

Background and objective

This study aims at evaluating the adequacy of nutrition energy delivery in surgical intensive care, compliant with European recommendations [1,2].

Setting and Method

- ✓ Prospective study, in 3 surgical ICU, with daily analysis of all nutritional supports, by an independent observer
- ✓ Were taken into account :
 - Patients characteristics : age, sex, gender, weight, height, length of stay, admission diagnosis
 - Nutritional state : weight loss, body mass index, denutrition risk
 - Nutritional support oral, enteral and parenteral : frequency and length of nutrition
 - Nutritional data : energy delivery, energy targets at D3, D7 and at patient discharge and energy balances
- ✓ Energy targets were set at 15 kcal/kg/day for D3, 20 kcal/kg/day for D7 and 25 kcal/kg/day at patient discharge
- ✓ Kruskal Wallis and Fischer tests were used for values of $p < 0.05$ considered significant ones

Results

- ✓ 66 patients, mean age was 57.9 ± 17.3 years, mean BMI was 26.9 ± 5.2 kg/m², mean length of stay was 10.1 ± 5.3 days
- ✓ Nutrition was initiated with parenteral nutrition for 39.4 % patients vs 37.9% with enteral nutrition and 22.7% with oral nutrition ($p < 0.01$). Time to feeding was 2.2 ± 1.1 days
- ✓ Energy target was reached at D3 for 53% patients vs 62% at D7 ($p > 0.05$) and time needed to achieve the target of 25 kcal/kg/day was 5.3 ± 2.9 days ($p > 0.05$)
- ✓ Energy delivery was lower than the energy target during the first 3 days ($p < 0.001$). Difference between energy target and delivery decreased from -19.7 kcal/kg/day as a mean during the first day, to a mean of -3.3 kcal/kg/day at D7
- ✓ Proportion of energy target provided by the enteral, parenteral or oral route was not significantly different from D1 to D7 ($p > 0.05$)
- ✓ Cumulated energy balance was 5023 ± 38.9 kcal/kg/day

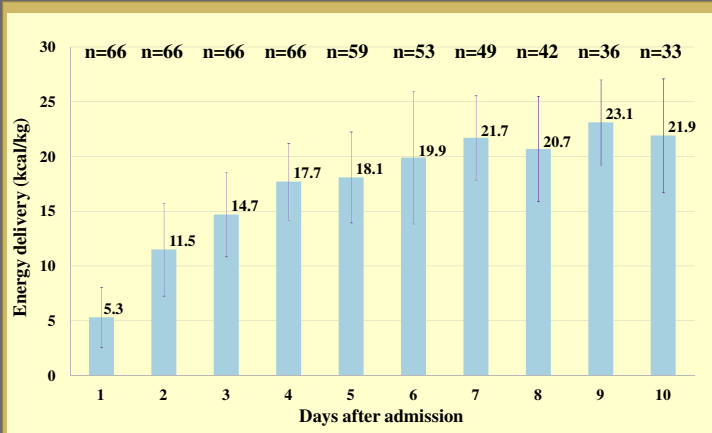


Fig 1 : Mean total energy delivery (kcal/kg/day)

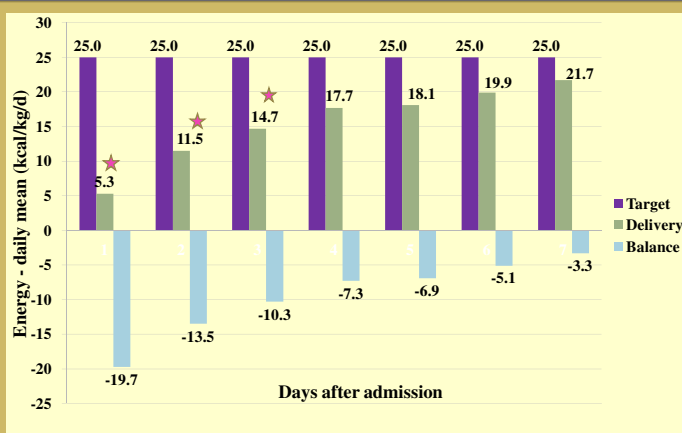


Fig 2 : Progression of energy delivery compared to energy target over 10 days (kcal/kg/day)

Discussion

- ❖ This study offers a snapshot of the current nutritional management of patients and the general nutritional strategy within the three separate surgical intensive care units
- ❖ **Nutritional support** : more frequently initiated via parenteral way than enteral ➡ no consistent with guidelines
- ❖ **Energy delivery** : * during the stabilization phase ➡ close to guidelines
* only half of patients achieved the target objective of 25 kcal/kg/d at D7 ➡ no consistent with guidelines
- ❖ **Strong points** : * daily comprehensive collection of data which taken into account glucose input
* prescribed contributions and patients intakes were used
- ❖ **Limits** : * calorimetry which is the preferred method to evaluate the energy need was not used
* difficulties to compare to literature because all the supports (enteral, parenteral and oral feeding) are rarely simultaneously studied

Conclusion

One can reach the caloric target at D3 and D7 and provide a better balance between enteral and parental nutrition as defined by European recommendations.

References :

- [1] Kreyman KG, Berger MM, Deutz NEP, DGEM (German Society for Nutritional Medicine), ESPEN (European Society for Parenteral and Enteral Nutrition). ESPEN Guidelines on Enteral Nutrition: Intensive care. Clin Nutr Edinb Scottl. 2006;25(2):210-23.
[2] Singer P, Berger MM, Van den Berghe G, et al. ESPEN Guidelines on Parenteral Nutrition: intensive care. Clin Nutr Edinb Scottl. 2009;28(4):387-400.