LETTER TO THE EDITOR

Muscle Oxygen content at exercise in patients with claudication

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Submitted 10 July 2017; accepted in final form 8 August 2017

TO THE EDITOR: We read with great interest the study by Dr. Luck et al. (4) in which the authors show that, when fatigued, patients with peripheral artery disease (PAD) experience a greater reduction in muscle saturation (SmO2) than subjects matched for age, sex, and body mass index. The conclusion drawn from these observations (that PAD patients have altered oxygen uptake and/or utilization during fatiguing exercise only) requires a few clinical and technical comments.

Although we agree with the importance of measuring oxygen content in tissue, ultimately the most important physiological parameter is tissue oxygen pressure rather than tissue saturation. For this purpose, near infrared spectroscopy (NIRS) is probably not the most suitable method. Furthermore, during short-term exercise, pain can induce vasoconstriction of skin vessels in PAD patients, and it cannot be ruled out that the significant contribution of skin blood flow to NIRS results (3) can interfere with the results of oxygen saturation underlying the NIRS probe. It is worth noting that local heating of skin and measuring surface oxygen pressure have proven to be accurate in estimating regional blood flow impairment in arterial claudication (1), whereas NIRS has failed to differentiate healthy subjects from diseased subjects (2).

Finally, Fig. 2 clearly shows a ceiling effect of heart rate, blood pressure, and SmO2, considering that the exercise was stopped at 14 min for all subjects. It is likely that end exercise in healthy control subjects remains largely submaximal. In light of the decreasing trend of SmO2, we would argue that the symptom-limited values (maximum values for healthy subjects) should have been compared.

AUTHOR CONTRIBUTIONS
S.H. and P.A. interpreted results of experiments; S.H. drafted manuscript; P.A. edited and revised manuscript; S.H. and P.A. approved final version of manuscript.

DISCLOSURES
No conflicts of interest, financial or otherwise, are declared by the authors.

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