Bronchodilator Efficacy Delivered Using an In-line Aerogen® Solo during High-flow Nasal Cannula Therapy Versus a Jet Nebulizer and Facemask

Original article: Reminiac F, Vecellio L, Bodet-Contentin L, et al. Nasal high-flow bronchodilator nebulization: a randomized cross-over study. Ann Intensive Care. 2018;8(1):128.

Background

HFNC therapy is increasingly used as a method of non-invasive respiratory support; however, there is a lack of controlled clinical data on the efficacy of aerosolized bronchodilator therapy delivered in this setting

Objective

The aim of this study was to compare efficacy outcomes with an aerosolized bronchodilator delivered using the Aerogen Solo in-line with HFNC versus a standard jet nebulizer with facemask; for comparative purposes, outcomes were also assessed with HFNC therapy alone

Materials and Methods

Design: Randomized, crossover study

Adult patients with reversible obstructive lung disease (COPD/ asthma)*

Administered in a randomized order on 3 separate days across 1 week

Jet nebulizer with facemask
(albuterol 2.5 mg)
- Flow rate 6 L/min
- Non-heated, non-humidified

HFNC + in-line Aerogen Solo
(albuterol 2.5 mg)
- Flow rate 30 L/min
- 100% relative humidity at 37 °C

HFNC alone

Outcome measures

- The primary endpoint was the relative improvement in FEV_1 with the Aerogen Solo *versus* a jet nebulizer and facemask
- Bronchodilator efficacy was assessed using spirometry and plethysmography performed before and after each HFNC session

*FEV_1/FVC ratio <70% and a positive bronchodilator reversibility test (FEV_1 increase of ≥12% and ≥200 mL following administration of inhaled albuterol).
FEV_1, forced expiratory volume in 1 second; FVC, forced vital capacity; HFNC, high-flow nasal cannula.

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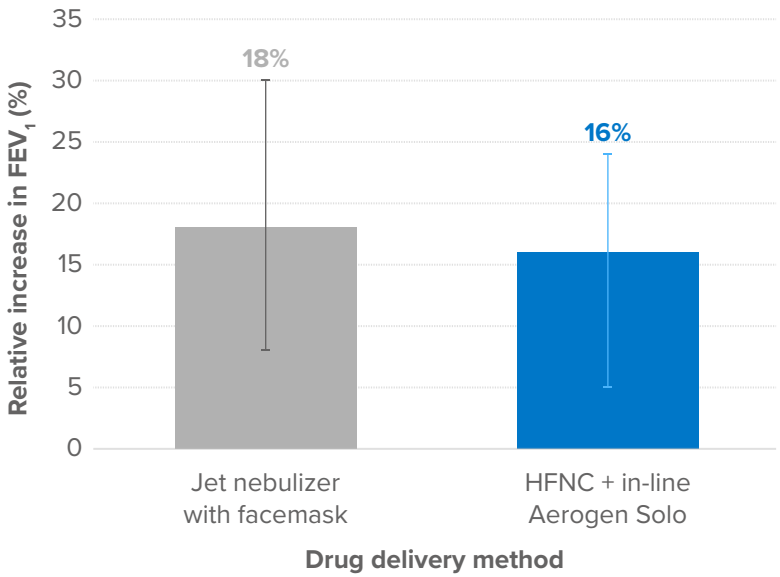
Relative increase in FEV_1 following administration of aerosolized bronchodilator therapy



Changes in FEV_1 and residual volume with the Aerogen Solo and jet nebulizer were well correlated

Both delivery methods were well tolerated and had similar patient comfort ratings

Per the authors, the results demonstrate that the **Aerogen Solo** delivers inhaled therapy *"within the [HFNC] circuit with* ***the same efficacy and tolerance*** *[as standard facemask jet nebulization]* ***avoiding cumbersome equipment switches****"*

Bronchodilator efficacy was comparable with an in-line Aerogen Solo during HFNC therapy versus a jet nebulizer with facemask, with no interruption of HFNC therapy required with the Aerogen Solo

PM1092

FEV_1, forced expiratory volume in 1 second; HFNC, high-flow nasal cannula.

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