

Proposed Protein Supplementation Protocol for Critically-Ill Surgical Patients Receiving Enteral Nutrition Support DRAFT



Cairo Archer, UW Nutritional Sciences Program, MS-Nutrition Student & Dietetic Intern
Marilyn Shelton, RD, CNSC, Harborview Medical Center

Background

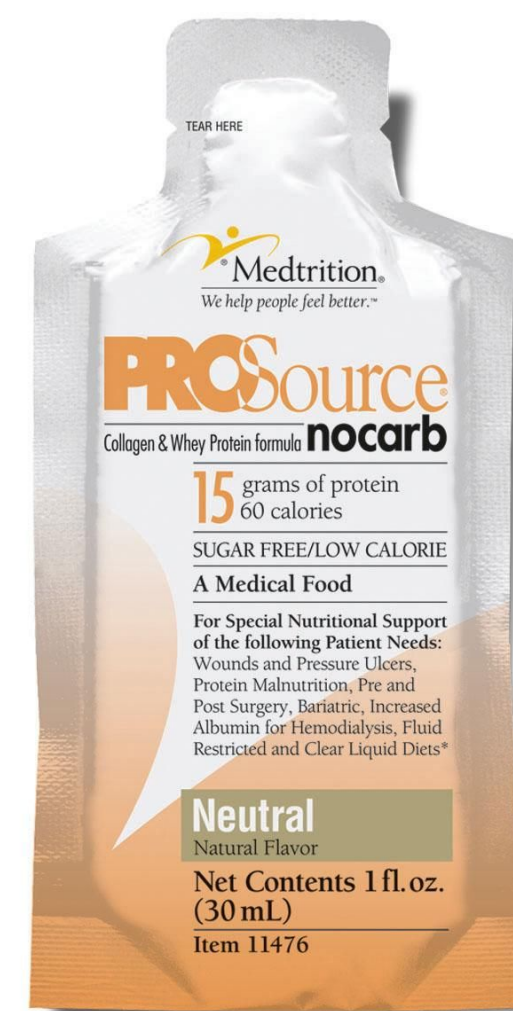
- Nutrition support is crucial for wound healing, organ function restoration, and management of hypermetabolism.¹
- Protein catabolic rates are significantly elevated in the setting of hypermetabolism.²
- Protein consumption linked to positive outcomes more so than the provision of total energy.³
- ASPEN/SCCM recommends patients who cannot meet protein requirements using standard enteric nutrition (EN) formulas receive protein supplementation.³
- **Suboptimal enteral feeding volumes common due to frequent interruptions and high levels of propofol.**

Current Recommendations

- ASPEN/SCCM recommends providing protein at 1.2-2g/kg
- Data analyzing the total urea nitrogen (TUN) output from critically ill patients suggests protein needs likely exceed 2g/kg.3

Proposal

Provide early enteral protein supplementation to critically ill surgical patients at 2 g/kg/day regardless of protein provision in enteral nutrition formulas.



ProSource enteral protein supplement: 60 kcals and 15 grams protein per 30mL

Image source: <https://medtrition.com/product/prosource-nocarb-liquid-protein/>

Pertinent Research

- Retrospective cohort analysis: 53 critically-ill surgical-EN patients at Harborview Medical Center (HMC)
- Patients randomized to receive enteral protein supplementation using ProSource
- **Relevant Finding: Protein supplementation can be provided safely at >2 g/kg/d.**

Detailed Protocol

Start on a polymeric enteric nutrition formula for full nutrition support within 72 hours of admission.

RNs to provide enteral ProSource supplementation at 2g/kg/day. Enteral Supplement Cards to support protocol adherence.

Decrease ProSource supplementation by 50% once patient receives 75% of goal enteral formula volume for 48 hours.

Reduce ProSource supplementation so total protein equals 2g/kg/day once patient receives 100% of goal enteral formula volume for 48 hours.

Assess average enteric formula provision and resume enteric protein supplementation based on clinical judgement.

24-Hour TUN measurements, indirect calorimetry, and serum transthyretin should be utilized to support enteral nutrition modifications.

Limitations

- Enteral nutrition intolerance possible
- Concern for use in patients with especially end-stage renal disease
- Those receiving total parenteral nutrition would require a different protocol
- No clinical outcomes (ICU LOS, rate of discharge, etc.) assessed in relation to high level protein supplementation

Future Directions

- Goal is to implement this protocol throughout the SICU at HMC.
- A similar protocol could be developed for additional services and those receiving total parenteral nutrition.

Acknowledgements

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Sources:

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