

Category :**Nutritional support**

A104 - Endogenous glucose production and gluconeogenesis: are they predictable? one more small step toward personalized medicine...

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Introduction:

Feeding a patient the closer to his/her needs is a challenge in the intensive care unit (ICU), avoiding both under- or over-feeding and their associated complications and mortality[1,2,3]. But ICU patients have an unrepressed endogenous glucose production (EGP)[4,5,6], an energy source not considered by classical energy balance. This study aims at identifying clinically available variables predictive of EGP and gluconeogenesis (GNG), which otherwise need isotopic tracers.

Methods:

This exploratory study is based on the data from the Supplemental Parenteral Nutrition study 2 (SPN2)[6], which measured EGP and GNG at days 4 and 10 in 23 ICU patients. The correlations between EGP and GNG and 83 potential clinical indicators were explored, using single-stage and multivariate analysis.

Results:

On single-stage analysis, the strongest correlations were noradrenaline dose at day 4 with GNG ($R=0.71$; $P=0.0004$), and at day 10, VO_2 with GNG ($R=0.59$, $P=0.04$), and VCO_2 with EGP ($R=0.85$, $P=0.00003$). Cumulated insulin dose between days 5 and 9 was correlated to EGP at day 10 ($R=0.55$, $P=0.03$). Our multivariate model could predict EGP at day 4 with an error coefficient (EC) between 7.8% and 23.4% (minimal and maximal error), and GNG at day with an EC. of 18.5% and 29.9%. GNG at day 4 and EGP at day 10 could not be predicted with an EC. < 40%.

Conclusion:

This preliminary study shows that GNG and EGP have different predictors on days 4 and 10; EGP is more correlated with the metabolic level, while GNG is dependent on external factors. Some variables could be identified to assess the magnitude of both values. Our results suggest that a robust model might be built, but requires a prospective study including a larger number of patients.

References:

[1] Zusman O, Critical Care; 2016 [2] Dissanaik S, Critical Care; 2007 [3] Yeh DD, JPEN Journal of parenteral and enteral nutrition; 2016 [4] Wolffe OO, Eur J Clin Nutr; 1999 [5] Tappy L, Critical care medicine; 1998 [6] Berger MM, Clinical nutrition; 2019