Reducing Costs and Patient Morbidity in the Enterally Fed Intensive Care Unit Patient

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Objective

This study was completed to investigate if administration of immunonutrition formula to critically ill patients under the care of the trauma and surgical critical care clinical service would reduce the incidence of nosocomial infection and ICU resources.

Methods

Clinical trial where the study group (n=17) was identified prospectively and the control group (n=21) was a historical cohort identified by screening the trauma registry with the same eligibility criteria.

- Expected to require ≥ 5 days' enteral nutrition and had one of the following:
  - Injury Severity Score ≥ 25
  - Glasgow come Scale score ≤ 8
  - Severe second- and third-degree burns ≥ 30% BSA
  - Sepsis with mechanical ventilator dependency
  - Acute respiratory distress syndrome

A. Study group patients received IMPACT®* 1.5 immunonutrition formula containing 22% protein and supplementary arginine, omega-3 fatty acids and nucleotides.
B. Control group patients (20/21) received PROMOTE®** standard formula containing 25% protein and no added arginine, omega-3 fatty acids or nucleotides.

The majority of patients had sustained trauma, especially blunt trauma. Enteral feedings were advanced in 20 mL/hr increments to the prescribed goal of 25-35 kcal/kg. A complete day of feeding was described as receiving at least 50% of the tube feeding prescribed and only patients with at least 5 days of complete feeding were included. No differences in mean calories or protein received, days to feeding initiation or days to goal rate were observed.

Results

- **Nosocomial pneumonia**. A reduction in nosocomial pneumonia (12% in immunonutrition patients vs. 52% in those on standard feeding, p=0.01) was shown.

- **Bloodstream infection.** No differences in the incidence of bloodstream infection were observed.

- **Mechanical ventilation and other ICU resource determinants.** No statistically significant differences in ventilator days, antibiotic days, ICU days or mortality were noted; however the patients receiving immunonutrition required 3 fewer days of ventilator support and had a 5 day shorter ICU stay, on average, than those receiving standard feeding.

- **Cost analysis.** Using previously published daily costs of ICU care, cost of formulas and the difference in length of ICU stay, an economic analysis identified a savings of $11,374 for each immunonutrition patient.

Conclusion

A group of predominantly trauma patients had a decreased rate of nosocomial pneumonia when enterally fed with immunonutrition vs. standard nutrition. This decrease in morbidity is associated with substantial cost savings.

Summary prepared by Nestlé Healthcare Nutrition. To view the study abstract, please use the following link: http://www.ncbi.nlm.nih.gov/pubmed/15709547