


Dear Editor

Does an inhaled β-adrenergic or anti-cholinergic agent improve gas exchange at rest and during exercise in patients with COPD?

In a recent issue of Respiratory Medicine (1), Patkas et al. have reported that salmeterol or ipratropium bromide produces significant improvement in airway obstruction in the recovery of post-exercise HbO₂ desaturation and in dyspnoeic sensation in patients with chronic obstructive pulmonary disease (COPD). We basically agree with the authors that both inhaled agents, i.e. salmeterol (a β-adrenergic agent) and ipratropium bromide (an anti-cholinergic agent), are very beneficial in terms of reducing breathlessness and improving the exercise performance in patients with COPD. The current observations were in agreement with the data from our and previous other studies (2–7). However, gas exchange before and after administration of the bronchodilatory agents in patients with asthma and COPD is still a matter of debate. Gross and Bankwala demonstrated that nebulised atropine methonitrate (an anti-cholinergic agent) had no significant effect on gas exchange in hypoxaemic patients with COPD; however, metaproterenol hydrochloride elicited a significant decrease in PaO₂ (8). Igarashi et al. have reported that fenoterol (a β-adrenergic agent) and oxitropium bromide (an anti-cholinergic agent) improved FEV₁ by 21 and 16% in COPD patients without hypoxaemia, respectively, and that the mean value of PaO₂ decreased from 74±5 to 69±3 torr with fenoterol, but not with oxitropium and placebo (9).

The current study further indicates that nadir SaO₂ and the recovery of post-exercise hypoxaemia are better after inhalation of an anti-cholinergic agent than those after inhalation of a β-adrenergic agent in patients with stable COPD. These observations suggest that an inhaled anti-cholinergic agent is more favourable for patients with COPD than a β-adrenergic agent from the viewpoints of gas exchange at rest and during exercise.

Finally, analytical indices such as BS max, TLD, BLD, and the recoverytime for SaO₂ in the current study were fairly similar to those determined in our studies (2–4,10). Although the methodology was different (the current study used a walking test and our study used a cycle ergometer), the concepts should be more appropriately quoted. As one of the major goals of bronchodilator therapy in patients with COPD may be to relieve dyspnoea on exertion, we believe that the quantitative parameters for assessment of dyspnoea should be carefully and widely used in the clinical setting.

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References


