

Comparison of lidocaine and bronchodilator inhalation treatments for cough suppression in patients with chronic obstructive pulmonary disease.

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Abstract:

OBJECTIVES: This study aimed to assess and compare the effectiveness of lidocaine and bronchodilator inhalation treatments for rapid cough suppression in patients with chronic obstructive pulmonary disease (COPD) who presented to the emergency department at a single hospital in Taiwan over a six month period in 2003.

METHODS: Prospective comparison study carried out in a tertiary emergency department. Consecutive COPD patients presenting with intractable cough were randomly assigned to receive lidocaine (1mg/kg cardiac lidocaine diluted with saline solution to achieve a total volume of 4 ml) or terbutaline (2ml tertutaline = Bricanyl 5mg mixed with 2ml saline solution) inhalation treatments for cough suppression. Patients with dyspnea, unstable vital signs, and evidence of pneumonia or neoplasm on chest x ray were excluded. A subjective, 10 point questionnaire based cough severity score was used for assessing the outcome.

RESULTS: The final study sample included 127 patients (mean (SD) age, 69.2 (12.1) years; 33.1% women) of whom 62 received nebulised lidocaine and 65 nebulised bronchodilator. The cough severity score was significantly reduced one hour after inhalation treatment with both lidocaine and bronchodilator, with no significant difference in efficacy. Common but mild side effects in the lidocaine group included oropharyngeal numbness and bitter taste, and, in the bronchodilator group, tremor and palpitation. Dyspnea, dizziness, and nausea and vomiting were equally uncommon in both groups. None of these problems caused any of the patients to discontinue their treatments and no allergic reactions were reported.

CONCLUSIONS: Both lidocaine and bronchodilator inhalation treatments are equally effective for short term cough suppression in patients with COPD. Perhaps inhaled lidocaine could be another treatment option for patients with intractable cough that cannot be controlled by other means. Only transient topical side effects occurred with lidocaine inhalation, namely, oropharyngeal numbness and bitter taste, all of these are mild and well tolerated.

Comments:

Strengths/Uniqueness:

- Randomized Controlled Trial
- First study to compare the cough suppressing effects of inhaled bronchodilator with inhaled lidocaine in COPD patients
- Inclusion and exclusion criteria were clearly stated

Weaknesses:

- Narrow spectrum of patients (only COPD patients included in the study)
- Only short term outcomes were assessed (1hour after therapy)
- Study carried out at a single institution
- Cough is a subjective symptom and measurements of cough severity are inconsistent and not well established

Relevance to Palliative Care:

Intractable cough is a frequent and devastating symptom in palliative care patients that is quite often very difficult to manage. It affects patients' general wellbeing and can lead to complications such as pneumothorax, syncopal episodes, cardiac arrhythmias, sleep disruption, chest wall pain and vomiting. Although inhaled bronchodilator therapy with beta 2-agonists can alleviate symptoms such as difficulty breathing and cough, its effectiveness is often limited by the side effects such as palpitations, tremor and tachycardia. Nebulized local anesthetic use sounds like a reasonable option but further studies are needed to determine whether similar beneficial effects can be observed in other settings.