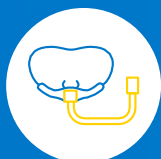


# Effect of Gas Flow on Bronchodilator Response When Using the Aerogen® Solo During High-flow Nasal Cannula Therapy in Patients with Asthma or COPD

Li J, Chen Y, Ehrmann S, et al. Bronchodilator delivery via high-flow nasal cannula: a randomized controlled trial to compare the effects of gas flows. *Pharmaceutics*. 2021;13(10):1655.

## Background



There is increasing clinical interest in aerosol delivery during HFNC therapy; however, there is a lack of data on how gas flow impacts drug efficiency in this setting

## Objective



The aim of this study was to investigate the effect of HFNC gas flow on response to aerosolized bronchodilator therapy delivered using the Aerogen Solo in patients with asthma or COPD

## Included Patients

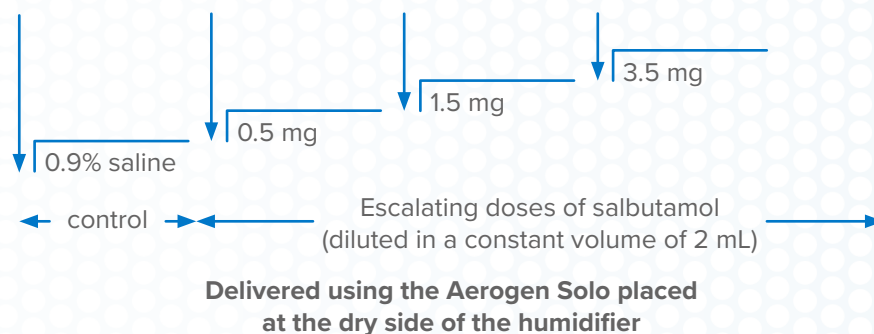
Adult patients with stable asthma or COPD and a positive bronchodilator response per ATS/ERS criteria\* to salbutamol 400 µg via MDI plus valved holding chamber



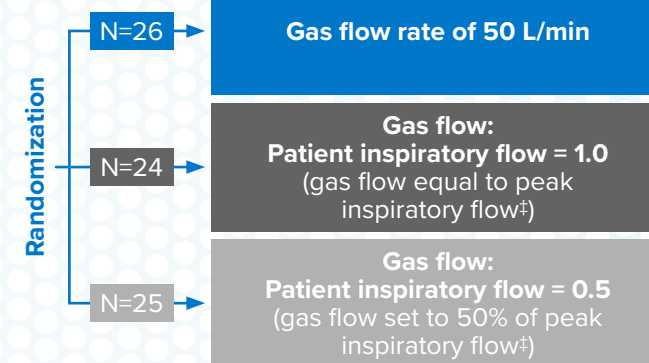
## Materials and Methods

The study examined the bronchodilatory effect of cumulative doses of salbutamol administered over 6–8 min at intervals of ~20 min†

**Spirometry (performed 10–12 minutes after the HFNC was removed)**



Patients received treatment at three different gas flow settings



The **primary endpoint** was the rate of bronchodilator response  
1. Per ATS/ERS criteria\* OR 2. Absolute  $FEV_1 \geq$  baseline post-bronchodilator  $FEV_1$

\* $FEV_1$  increase of  $\geq 12\%$  and  $\geq 200$  mL; †The dose was escalated until an improvement of  $< 5\%$  in  $FEV_1$  versus the previous dose or the occurrence of adverse effects (eg tremor, tachycardia); ‡As measured during quiet tidal breathing. ATS, American Thoracic Society; COPD, chronic obstructive pulmonary disease; ERS, European Respiratory Society;  $FEV_1$ , forced expiratory volume in 1 second; MDI, metered-dose inhaler; HFNC, high-flow nasal cannula.

