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Energy target for individualized ICU nutrition: reply to Franch-Arcas and Gonzalez-Sánchez

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Dear Editor,

We thank Franch-Arcas and Gonzalez-Sánchez for their constructive comments concerning our publication in *Intensive Care Medicine* [1]. In response, we first would like to stress an important finding of our study: the significant difference between daily measurements during the first week of stay in the Intensive Care Unit (ICU). Repeat measurements may have an impact on the target determination and the outcome of ICU patients. Franch-Arcas and Gonzalez-Sánchez noted that although the plan was that patients in the study group would receive the target energy defined by indirect calorimetry, they did in fact receive slightly more than that amount. The design of the study was such that these patients would receive—as closely as possible—the measured energy expenditure, but they also received non-nutritional calories, such as propofol or

intravenously administered dextrose. This latter intake was added to the total intake by the computerized system, leading to a larger amount of calories being delivered than the targeted amount. This increase was not related to increased parenteral nutrition since parenteral nutrition was adjusted to the target calories.

Also, the data on the energy requirements of the control group are given in Fig. 1 of our article. Since the target energy of the patients in the control group was also measured by indirect calorimetry to assess energy balance, the predicted energy expenditure of this group could be compared to the measured values. The observation of Franch-Arcas and Gonzalez-Sánchez that the figures show very close results between the measured and the predicted energy expenditure is commonly made, but misleading. In fact, although the means of the two methods seem to be very close, the individual measurements can be 400 kcal above or below the predictive values. The equations are well recognized to have a very low precision (accuracy between 40 and 60 % in the best cases) [2].

Finally, the difference in the administration of calories is discussed in our paper. The critical role of the dietician and the targeting of calories based on measurements and the computerized information system are the keys for the success of the protocol. We specifically stated in our article that “In the study group, the dietician in charge of the study was responsible for ensuring the achievement of energy targets, whereas in the control group this was the

responsibility of the wards staff according to the routine nutrition protocol.” The efficacy of approach has recently been confirmed by another group [3]. We never argued that the better outcome was reached by increasing parenteral nutrition since the study group received significantly more enteral as well as parenteral nutrition, but the improvement was linked to a better adhesion to the protocol. An international multicenter TICACOS study (NCT 0147967) is on-going to confirm the results of our single-center pilot study of 112 patients.

Conflicts of interest None.

References

1. Singer P, Anbar R, Cohen J, Shapiro H, Shalita-Chesner M, Lev S, Grozovski E, Theilla M, Frishman S, Madar Z (2011) The tight calorie control study (TICACOS): a prospective, randomized, controlled pilot study of nutritional support in critically ill patients. *Intensive Care Med* 37:601–609
2. Weekes CE (2007) Controversies in the determination of energy requirements. *Proc Nutr Soc* 66:367–377
3. Soguel L, Revelly JP, Schaller MD, Longchamp C, Berger MM (2012) Energy deficit and length of stay can be reduced by a two-step quality improvement of nutrition therapy: the intensive care unit dietician can make the difference. *Crit Care Med* 40:412–419

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