Pulmonary Rehabilitation in Patients Recovering from COVID-19: Authors' Reply

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*And it's a hard, and it's a hard, it's a hard,
and it's a hard, And it's a hard rain's a-gonna fall
Bob Dylan*

Dear Editor,

We thank Polastri for his interest [1] in our article [2]. He raises very important issues regarding research on and at the time of COVID-19: rehabilitation of survivors and the reliability of publications in the field.

The COVID-19 pandemic has been associated with a high index of publication, leading to a “paperdemic” [3]. Especially during the first wave of the pandemic, most of the publications reported results of observational, retrospective, uncontrolled studies or case reports with scientific limitations outlined by the author in the letter, leading to premature conclusions, mainly on the effects of drug management [4], and also to high level of retractions [5].

In addition to the impairment in respiratory function [6], a high prevalence of impairment in physical performance is reported in COVID-19 survivors, who may suffer from fatigue or muscle weakness, exercise-induced dyspnea, sleep difficulties, anxiety, and/or depression up

to 6 months after acute infection [7, 8]. Clinical indications and modalities of pulmonary rehabilitation have been proposed by international guidelines and recommendations based on expert opinion and not on data [9, 10]. Information are based on retrospective, observational, or uncontrolled studies like ours [2].

Retrospective studies have limitations, such as missing data, and results of uncontrolled studies may be difficult to interpret because we can suppose a positive effect in the long-term follow-up of patients without a rehabilitative intervention. Nevertheless, a control population not performing any activity would be unethical, given the undisputed benefits of pulmonary rehabilitation or simple physical activity. Beyond these limitations, we cannot wait for well-designed randomized controlled trials to be published before starting interventions in daily clinical practice, as the number of COVID-19 patients increases rapidly every day. Therefore, despite the limitations of the retrospective uncontrolled design, we are confident that our article [2] may be useful for the scientific community, leading to the conclusion that such programs should be a main component of the management of these patients [11].

The unavoidable consequence is the need for validated outcome measures using safe equipment and procedures [12] to evaluate the short- and long-term consequences of COVID-19. Standardization of batteries of measures would allow us to make comparisons among studies and different follow-up time-points. Given the difficulties in performing controlled studies at present, the outcome measures should be validated and supported by reference values.

In conclusion, we totally agree with Polastri that rehabilitation should be 1 main corner of the comprehensive management of these patients. We need more studies on tolerance and short- and long-term effects of programs. We need standardized and common outcome measures to compare results among studies.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

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