Response to Letter Regarding Article, “Discrepancy Between Cardiac and Physical Functional Reserves in Stroke”

Response:
We would like to thank Drs Tomczak and Haykowsky for their interest in our article1 and comment on their previous data.2 Our article1 presents peak exercise and cardiac data on a large sample (n = 28) of stroke survivors and demonstrates that muscle function, as opposed to cardiac output, limits physical exercise in these patients. It is difficult to compare these data with the only previous study in this area because the authors from that study2 report that from the total sample of 10 participants, 3 were excluded from exercise testing because they were prescribed β-blockers and of the 7 who undertook exercise testing, data from 3 patients were excluded because of technical difficulties. Consequently, we remain cautious in interpreting exercise data from only 4 patients because of significant concerns around statistical error and sampling bias.

Cycle ergometry in our study1 was used because it enabled patients to exercise in a safe manner without the loss of economy and psychological barriers found in people unfamiliar with walking on a treadmill, a particular concern for people with gait deficit. As a result, we would question whether the greater deficit observed between patients (n = 4) and control subjects in the previous data2 was a true physiological peak or the result of patients being unable or unwilling to push themselves to the physiological limit. Furthermore, because cycling should elicit a slightly lower VO_{2peak} compared with walking, not higher as the authors imply, we are slightly at a loss as to the logic underpinning their comment. This comment was also addressed in the original article. However, the ideal manner to understand whether peripheral muscle function limits VO_{2peak} is to evaluate the impact of an exercise therapy program on central and peripheral limitations to performance in stroke and these studies should be the focus of future work.

It is important to note that, irrespective of these technical comments, both our article1 and the comments from Drs Tomczak and Haykowsky are in agreement that exercise therapy holds significant potential in stroke survivors and should be explored more. To enable these programs to be effectively translated into clinical care, it is important to remain pragmatic although based in evidence wherever possible. It is likely that we could work for another 10 years in determining what the “optimal” aerobic and resistance components of rehabilitation are for stroke survivors. The greater challenge is to work together to create programs that patients want to take part in and that impact positively on patient quality of life and risk factors for stroke recurrence.

Disclosures
None.

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