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REVIEW

Pharmacological and non-pharmacological interventions for cough in adults with respiratory and non-respiratory diseases: A systematic review of the literature

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Summary

The management of cough in adults with respiratory and non-respiratory illnesses is suboptimal and based mostly on clinical opinions rather than evidence. A systematic review was carried out assessing all trials in adult patients with respiratory and non-respiratory diseases (excluding cancer) that had chronic cough as primary or secondary outcome. A total of 1177 trials were retrieved and 75 met the criteria for inclusion in the review. The vast majority were in patients with asthma and chronic obstructive pulmonary disease (COPD). Cough was the primary outcome in less than one-quarter of the studies. The measurement of cough was variable, mostly using unvalidated scales or being part of an overall 'symptoms' score. Positive results were overall seen with the use of corticosteroids, leukotriene receptor antagonists, mast cell stabilizers, ipratropium bromide, neltenequine, iodinated glycerol and lidocaine. Speech pathology training and symptom monitoring through SMS messages (accompanied by treatment adjustments) have also shown promise. Evidence for established anti-tussive agents such as codeine was scarce, with positive studies from the 1960s, whilst more recent studies showed no effect in patients with COPD. Many studies had conflicting results. It is imperative that the management of cough and its evidence base be improved, using higher quality research designs and with cough being the primary outcome of trials.

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Contents

Background	935
Objective	935
Types of studies	935
Types of participants	935
Exclusion criteria	936
Types of intervention	936
Types of outcome measures	936
Search methods for identification of studies	936
Search strategy	936
Hand searching, grey literature and personal contact	936
Language	936
Methods of the review	936
Selection of studies	936
Assessment of methodological quality	936
Data extraction	937
Data analysis	937
Results	937
Discussion	937
Conflict of interest statement	941
Acknowledgement	941
References	941

Background

Cough is a common symptom in respiratory (non-malignant) diseases¹ and related non-respiratory conditions, such as nasal disease or gastro-oesophageal reflux disease (GORD/GERD)]. Cough may either be productive (wet) producing purulent or mucoid sputum or non-productive (dry). Cough can be further divided into three categories based on duration: acute, lasting less than three weeks; sub-acute, lasting three to eight weeks; and chronic, lasting more than eight weeks.^{2,3} Common causes of non-malignant cough include viral upper respiratory tract infections (the commonest by far), airway disease, including asthma and chronic obstructive pulmonary disease; gastro-oesophageal reflux disease (GORD), nasal disease, bronchiectasis and chronic infections. Persistent cough can be distressing to patients, leading to depression (in up to 53% of patients),^{4,5} insomnia, vomiting, exhaustion and rib fractures.^{6,7} Cough has a significant human and socioeconomic burden, as it is linked with absenteeism from work, impaired quality of life and effects in daily activities.⁸ A number of reviews outlining management options^{1–3,8,9} exist, but there is limited comprehensive systematic synthesis and assessment of effective management strategies currently available in adult patients, as most systematic reviews (a significant number being Cochrane reviews) are focusing on children, whooping cough or antibiotic use in adults with prolonged cough. Furthermore, the management of cough is highly variable in clinical practice, and some of the reasons for this may include the unsystematic evaluation of causes of cough, the frequent use of non-specific cough treatments and the clinicians' insufficient knowledge in cough management.¹⁰ A synthesis of evidence could assist in addressing some of these issues.

Hence there is a need to examine the existing evidence in cough research in respiratory and non-respiratory illnesses in order to highlight areas needing further research development, provide an understanding of the level of evidence for interventions used to manage cough and aid clinicians in their clinical decision-making.

Objective

The objective of this review was to determine the effectiveness of pharmacological and non-pharmacological/non-invasive interventions in the relief of cough in non-malignant respiratory and non-respiratory conditions in adult patients experiencing chronic cough.

Types of studies

Randomised Controlled Trials (with blinding)
Controlled Clinical Trials (quasi randomised trials, trials with or without blinding and randomisation not mentioned, trials with a comparative arm).

Types of participants

Adult patients described as experiencing either acute, sub-acute or chronic cough; presence of cough (either productive (wet) cough producing purulent or mucoid sputum or non-productive (dry) cough without purulent or mucoid sputum) due to non-malignant respiratory and non-respiratory diseases with a high prevalence of cough, including interstitial lung disease (ILD), bronchiectasis; Chronic Obstructive Pulmonary Disease (COPD)/Chronic Obstructive Airways Disease (COAD); pulmonary oedema;

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