Habit Cough, Tic Cough, and Psychogenic Cough in Adult and Pediatric Populations

ACCP Evidence-Based Clinical Practice Guidelines

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Objectives: To review the literature on habit, tic, and psychogenic cough, and to make evidence-based recommendations regarding diagnosis and treatment.

Design/methodology: For data on adults, an Ovid MEDLINE literature review (through February 2005) was performed for all studies published in the English language, including case series and case reports, since 1966 using the medical subject heading terms “habit cough,” “psychogenic cough,” “tic disorder,” “vocal tic,” “Tourette’s syndrome,” “honking cough,” and “barking cough.” For pediatric data, articles were identified dating from 1966 from searches of the Cochrane Library, PubMed, EMBASE, the list of references in relevant publications, and the authors’ collection of references with the last search performed in February 2005. The search terms used were “children” and “vocal tics” or “habit cough,” or “psychogenic cough” or “chronic cough.”

Results/conclusions: The methodologies used and rigor of the diagnostic and therapeutic interventions reported in the literature are inconsistent. The putative clinical characteristics of habit cough and psychogenic cough, for the most part, have not been prospectively or systematically studied. Therefore, on the basis of expert opinion, the diagnoses of habit cough or psychogenic cough can be made only after an extensive evaluation is performed that includes ruling out tic disorders and uncommon causes of chronic cough, and when cough improves with behavior modification or psychiatric therapy. In adult patients with chronic cough that remains persistently troublesome despite an extensive and thorough evidence-based evaluation, and after behavior modification and/or psychiatric therapy have failed, unexplained cough should be diagnosed rather than habit cough or psychogenic cough. In children, the depth of investigations to rule out uncommon causes must be individualized as some investigations and/or treatment may increase morbidity. In adult and pediatric patients with chronic cough that is associated with troublesome psychological manifestations, psychological counseling or psychiatric intervention should be encouraged after other causes have been ruled out.

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Key words: diagnosis of exclusion; habit cough; psychogenic cough; tic disorder; Tourette syndrome; vocal tic

A review of the literature on habit cough and psychogenic cough reflects the following confusion: (1) a habit cough has sometimes been equated with a psychogenic cough; (2) a habit cough has sometimes been distinguished from a psychogenic cough; (3) a habit cough has been referred to as a “nervous tic”; (4) a psychogenic cough has been referred to as a conversion disorder or the cough of a malingerer. The search for the literature review for the section on adults was conducted on the Ovid MEDLINE database (through February 2005) for all studies published in the English language, includ-
ing case series and case reports, since 1966 using the medical subject heading terms “habit cough,” “psychogenic cough,” “tic disorder,” “vocal tic,” “Tourette’s syndrome,” “honking cough,” and “barking cough.” In the pediatric section, articles published since 1966 were identified from searches of the Cochrane Library, PubMed, EMBASE, the list of references in relevant publications, and the authors’ collection of references, with last search performed in February 2005. The search terms used were “children” and “vocal tics” or “habit cough,” or “psychogenic cough” or “chronic cough.”

The majority of studies in the pediatric literature includes habit cough, cough tic, and psychogenic cough under the same umbrella. For this reason, there is less written about habit cough than psychogenic cough. Hopefully, future research will determine whether and how these two coughs differ. For this review, however, psychogenic cough is differentiated from tics and Tourette syndrome (i.e., psychogenic cough is considered to be a separate entity). While the literature is in general agreement that the diagnosis of either a habit cough or a psychogenic cough is one of exclusion and implies a nonorganic etiology,¹ the methodologies and rigor of the diagnostic and therapeutic interventions used in the studies that reflect this literature are inconsistent. Moreover, most of the studies are retrospective in nature. While the diagnosis has been based primarily on clinical history in the absence of a documented organic cause for the cough, the testing characteristics (i.e., sensitivity, specificity, and positive and negative predictive values) of the putative clinical characteristics of habit cough or psychogenic cough, to our knowledge, have never been prospectively or systematically studied.

