

A retrospective observational cohort review of protein provision in parenteral nutrition (PN) prescribed in an adult intensive care unit (ICU) in University Hospital Southampton (UHS) NHS Foundation Trust



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INTRODUCTION

The European Society for Clinical Nutrition and Metabolism (ESPEN) recommend 1.3g/kg/day protein to be delivered progressively to critical care patients [1]. For overweight patients ESPEN recommend protein provision of 2g/kg/day ideal body weight. This is based on smaller studies in the ICU. A study by Hart et al [2] which stratified protein intake into low, medium and high, showed some evidence that medium intake protein during the late acute phase improved outcomes. Large studies such as the EFFORT-protein trial did not demonstrate benefit of using higher protein targets (>2.2g/kg/day) [3].

OBJECTIVES

The aim of this project was to determine the protein provision in PN prescribed for patients admitted to intensive care at University Hospitals Southampton.

METHODS

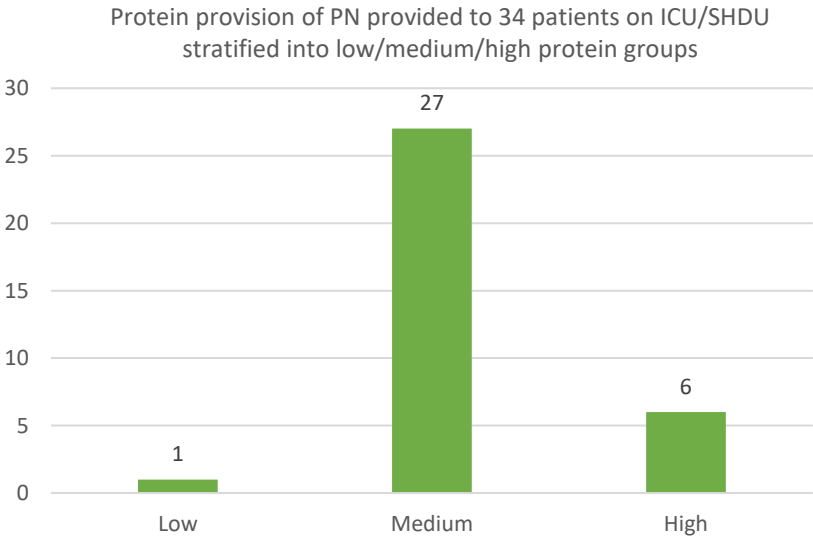
Data on protein provision was retrospectively collected from 50 patients who were given PN, and meeting their total calculated calorie requirement. For patients with a BMI of:

- < 30, patients were categorised into low/medium and high protein provision as per Hartl et al [2], with the expectation that they would be provided ≥ 1.2-1.3g/kg/day (which is the recommendation from the ESPEN guidelines on critical care nutrition [1]).
- > 30, their IBW was calculated, to determine if they had been given the >2g/kg/day protein of their IBW.

RESULTS

Of the 50 patients reviewed, 34 (68%) had a BMI of <30. The results of this evaluation demonstrated that of these 34 patients:

- 6 (17%) patients met the provision of more than 1.2g/kg protein per day. ESPEN recommend that for critically ill patients, protein is delivered at 1.3g/kg/day progressively; out of the 34 patients with a BMI < 30, only 2 patients (6%) were provided with ≥ 1.3g/kg/protein per day.
 - 27 (80% of the 34) patients received protein amounts in the “medium” category i.e. between 0.8-1.2g/kg/day
 - 1 patient (3% of the 34) were in the low protein provision category (less than 0.8g/kg/day).
- Out of the 50 patients, 16 (32%) had a BMI >30. *None* of the patients met the recommendation from ESPEN to provide 2g/kg/day IBW.



PN bags available at UHS	Protein content / 2L
Triomel 4	50g
Triomel 5	65g
Triomel 7	87.5g
Omeflex	100g

CONCLUSIONS

This evaluation of clinical practice found that patients prescribed PN at UHS did not meet the recommendation from ESPEN to provide ≥ 1.3g/kg protein per day. Less than 1 in 5 patients met these nutrition targets. The median protein content was 1.05g/kg which suggests that where possible protein content is optimised within the constraints of available PN bags. Regarding patients with a BMI >30, a much greater focus is needed to ensure their protein nutrition targets are being met.

ACKNOWLEDGEMENTS

This work was supported by the University Hospitals Southampton pharmacy department.

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