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## LETTER TO THE EDITOR

### COPD patients with higher education are much less likely to adhere to prescribed daily inhaler use

This was one of the results from a survey of 265 patients with COPD in Colorado.<sup>1</sup> I agree with the 40% of patients who “vary their inhaler use from what is prescribed”. The only proven value of any of these medications is either to relieve dyspnea (for the duration of the bronchodilation)<sup>2</sup> or slightly lower the risk of an exacerbation, but not to suppress the rapid loss of lung function.<sup>3–7</sup> (Post hoc and subgroup analyses don’t count.) Only smoking cessation halts progression of COPD,<sup>8</sup> but it is much easier to write a prescription for an inhaler than to help a patient through the process of smoking cessation.

Bronchodilators bronchodilate almost everyone to some degree: those with asthma, COPD, and people with healthy airways.<sup>9</sup> However, that is not a valid rationale for urging everyone to take long-acting bronchodilators every day. If the patient does not feel any relief from dyspnea within an hour after taking a bronchodilator inhaler, then they are not a responder to that beta-agonist or anticholinergic medication and are correct in assuming that they don’t need it, despite the optimism of the physician who prescribed it.

Patients with an FEV<sub>1</sub> >50% of predicted (which included more than half of those who responded to the Colorado survey) are highly unlikely to have either dyspnea due to their lung disease<sup>10</sup> nor a COPD exacerbation requiring hospitalization.<sup>11</sup> The source of dyspnea on exertion in patients with such mild physiologic impairment is probably obesity or poor cardiovascular conditioning.

For the minority whose dyspnea does noticeably improve after inhaling a bronchodilator, “as needed” dosing with an inexpensive, generic, short-acting salbutamol or ipratropium solution (\$4 per month in the United States) by nebulizer or inhaler (inexpensive outside of the United States) is probably the optimal treatment. For patients with an FEV<sub>1</sub> above 50% predicted, and whose dyspnea occurs only once or twice during daytime exertion, taking a long-acting bronchodilator in the morning may only be a more attractive option for a minority of patients when compared to taking a short-acting bronchodilator as needed for dyspnea. Perhaps that’s why the patients in Colorado with an education beyond high school were twice as likely to self-manage their COPD based on their symptoms and response to the prescribed therapy.<sup>1</sup>

Tiotropium inhalers are indeed convenient, but expensive, and risk cardiovascular side-effects<sup>12,13</sup> (despite the claims of industry-sponsored investigators). Combination inhalers approved for COPD are also very expensive and have high doses of corticosteroids, which have been proven to substantially increase the risk of pneumonia.<sup>4,14,15</sup> For those with more severe COPD, the cost of two weeks of treatment of a mild COPD exacerbation with an antibiotic and prednisone once per year (the usual care and mean exacerbation rate) is much less than the cost of daily compliance with tiotropium or a combination inhaler. Given the facts, an educated patient with severe COPD might reasonably decide that taking a prophylactic inhaler every day for several years just to prevent a single hospitalization may not be worth their time and expense.

More broad surveys of patients with COPD are needed to illuminate the true spectrum of response to available therapies – not just mean responses from groups of patients carefully selected by drug company investigators.<sup>16,17</sup> Much more research is necessary to help guide clinicians to customize COPD therapy for each patient, for example, based on their responses to individual interventions, instead of using cookbook or shotgun medicine.

### Conflict of interest

I have no conflicts of interest regarding the topic of this letter to the editor.

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