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**EVOLIUCINĖ MEDICINA:
ŽMOGAUS RAIDOS PERSPEKTYVOS IR SVEIKATA
BESIKEIČIANČIOJE APLINKOJE**

**EVOLUTIONARY MEDICINE:
PERSPECTIVES ON HUMAN DEVELOPMENT AND HEALTH
CONSEQUENCES IN A CHANGING ENVIRONMENT**

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COMPARISON OF TWO INDIRECT CALORIMETRY DEVICES IN CRITICALLY ILL PATIENTS

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Background and Aim: Among the available indirect calorimetry (IC) monitors, the Q-NRG+ is regarded as one of the most accurate and easiest to use. However, GE E-sCOVX, an IC module integrated into a mechanical ventilation monitoring system, has not been thoroughly investigated despite its practicality. This study aimed to evaluate the clinical interchangeability of Q-NRG+ compared with e-SCOVX in critically ill patients.

Materials and Methods: A retrospective study of 10 mechanically ventilated ICU patients was conducted. Repeated measurements (1–10 per patient) of REE, RQ, VO₂, and VCO₂ were simultaneously obtained using Q-NRG+ and E-sCOVX over the same period. Data were analysed using R Commander with a paired-samples Wilcoxon test, linear regression, and Bland–Altman analysis.

Results: Ten patients (33 measurements) were included. The mean difference of REE was -25.18 ± 300.75 kcal/day; RQ -0.006 ± 0.13 ; VO₂ -4.36 ± 55.03 mL/min; VCO₂ -1.48 ± 27.54 mL/min, indicating slightly lower values from Q-NRG+. The paired-samples Wilcoxon test showed no statistically significant differences between devices at a group level (all $p > 0.05$). However, at the individual level, the 95% limits of agreement (LOA) for REE ranged from -615 to $+564$ kcal/day. No evidence of proportional bias in REE was observed ($\beta = -0.0966$, $p = 0.28$). The 95% LOA for RQ ranged from -0.26 to 0.25 . A significant proportional bias was found for RQ ($\beta = -0.7208$, $p = 0.0038$), indicating that differences between devices varied with RQ magnitude.

Conclusions: Based on Bland–Altman analysis, wide LOA between methods at the individual measurement level may be clinically relevant. E-sCOVX may slightly overestimate REE in comparison with Q-NRG+, but no systematic overestimation was detected in our small sample. Given the role of IC in guiding nutritional therapy, such variability may influence energy prescription and nutritional management in the ICU.

Keywords: indirect calorimetry, intensive care, nutritional therapy