

Management and Diagnosis of Psychogenic Cough, Habit Cough, and Tic Cough

A Systematic Review

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BACKGROUND: Several pharmacologic and nonpharmacologic therapeutic options have been used to treat cough that is not associated with a pulmonary or extrapulmonary etiology.

METHODS: We conducted a systematic review to summarize the evidence supporting different cough management options in adults and children with psychogenic, tic, and habit cough. Medline, EMBASE, the Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, and Scopus were searched from the earliest inception of each database to September 2013. Content experts were contacted, and we searched bibliographies of included studies to identify additional references.

RESULTS: A total of 18 uncontrolled studies were identified, enrolling 223 patients (46% male subjects, 96% children and adolescents). Psychogenic cough was the most common descriptive term used (90% of the studies). Most of the patients (95%) had no cough during sleep; barking or honking quality of cough was described in only eight studies. Hypnosis (three studies), suggestion therapy (four studies), and counseling and reassurance (seven studies) were the most commonly used interventions. Hypnosis was effective in resolving cough in 78% of the patients and improving it in another 5%. Suggestion therapy resolved cough successfully in 96% of the patients. The greatest majority of improvements noted with these forms of therapy occurred in the pediatric age group. The quality of evidence is low due to the lack of control groups, the retrospective nature of all the studies, heterogeneity of definitions and diagnostic criteria, and the high likelihood of reporting bias.

CONCLUSIONS: Only low-quality evidence exists to support a particular strategy to define and treat psychogenic, habit, and tic cough. Patient values, preferences, and availability of potential therapies should guide treatment choice.

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ABBREVIATIONS: CHEST = American College of Chest Physicians; DSM = *Diagnostic and Statistical Manual of Mental Disorders*

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Cough is one of the most frequently encountered symptoms in medical practice. It plays an essential role in clearing the airway of secretions and foreign bodies; however, it can pose huge social and economic burdens on some patients.¹⁻⁴ Chronic cough, persisting beyond 4 weeks in children and 8 weeks in adults, can become protracted and cause anxiety and social discomfort. It can be the only presenting symptom in many pulmonary and extrapulmonary conditions. Chronic cough has to be approached systematically to better evaluate and reach the right diagnosis.^{5,6} Upper airway cough syndrome (previously referred to as postnasal drip syndrome), asthma, nonasthmatic eosinophilic bronchitis, and gastroesophageal reflux disease are the most common causes of chronic cough in adults.⁷ However, an etiology of cough is not always easily identified even after a thorough systematic investigation, and psychologic and neurologic conditions are in the differential diagnosis in both children and adults.⁸

Various terms, including habit cough, psychogenic cough, and tic cough, were used to describe cases without a clear pulmonary or extrapulmonary (eg, gastroesophageal reflux disease) etiology in the presence of some suggestive clinical characteristics and/or an association with psychologic issue. However, these terms

are not clearly defined or distinguished from each other. The literature suggests that the classic features of these conditions include repetitive, loud, dry, honking cough and absence of cough during nighttime.⁹⁻¹² Holinger and Sanders¹³ found that psychogenic cough was the second most common cause of chronic cough in children aged 6 to 16 years. Many interventions, including pharmacotherapy, behavioral modifications, and psychotherapy, were used, but none has been rigorously evaluated.^{9-11,14} The concept of psychogenic cough and its related disorders as reviewed here is distinct from other presumed etiologies of the unexplained cough, such as “neurogenic cough” or postviral vagal neuropathy (which is considered more strictly to be a disorder of the peripheral receptors or brainstem reflex feedback loop).

The American College of Chest Physicians (CHEST) develops clinical practice guidelines to help patients and physicians in decision-making. To aid in the development of guidelines for these challenging conditions, we conducted a systematic review of the available literature on the management of habit cough, psychogenic cough, and tic cough. Knowing of the paucity of controlled trials and the heterogeneity of diagnostic terms, we included all study designs and descriptive diagnostic terms.

Materials and Methods

This systematic review follows an *a priori* established protocol developed by the guideline methodologist and selected members of the CHEST expert cough panel. This report was written following the preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement.¹⁵

Eligibility Criteria

We searched for studies of any study design that enrolled children or adults with psychogenic cough, habit cough, and tic cough. We included studies regardless of their language or publication status. Case series with two or more patients were included. Single-case reports were excluded.

Study Identification

We conducted a comprehensive search of several databases from each database's earliest inception to September 2013. The databases included Ovid Medline In-Process & Other Non-Indexed Citations,

Ovid MEDLINE, Ovid EMBASE, Ovid PsycInfo, Ovid Cochrane Central Register of Controlled Trials, Ovid Cochrane Database of Systematic Reviews, and Scopus. The search strategy was designed and conducted by an experienced librarian with input from the guideline methodologist and selected members of the CHEST expert panel. The search used both controlled vocabulary and keywords. The strategy used is described in e-Appendix 1. The reference lists from the narrative reviews and existing guidelines¹⁶⁻¹⁸ were searched, and consultation with experts in the field was performed to obtain any additional references that might have been missed by the electronic search strategy.

Reviewers working independently and in duplicate reviewed all abstracts. Upon retrieval of potentially eligible studies, the full-text publications were evaluated for eligibility. The chance-adjusted inter-reviewer agreement was calculated using the κ statistic for full text screening ($\kappa = 0.80$). Disagreements were resolved by a third reviewer.

Quality Assessment

Reviewers working independently and in duplicate analyzed the full text of eligible articles to assess the reported quality of the methods. Since all the included studies were case series, a modified Newcastle-Ottawa scale was used.¹⁹ We assessed the following four elements: selection of patient, percent lost to follow-up, ascertainment of outcome, and length of follow-up.

Data Extraction

Reviewers working independently and in duplicate used a standardized Internet-based form to extract for each eligible study the following data

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