



## Letter to the Editor

## Harm associated with higher energy intake in patients with Low-mNUTRIC score should not be ignored



## Keywords:

NUTRIC  
Nutrition support  
Critical illness  
Mortality  
Nutrition risk

## Dear Editor

Chourdakis et al. [1] has conducted the largest analysis of the relationship between nutrition adequacy and mortality in critically ill patients with low-mNUTRIC scores from an international dataset. In this study, a trend towards a positive association between energy and protein adequacies and 60-day mortality was observed. Each 20% increment in energy and protein adequacies were associated with increased odds of 60-day mortality [Energy: adjusted odds ratio (adj-OR) 1.11, 95% confidence interval (CI) 1.00–1.23,  $p = 0.05$ ; Protein: adj-OR 1.07, 95% CI 0.98–1.17,  $p = 0.15$ ]. Similar non-significant findings were reported in all pre-specified subgroups [ $<$  or  $\geq 12$  days in the intensive care unit (ICU), nutrition history and BMI status] and sensitivity analyses (including only patients with  $\geq 12$  evaluable nutrition days). Based on these findings, the authors concluded that there is no association between

nutrition adequacy and 60-day mortality in patients with low-mNUTRIC scores, and suggested that achieving adequate nutrition should still be prioritised for these patients as it may confer other clinical benefits.

In our opinion, the possibility of a positive association between nutrition adequacy and mortality should not be ignored, but be further explored. In our previous studies, Lee et al. [2] demonstrated a significant positive association between 60-day mortality and achieving  $\geq 67\%$  of energy and protein adequacies among patients with low-mNUTRIC scores. Similarly, Lew et al. [3] demonstrated a significant positive association between 28-day mortality and achieving  $> 73\%$  of energy adequacy among patients with short-term nutrition support ( $\leq 6$  days), but this was observed in both patients with low- and high-mNUTRIC scores. Despite these findings, the single-centre nature and the small sample size of our studies prevent us from drawing a strong conclusion to generalise our results.

Therefore, we re-analysed our data based on the methodology of Chourdakis et al. [1]. By including 146 patients [2,3] with low-mNUTRIC scores in a meta-analysis (Fig. 1), we found a significant positive association between each 20% increment in energy adequacy (Adj-OR 1.12, 95% CI 1.01–1.24;  $p = 0.03$ ) and mortality. However, this association was not significant for protein (Adj-OR 1.08, 95% CI 0.99–1.18;  $p = 0.09$ ).

The addition of data from small studies appears to increase the likelihood of harm associated with higher energy intake in patients with low-mNUTRIC scores. Given this potential harm, and the

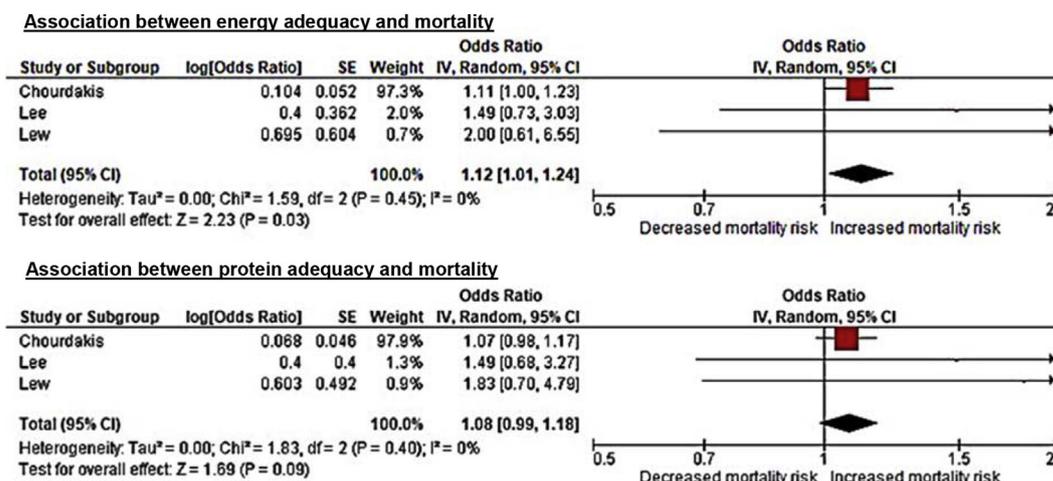


Fig. 1. Pooled adjusted odds ratio for the association between each 20% increment in energy and protein adequacy and mortality in patients with low-mNUTRIC score.

possible benefits of achieving nutrition adequacy for patients with high-mNUTRIC [4], perhaps clinicians should focus their efforts on providing more nutrients to the latter. This is especially relevant to the ICU where resources are often costly and limited. At the same time, an attempt to investigate the effect of protein adequacy (without energy overfeeding) on mortality should be prioritised [5].

### Conflicts of interest

The authors declare no conflict of interest.

### References

- [1] Chourdakis M, Grammatikopoulou MG, Day AG, Bouras E, Heyland DK. Are all low-NUTRIC-score patients the same? Analysis of a multi-center observational study to determine the relationship between nutrition intake and outcome. 2018.
- [2] Lee ZY, Noor Airini I, Barakatun-Nisak MY. Relationship of energy and protein adequacy with 60-day mortality in mechanically ventilated critically ill patients: a prospective observational study. *Clin Nutr* 2018;37:1264–70.
- [3] Lew CCH, Wong GJY, Cheung KP, Fraser RJ, Chua AP, Chong MFF, et al. When timing and dose of nutrition support were examined, the modified Nutrition Risk in Critically Ill (mNUTRIC) score did not differentiate high-risk patients who would derive the most benefit from nutrition support: a prospective cohort study. *Ann Intensive Care* 2018;8:98.
- [4] Compber C, Chittams J, Sammarco T, Nicolo M, Heyland DK. Greater protein and energy intake may be associated with improved mortality in higher risk critically ill patients: a multicenter, multinational observational study. *Crit Care Med* 2017;45:156–63.
- [5] Heyland DK, Patel J, Bear D, Sacks G, Nixdorf H, Dolan J, et al. The effect of higher protein dosing in critically ill patients: a multicenter registry-based randomized trial: the EFFORT trial. *J Parenter Enteral Nutr* 2019;43:326–34.

Charles Chin Han Lew\*

*Dietetics and Nutrition Department, Ng Teng Fong General Hospital, 1 Jurong East Street 21, 609606, Singapore*

Zheng-Yii Lee

*Department of Anesthesiology, Faculty of Medicine, University of Malaya, Malaysia*

*E-mail address: zheng\_yii@hotmail.com.*

\* Corresponding author.

*E-mail address: Charles\_lew@nuhs.edu.sg (C.C.H. Lew).*

18 January 2019