On the basis of the above criteria, in pediatric and adult patients with chronic cough there is no generally accepted definition of habit cough or psychogenic cough. According to the expert opinion of the consensus panel of the first cough clinical practice guideline,¹ the habit cough is often associated with a throat-clearing noise. Short of a therapeutic trial, it is the opinion of the present committee that it is hard to distinguish this cough from that of an upper airway cough syndrome, which previously has been referred to as postnasal drip syndrome.¹ Thus, in general, before the diagnosis of habit cough or psychogenic cough can be accurately made, biological and genetic tic disorders associated with coughing must be ruled out.² However, in pediatric patients, ruling out all biological disorders may be very difficult and, indeed, harmful (e.g., the need for general anesthesia for some investigations). Indeed, some authors³ think that in children, “the major morbidity of habit cough is iatrogenic, resulting from misdiagnosis and excessive treatment.”

Diagnostic and Statistical Manual of Mental Disorders IV ⁴ by the American Psychiatric Association divides tic disorders into the following three main diagnoses: transient tic disorder; chronic motor or chronic vocal tic disorder; and Tourette disorder. Transient tic disorder is a common pediatric condition² with a prevalence of 4 to 24% in elementary school children. It is usually self-limited and lasts for < 1 year. Chronic motor or vocal tic disorder⁵ lasts for > 1 year; its prevalence is not known. Tourette syndrome, now recognized as a relatively common, biological, genetic disorder, has a prevalence of about 5 to 30 per 10,000 children, or roughly 1 per 1,000 male children, and 1 per 10,000 female children.⁶ However, an adult patient with Tourette syndrome may present with a cough tic that has gradually subsided but has persisted into adulthood.⁷ And, patients with Tourette syndrome, in rare instances, may present for the first time with a tic as an adult.⁸

Tourette syndrome often presents with a spectrum of neurobehavioral manifestations⁹ (e.g., attention deficit disorder, 50 to 75%; obsessive-compulsive behavior, 30 to 60%) including its clinical hallmark, the tic.² Transient tic disorder, chronic vocal tic disorder, and Tourette syndrome are part of a much larger list of conditions (e.g., prenatal/perinatal insults, infections/postinfectious head trauma, toxin exposure, drugs, chromosomal abnormalities, genetic disorders such as Hallervorden-Spatz disease, and autism/Asperger syndrome) in which patients can present with cough tics; all of these conditions must also be ruled out before diagnosing habit cough or psychogenic cough in a patient.

Tics are sudden, brief, intermittent, involuntary, or semi-voluntary movements (i.e., motor tics), or sounds (i.e., phonic or vocal tics). Phonic tics can consist of coughing, throat clearing, sniffling, grunting, squeaking, screaming, barking, blowing, and making sucking sounds.² The ability of patients with Tourette syndrome to suppress their tics helps to differentiate tics from other hyperkinetic movement disorders such as chorea and dystonia.² Double-blind, placebo-controlled trials have shown that the dopamine receptor-blocking drugs, the so-called neuroleptics, are effective in controlling the tics of Tourette syndrome.² While haloperidol and pimozide have both been approved by the US Food and Drug Administration for the treatment of Tourette syndrome, one randomized, double-blind, controlled study²,⁹ showed that pimozide was superior to haloperidol in efficacy and side effects.
Recommendations

1a. In adult patients with chronic cough, the diagnoses of habit cough or psychogenic cough can only be made after an extensive evaluation has been performed that includes ruling out tic disorders and uncommon causes (as described in another section), and cough improves with specific therapy such as behavior modification or psychiatric therapy. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

1b. In adult patients with chronic cough that remains persistently troublesome despite an extensive and thorough evidence-based evaluation, and after behavior modification and/or psychiatric therapy have failed, unexplained cough should be diagnosed rather than a habit cough or psychogenic cough. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

1c. In children with chronic cough, the diagnoses of habit cough or psychogenic cough can only be made after tic disorders and Tourette syndrome have been evaluated and cough improves with specific therapy such as behavior modification or psychiatric therapy. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

Prevalence

In the context of acknowledging the conflicting and confusing literature with a resultant inherent inaccuracy of the diagnosis, the diagnosis of habit cough or psychogenic cough has primarily been reported in pediatric and adolescent populations, but uncommonly in adults. In 17 published reports, 149 of 153 patients were < 18 years of age. MEDLINE searches performed by Mastrovich and Greenberger and repeated herein for the years from 1966 to 2000 revealed only four reported cases in adults. While habit cough and psychogenic cough appear to be rare diagnoses in adults, retrospective studies in the pediatric population have suggested that the diagnosis of psychogenic cough is made in 3 to 10% of children with cough of unknown origin that persists for > 1 month. In a prospective study based in a Swedish community (reported to be the first population-based data in school children evaluating children with tics according to criteria of the Diagnostic and Statistical Manual of Mental Disorders IV), the prevalence of chronic vocal tics (including cough) was 0.3% in girls and 0.7% in boys among children 7 to 15 years of age.