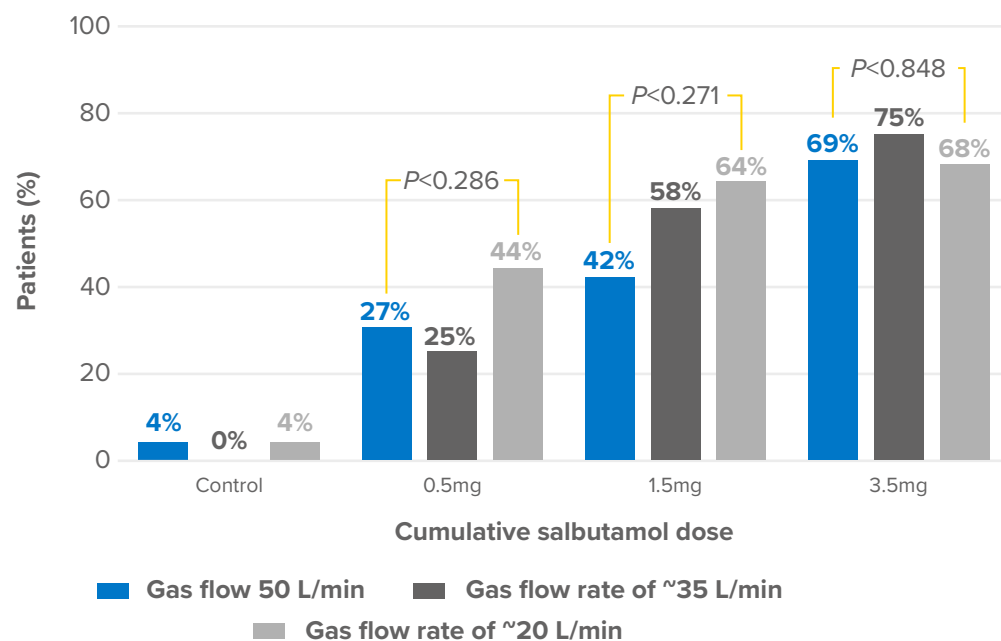
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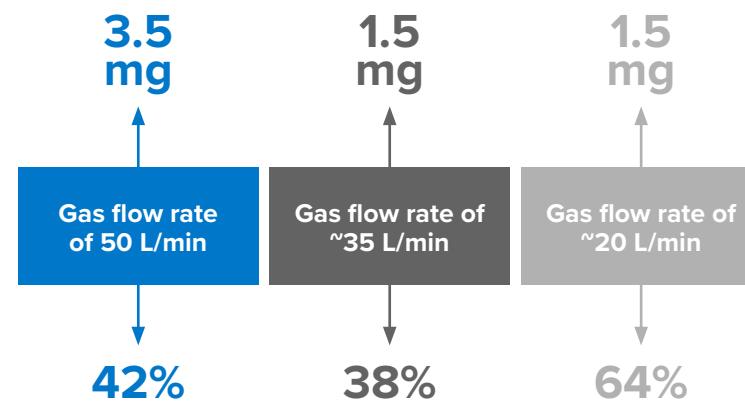
In patients with asthma or COPD undergoing HFNC therapy, response to aerosolized salbutamol delivered using the Aerogen Solo was highest at lower gas flow rates

At a flow rate of 50 L/min, a bronchodilator response\* was observed with a cumulative salbutamol dose of 3.5 mg

## Achievement of a positive bronchodilator response\*\*



Effective dose to generate an FEV<sub>1</sub> response similar to baseline



Proportion of patients with a positive bronchodilator response per both primary endpoint criteria at a cumulative dose of 3.5 mg

\*Absolute FEV<sub>1</sub> value ≥ baseline post-bronchodilator FEV<sub>1</sub>; \*\*No significant difference was observed in the proportion of patients who achieved a positive bronchodilator response per ATS/ERS criteria (ie FEV<sub>1</sub> increase of ≥12% and ≥200 mL). ATS, American Thoracic Society; COPD, chronic obstructive pulmonary disease; ERS, European Respiratory Society; FEV<sub>1</sub>, forced expiratory volume in 1 second; HFNC, high-flow nasal cannula.

Want to know more? Scan or click the QR code

