

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:

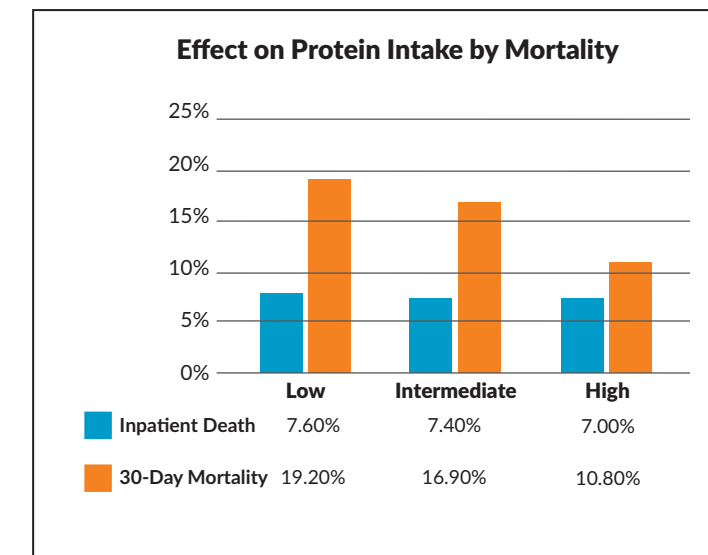
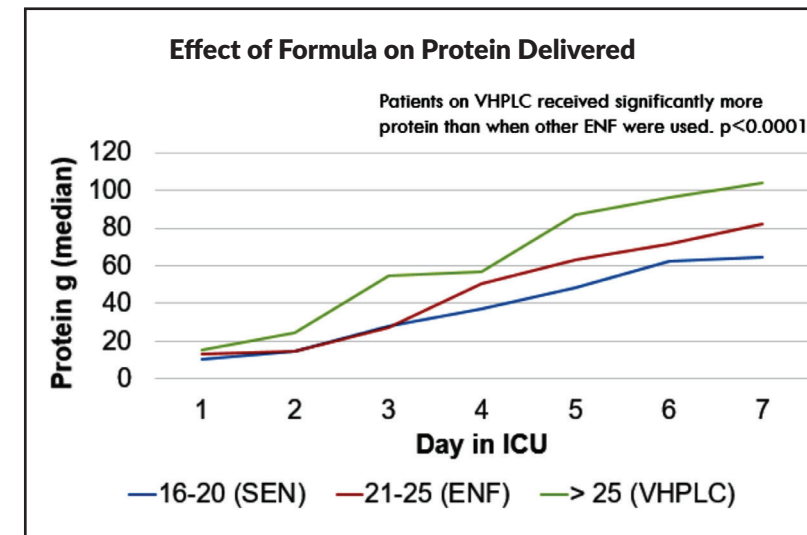
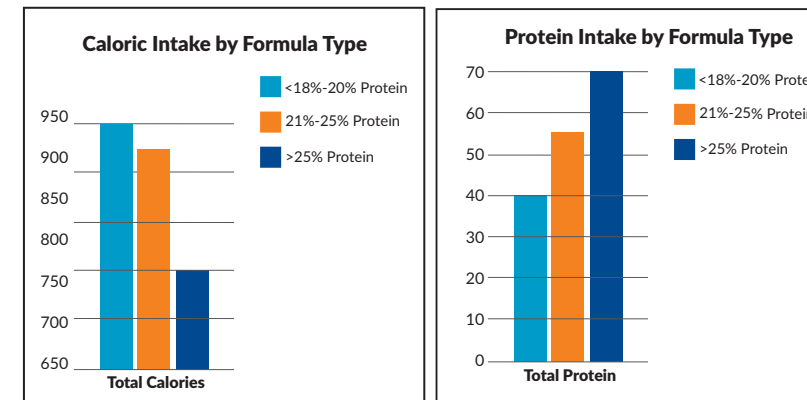
- Logistic regression analysis was used to determine correlation between protein delivered and clinical outcomes.

Demographics:

	All Encounters (n=2000)	
Patients, n	1899	
ICU Stay Days for Nutritional Assessment, n	12,321	
ICU Stay Days for Nutritional Assessment:	n	%
1	6	0.3%
2	37	1.9%
3	77	3.9%
4	174	8.7%
5	206	10.3%
6	216	10.8%
7	1284	64.2%
Age, mean (S.D.)	62.2	(16.2)
BMI, median (IQR)	28.3	(23.7, 34.3)
Sex:	n	%
Female	896	44.8%
Male	1104	55.2

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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