Increased Protein Delivery within a Hypocaloric Protocol May Be Associated with Lower 30-day Mortality in Critically Ill Patients

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BACKGROUND
• Contemporary nutrition leaders suggest that increasing protein delivery >1.2g/kgIBW/day while decreasing non-protein calories to 70% of basal energy expenditure may be associated with improved clinical outcomes in critical illness.

• Formulas are available to support this goal of feeding more protein and less calories, containing approximately 37% protein 29% carbohydrate.

OBJECTIVES
• Evaluate the potential effect that increasing protein delivery could have on clinical outcomes.

METHODS
Population:
• Retrospective analysis of existing electronic medical records (EMR) of patients admitted to the intensive care units (ICUs) at the Geisinger Health care system.

Data Collection:
• Demographics (age, gender, admitting diagnosis and BMI)
• LOS, readmission rates, in-hospital mortality, 30-day mortality and mortality upon readmission
• All forms of nutrition delivery for first seven days of ICU stay:
  — Estimated nutrition needs
  — Enteral prescription
  — Calories and protein delivered

Statistics:
• Logistic regression analysis was used to determine correlation between protein delivered and clinical outcomes.

RESULTS
• 2000 medical encounters with 12,321 ICU days collected and analyzed.

• Most frequently encountered diagnosis included sepsis or septic shock, acute and/or chronic respiratory failure, cardiovascular diseases, stroke and cerebral vascular disease.

• Overall mortality during hospitalization was 7.3%; 30-day mortality was 15.6%.

• Median hospital length of stay (LOS) was 13.6 days, 6.9 day ICU LOS; 4 days of invasive mechanical ventilation.

• 30-day readmission rate among patients discharged alive was 19.3%.

CONCLUSION
• A significant improvement in mortality is observed with increased protein delivery while decreasing carbohydrate loads.

• Higher protein, along with lower carbohydrate intake appears to generate the best outcomes for critically ill patients.

• Prospective randomized trials are warranted to establish causality.

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