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Long-term oxygen therapy

To the Editors:

The topic of long term oxygen therapy (LTOT) has been a great interest to our group, beginning with our first report in 1967 [1]. Here, we showed a marked increase in exercise capability with use of ambulatory oxygen (AO) in selected patients with advanced chronic obstructive pulmonary disease (COPD). By contrast, the carefully carried out, randomised, controlled study of AO in oxygen-dependent patients, recently published in the *European Respiratory Journal*, concludes that AO is not associated with increased walk tolerance or improved quality of life [2]. The landmark Nocturnal Oxygen Therapy Trial (NOTT), showed improved quality of life with AO and a statistically significant improvement in survival, compared with stationary oxygen (SO). AO patients received oxygen for a mean of 17.7 h compared with 11.8 h for SO patients. Thus, the differences could either be due to the duration of oxygen therapy or the method [3]. Furthermore, a re-analysis of the NOTT revealed that those patients who could improve their exercise level prior to randomisation and received AO, had a highly significant improvement in survival, compared with SO patients with low levels of exercise capability on training. AO patients with good exercise capacity had far fewer hospitalisations, compared with SO patients with less ability to exercise [4].

In the study by LACASSE *et al.* [2], patients who were already receiving oxygen for ≥3 months were selected. Herein lies my criticism. After some four decades of LTOT studies (plus 2 yrs of personal use), I must comment that patients given SO rapidly adjust to the limitations imposed by their system. They tend to avoid going outside the home, even when a portable system is given to them. It has been documented that patients with COPD who receive LTOT have a much lower level of domiciliary activity, compared with COPD patients of equal severity who do not receive LTOT [4].

The patients in the study by LACASSE *et al.* [2] did not go outside the home for >2 h per day, and most often did this without their portable cylinder. In my experience, this is due to the fixation on use of the oxygen from the home-base stationary system. Furthermore, the patients did not use their

ambulatory system in conjunction with prescribed exercise. I believe the previous information explains the lack of improvement in both groups in this study. Thus, this study is not designed to prove that AO is not beneficial to activity, as the authors conclude.

In conclusion, new studies are needed in oxygen-naïve patients for long-term oxygen therapy in chronic obstructive pulmonary disease, given in conjunction with exercise as a component of a pulmonary rehabilitation programme, as was originally suggested [6].

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