Patient Response to an Aerosolized Bronchodilator Administered Via the Aerogen® Solo *Versus* a Jet Nebulizer During Non-invasive Ventilation in Patients With Acute Exacerbation of COPD

Avdeev SN, Nuralieva GS, Soe AK, et al. Comparison of Vibrating Mesh and Jet Nebulizers During Noninvasive Ventilation in Acute Exacerbation of Chronic Obstructive Pulmonary Disease. J Aerosol Med Pulm Drug Deliv. 2021;34(6):358-365.

Background

There are limited data on the efficacy of aerosolized bronchodilators administered during non-invasive ventilation in patients with acute exacerbation of COPD, including the performance of different aerosol delivery devices in this setting

Objective

The aim of this study was to compare the efficacy of bronchodilator therapy delivered using the Aerogen Solo *versus* a jet nebulizer in patients with acute exacerbation of COPD undergoing non-invasive ventilation

Materials and Methods

Prospective randomized controlled cross-over design

Adults aged >40 years with exacerbation of COPD admitted to the respiratory unit of an acute care hospital

N=30

Non-invasive ventilation indicated because of acute hypercapnic respiratory failure*

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Treatment with salbutamol 2.5 mg/2.5 mL

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Randomization

Day 1	**Jet nebulizer†**	**Aerogen Solo‡**
Day 2	**Aerogen Solo‡**	**Jet nebulizer†**

Both devices were placed between the leak port and the non-vented oronasal mask

*pH <7.35, partial pressure of carbon dioxide ≥ 45 mmHg; †Operated until sputter (median 11 min); ‡Operated until no more aerosol was produced (median 7 min).
COPD, chronic obstructive pulmonary disease.

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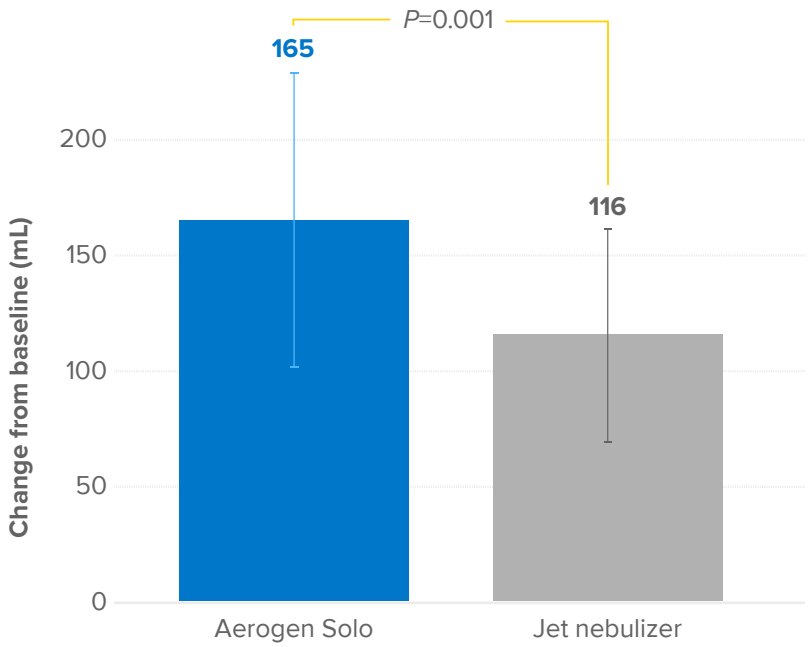
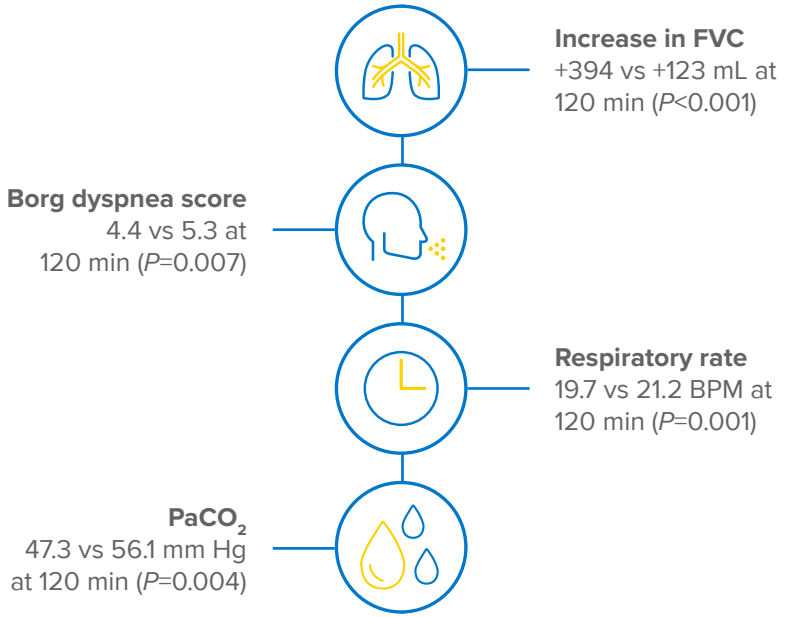
Flow and volume responses and improvements in breathlessness were superior with bronchodilator delivery via the Aerogen Solo *versus* a jet nebulizer in patients with acute exacerbation of COPD undergoing non-invasive ventilation

Change from baseline in FEV_1 after 120 minutes



Clinically significant* improvements in lung function with the Aerogen Solo *versus* a jet nebulizer



*Refers to the between-group difference in change from baseline.
BPM, breaths per minute; COPD, chronic obstructive pulmonary disease; FEV_1, forced expiratory volume in 1 second; FVC, forced vital capacity; $PaCO_2$, partial pressure of carbon dioxide.

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