

LETTER

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VCO₂ calorimetry: stop tossing stones, it's time for building!

Elisabeth De Waele*, Patrick M. Honoré and Herbert D. Spapen

See related research by Stapel et al. <http://ccforum.biomedcentral.com/articles/10.1186/s13054-015-1087-2>

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We followed with interest the discussion [1, 2] fueled by the study of Stapel et al. [3] who reported fairly accurate assessment of energy expenditure (EE) in critically ill patients based on ventilator-derived carbon dioxide production (VCO₂). The proposed technique is elegant and valid but has inherent limitations. It is applicable in patients who are in one way or another ventilator-dependent but not in spontaneously breathing yet oxygen-dependent subjects. We concur that VO₂ is the most relevant variable for EE measurement. However, the most accurate and precise estimation of EE in a critically ill population can only be obtained by sampling of inspired and expired oxygen/carbon dioxide concentrations and measuring expired gas flow. This is the core task of indirect calorimetry [4].

Initiative has been undertaken to develop a 'full option,' easy-to-use, accurate, and affordable indirect calorimeter. The project is supported by the European Society of Intensive Care Medicine and the European Society of Parenteral and Enteral Nutrition [5] and has actually reached Technology Readiness Level. It is probably only a matter of time before such a device will render all current mathematical uproar obsolete.

Abbreviations

EE: Energy expenditure; VCO₂: Carbon dioxide production

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The authors declare that they have no competing interests.

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Not appropriate.

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Not appropriate.

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* Correspondence: Elisabeth.Dewaele@uzbrussel.be

ICU Department, Universitair Ziekenhuis Brussel, Vrije Universiteit Brussel, 101 Laarbeeklaan, 1090 Brussels, Belgium

