

Letter to the Editor: Targeted Medical Nutrition in pre-cachectic patients with Non-Small-Cell Lung Cancer: A subgroup analysis

Laviano A.¹, Calder P.C.^{2,3}, Schols A.M.W.J.⁴, Lonngqvist F.⁵, Bech M.⁶, Dorkhan M.⁶, Muscaritoli M.¹

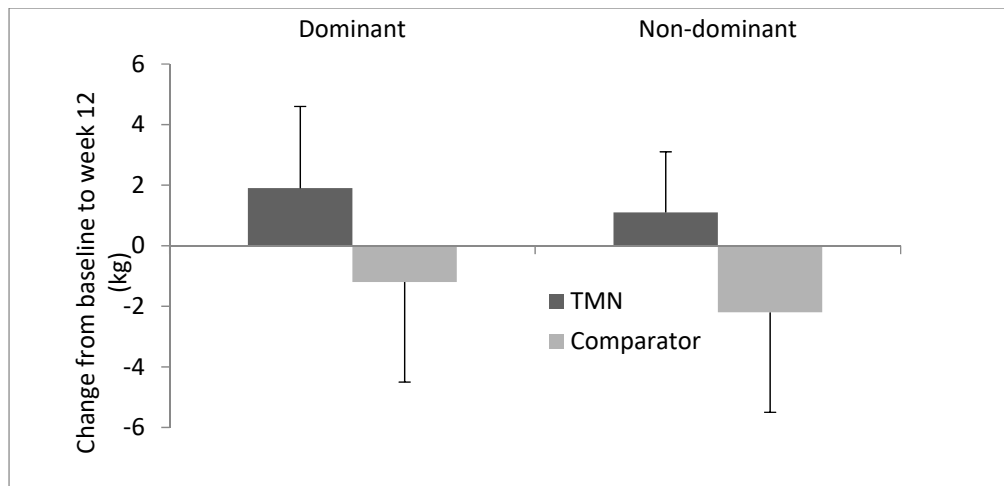
¹Department of Translational and Precision Medicine, Sapienza University, Rome, Italy; ²Human Development and Health, Faculty of Medicine, University of Southampton, Southampton, UK; ³NIHR Southampton Biomedical Research Centre, University Hospital Southampton NHS Foundation Trust and University of Southampton, Southampton, UK; ⁴Department of Respiratory Medicine, NUTRIM School of Nutrition and Translational Research in Metabolism, Maastricht University Medical Centre, Maastricht, Netherlands; ⁵Department of Molecular Medicine and Surgery and the Centre for Molecular Medicine, Karolinska Institute, Stockholm, Sweden; ⁶Smartfish AS, Oslo, Norway.

Corresponding author: Alessandro Laviano, MD, Department of Translational and Precision Medicine, Sapienza University of Rome, viale dell'Università 37, 00185 Rome, Italy; email: alessandro.laviano@uniroma1.it

Nutritional support is recommended for malnourished patients receiving anticancer treatment. In a recently executed pilot, double-blind, comparator-controlled trial evaluating the safety and tolerability of an oral targeted medical nutrition (TMN) supplement -containing n-3 polyunsaturated fatty acids (PUFAs), vitamin D3, and whey protein - in patients with non-small-cell lung cancer (NSCLC), a post-hoc analysis showed that patients with pre-cachexia, i.e. subjects having early signs of cachexia, had less side effects and an improved survival vs. the comparator group that did not receive TMN (1).

Based on this potentially important observation we have looked in more detail at the subgroup of pre-cachectic individuals that had received oral TMN. No significant differences were observed between pre-cachectic on control (n=14) and pre-cachectic on TMN (n=14) in adverse event profile, body composition and metabolic parameters. However, the pre-cachectic subjects on TMN were functionally improved vs. the control group in terms of grip strength (dominant arm, p= 0.0415, non-dominant arm, p= 0.0146) (Figure 1). This functional effect of TMN may strengthen the clinical relevance of the survival benefit previously reported (1), since grip strength has been shown to predict survival of lung cancer patients with good performance status (2).

Figure 1 Change from baseline to week 12 in grip strength in the pre-cachectic population.



Also, post-walk fatigue was significantly improved after 6 weeks in the TMN group ($p= 0.044$) but the difference between groups did not reach significance after 12 weeks.

In summary, early TMN with a specific oral nutritional supplement in pre-cachectic patients may have a positive effect on both functional parameters, i.e. grip strength, and disease survival. These data should be strengthened by adequately powered trials, yet they strongly suggest the use of nutritional support for malnourished pre-cachectic patients receiving anticancer treatment.

References

1. Laviano A, Calder PC, Schols AMWJ, Lonqvist F, Bech M, Muscaritoli M. Safety and tolerability of targeted medical nutrition for cachexia in non-small-cell lung cancer: a randomized, double-blind, controlled pilot trial. *Nutr Cancer* **72**, 439-450, 2020
2. Burtin C, Bezuidenhout J, Sanders KJC, Dingemans AMC, Schols AMWJ, Peeters STH, Spruit MA, De Ruyscher DKM. Handgrip weakness, low fat-free mass, and overall survival in non-small cell lung cancer treated with curative-intent radiotherapy. *J Cachexia Sarcopenia Muscle* 2020 (epub ahead of print; doi: 10.1002/jcsm.12526)