

Nutritional approach of patients with minor burns: A neglected aspect of burn care?

To the Editor,

Malnutrition refers to deficiencies, excesses, or imbalance in nutrient intake, affecting both macronutrients and micronutrients. Malnutrition, in all forms, is very common among the general population.

Patients with minor burns do not escape this observation: we previously demonstrated in a sample of outpatients that a majority of macronutrient and micronutrient intakes did not reach the Belgian dietary recommended allowances.¹

The consequences of insufficient intakes of energy, proteins, and micronutrients on wound healing are well described.²

In daily practice, the adequation between nutrition requirements and intakes is thus crucial. This point is unfortunately often neglected in patients with minor burns.

A way to answer this question, at least for energy, is to measure the energy expenditure (EE) using indirect calorimetry, as performed in our recently published study.³

The aim of this study was to determine if patients with minor burns had increased energy requirements. Indeed, some data suggest that minor burns could be associated with systemic inflammation and some degree of hypermetabolism.⁴ The hypermetabolism was defined, according to the publications, as an elevated resting EE (quantified or not) relative to normal or predicted resting EE.

As by definition a burn injury is unforeseeable, EE after injury cannot be compared with "normal" EE before injury. The comparison is possible only with predictive EE. In our study,³ we observed that the measured basal EE exceeded the estimated EE using the Harris-Benedict (HB) equation in 32 out of 47 (68%) patients, and a measured basal EE > 110% of the HB estimated basal EE in 15 out of 47 (32%) patients. Of note, the HB equation, dedicated to normal individuals, is known to overestimate the true metabolic rate measured by indirect calorimetry in adults.⁵ This suggests that the proportion of truly hypermetabolic patients could even greater if compared with normal basal EE in case it would have been possible to get indirect calorimetry measurement before injury.


To overcome such considerations, we also defined hypermetabolism as increased oxygen consumption at rest: in our study, this situation was observed in 21 out of 49 (43%) patients.³

Altogether, our study suggests not all minor burn patients should be considered normometabolic. Of course, these results need to be confirmed in larger cohorts, but they seem to bear out some previous animal data.⁴

It was traditionally believed that nutrition support was a crucial component of burn critical care exclusively, in link with the specific pathophysiology of severe burn injury.⁶ Our results call for a systematic nutrition assessment also in patients with minor burns, especially considering that malnutrition (and poor eating habits) is common in the general population.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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REFERENCES

- Lengelé L, Bruyère O, Fadeur M, et al. Should we worry about nutrition of adults with minor burns? An audit of their intakes. *Ann Burns Fire Disasters*. 2021;34(2):163-169.
- Ghaly P, Iliopoulos J, Ahmad M. The role of nutrition in wound healing: an overview. *Br J Nurs*. 2021;30(5):S38-S42.
- Rousseau AF, Fadeur M, Fauville JP, Hans N, Martin F, Misset B. Determination of energy requirements after minor burns using indirect calorimetry: a descriptive cohort study. *JPEN J Parenter Enteral Nutr*. 2024;48(3):284-290.
- Hew JJ, Parungao RJ, Shi H, et al. Mouse models in burns research: characterisation of the hypermetabolic response to burn injury. *Burns*. 2020;46(3):663-674.
- Frankenfield DC. Bias and accuracy of resting metabolic rate equations in non-obese and obese adults. *Clin Nutr*. 2013;32(6):976-982.
- Rousseau AF, Pantet O, Heyland DK. Nutrition after severe burn injury. *Curr Opin Clin Nutr Metab Care*. 2023;26(2):99-104.