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*Acad Emerg Med.* 2018 Aug 29. doi: 10.1111/acem.13560. [Epub ahead of print]

## Nebulized terbutaline & ipratropium bromide vs terbutaline alone in acute exacerbation of COPD requiring noninvasive ventilation: a randomized double blind controlled trial.

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#### Abstract

**BACKGROUND:** Short-acting beta<sub>2</sub>-agonists are the mainstay of treatment of patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) in the emergency department. It is still unclear whether the addition of short-acting anticholinergics is clinically more effective care compared to treatment with beta<sub>2</sub>-agonists alone in patients with hypercapnic AECOPD.

**OBJECTIVE:** To evaluate whether combining ipratropium bromide (IB) to terbutaline reduces hospital and ICU admission rates compared to terbutaline alone in AECOPD hypercapnic patients.

**METHODS:** In this double-blind controlled trial, patients who were admitted to the ED for AECOPD requiring non invasive ventilation (NIV) were randomized to receive either nebulized 5mg terbutaline combined to 0.5mg IB (group Terbutaline/IB, n=115) or 5mg terbutaline sulfate (group Terbutaline, n=117). Nebulization was repeated every 20 minutes for the first hour and every 4 hours within the first day. Primary outcomes were the rate of hospital admission and need for endotracheal intubation within the first 24 hours of the start of the experimental treatment. Secondary outcomes included changes from baseline of dyspnea, physiological variables, length of hospital stay, intensive care unit admission rate, and 7-day mortality.

**RESULTS:** The 2 groups were similar regarding baseline demographic and clinical characteristics. Hospital admission was observed in 70 patients (59.8%) in the Terbutaline/IB group and in 75 patients (65.2%) in the Terbutaline group (RR 1.09, 95% CI 0.93 to 1.27, p=0.39). ICU admission was required in 37 (32.2%) patients in the Terbutaline/IB group, and 30 patients (25.6%) in Terbutaline group (RR 1.25, 95% CI 1.02 to 1.54, p=0.27). There were no significant differences in dyspnea score, blood gas parameters changes, and vital signs improvement, and 7-day death rate between both groups.

**CONCLUSION:** In patients admitted to the ED for AECOPD requiring NIV, combination of nebulized IB and terbutaline did not reduce hospital admission and need to ICU care. This article is protected by copyright. All rights reserved.

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**KEYWORDS:** COPD ; Exacerbation; Ipratropium Bromide; Terbutaline; bronchodilators

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