DETERMINING THE BEST PREDICTIVE EQUATION FOR RESTING ENERGY EXPENDITURE AMONG MECHANICALLY VENTILATED CRITICALLY ILL PATIENTS IN A MALAYSIAN TERTIARY HOSPITAL

Khairul Anam Mansor[1*], Basri Mat Nor[2]

[1]International Islamic University of Malaysia, Malaysia

[2]International Islamic University of Malaysia, Malaysia

*Corresponding author's email: khairulanam@iium.edu.my

ABSTRACT

Introduction: Measurement of resting energy expenditure(REE) using indirect calorimetry(IC) in ICU's patient is the gold standard. Unfortunately, technical difficulties and high cost prevent its widespread adoption. Predictive equations are largely used instead. We aim to validate commonly used predictive equation at different period of acute phase of critical illness.

Methods: Patients hospitalized in ICU of SASMEC, who had been ventilated were included. Measurement was done from day 1 to day 7. 18 equations performance were assessed. Accuracy was defined as a measurement within 90-110% of measured REE by IC.

Results: 49 patients were recruited. The mean of REE as measured by IC was 1176±332 kcal during early acute phase and 1222±321 kcal during late acute phase. During acute phase, Mifflin-St. Jeor have the highest accuracy (33.33%) but no agreement with IC. In the late acute phase, WHO predictive equation shows the highest accuracy but poor agreement while Mifflin-St. Jeor shows the second highest accuracy and moderate agreement.

Conclusions: No predictive equation can be recommended during early acute phase of critical illness. The Mifflin-St. Jeor can be recommended to be used in late acute phase of critically ill patients. Incorporation of dynamic variables such as maximum temperature, minute ventilation does not increase the accuracy of predictive. Recommendations cannot be concluded due to lack of sample size.

Keywords: predictive equation, resting energy expenditure