

Orthopaedic Trauma Patients Have Substantial Caloric and Protein Deficiencies in the Early Postoperative Period

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Purpose: Nutrition deficiencies are increasingly recognized as a modifiable risk factor for complications and loss of function after surgical treatment of fractures. The American Society for Parenteral and Enteral Nutrition (ASPEN) recommends nutrition support in critically ill adult patients that includes caloric intake of 12 to 25 kcal/kg/day and protein intake of 1.2 to 2.0 g/kg/day. The purpose of this study was to determine if orthopaedic trauma inpatients are ordering hospital meals from nutrition services that meet the ASPEN recommendations for appropriate caloric and protein intake.

Methods: An observational clinical trial was performed for consecutive adult patients who underwent surgical treatment of acute extremity and pelvis fractures and were admitted for at least two nights after surgery. Nutrition services at our hospital records and stores all meals ordered by inpatients. Demographics, comorbidities, and total macronutrient content of meals ordered per day for up to the first 3 full postoperative days were recorded retrospectively. Descriptive statistics reported the number of patients who ordered daily meals that met caloric intake, protein, and carbohydrate needs.

Results: Data were collected for 70 consecutive participants (female: 57%; median age: 67 years [range: 54–79]). Diabetes was present in 24% of patients, chronic kidney disease in 20%. On postoperative day 1, 31 of 69 (51%) patients did not meet recommended caloric intake; 52 of 69 (75%) did not meet recommended protein intake. On postoperative day 2, 33 of 59 (56%) patients did not meet recommended caloric intake; 44 of 59 (75%) did not meet recommended protein intake. On postoperative day 3, 23 of 45 (51%) patients did not meet recommended caloric intake; 32 of 45 (71%) did not meet recommended protein intake.

Conclusion: ASPEN recommendations for caloric and protein needs in critically ill patients are not commonly met by patients admitted to the hospital after undergoing surgical treatment of extremity and pelvis fractures. These nutrition deficiencies likely contribute to negative outcomes after orthopaedic trauma. Patient education on healthy food choices and the importance of nutrition for healing after injury may be an effective intervention to improve outcomes.