritional status after receiving nutritional support with low carbohydrate high protein fat diet for 14 days.

Key words: mechanically ventilated critical ill patients, weaning, nutritional status, nutritional support, enteral nutrition, parenteral nutrition