It is not known why habit cough or psychogenic cough has been diagnosed much more frequently in the pediatric literature. Some of the reasons may be related to semantics and/or that the majority of studies to date have not clearly differentiated among habit cough, tics, and Tourette syndrome. Tourette syndrome and other tic disorders are primarily clinically manifested in children and adolescents (eg, in patients with Tourette syndrome, the average age at the onset of tics is 5.6 years, tics are usually most severe at 10 years of age, and 50% of patients are free of tics by 18 years of age). Tourette syndrome is often misdiagnosed, and its manifestations are often attributed to other conditions such as nervousness, habits, or hyperactivity. Thus, a number of the patients reported in the pediatric literature as having habit cough or psychogenic cough may have had undiagnosed Tourette syndrome or another tic disorder. Because of this, a diagnosis of habit cough or psychogenic cough should not be made unless Tourette syndrome and other conditions associated with vocal tics have been specifically ruled out. Because patients with Tourette syndrome are often afflicted with behavior disorders (attention deficit disorder may be present in 50 to 75% of patients with Tourette syndrome, and obsessive-compulsive disorder may be present in 30 to 60% of patients with Tourette syndrome), they are potentially at high risk of being misdiagnosed as having psychogenic cough.

Recommendation

2. In adult patients with cough, the diagnosis of habit cough should not be made unless biological and genetic tic disorders associated with coughing such as Tourette syndrome have been ruled out. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

Clinical Presentation

The literature primarily concerning pediatric patients has suggested that patients with psychogenic cough typically do not cough at night and have a cough with a barking or honking character. Some studies also have reported that the typical psychogenic cough (ie, honking cough) is recognizable and can often be heard even before the child is seen. In one study, 52% of those who had their cough recorded had barking cough (ie, brassy or croupy) or honking cough. However, this cough quality is also found in other childhood conditions associated with cough such as tracheomalacia. Both cough character and cough timing have not been prospectively
Diagnosis

The diagnosis of a habit cough or psychogenic cough is a diagnosis of exclusion. Among the conditions to exclude are upper airway cough syndrome, transient tic disorder, chronic vocal tic disorder, and Tourette syndrome. While diagnostic criteria for the tic-associated conditions have been published, neurology and/or psychiatry consultations will likely be necessary. It is beyond the focus of this section to cover these diagnostic criteria herein. While Tourette syndrome is a disease that is primarily encountered by pediatricians and physicians specializing in adolescent medicine, physicians primarily caring for adult patients will occasionally encounter a patient with Tourette syndrome. As discussed above, an adult patient with Tourette syndrome may present with a cough tic that has gradually subsided but has persisted into adulthood.7 Patients with Tourette syndrome, in rare instances, may present for the first time with a tic as an adult.8

Adult patients and, most commonly, women with chronic cough seek medical attention because the cough adversely affects their quality of life23–25; therefore, every effort should be made to establish a specific, treatable cause of cough by evaluating patients according to protocols that have yielded the best results. Patients with chronic cough experience psychosocially as well as physically adverse occurrences from their coughs.23–25 Therefore, it should not be assumed a priori that the psychological manifestations associated with coughing are causing the cough; they may be due to the cough. Hopefully, future studies will help to determine whether there is a psychological profile of patients with psychogenic cough that is different from patients who experience psychosocially adverse occurrences from coughing.

Until future studies become available and definitively show that there is a distinctive psychological profile predicting that an adult patient has a psychogenic cough (ie, that psychological factors are the cause of cough), the committee by consensus recommends that in adult patients with a chronic cough that remains persistently troublesome despite an extensive and thorough evidence-based evaluation, unexplained cough should be diagnosed (see section that discusses this topic) rather than psychogenic cough. This will minimize stigmatizing patients with a wrong diagnosis implying that they are the cause of their own cough. Nevertheless, it is reasonable to consider the possibility that cough may represent a form of somatization. While there are few studies that have directly addressed cough as a form of somatization, it is known that patients can have cardiorespiratory complaints that cannot be explained after diagnostic evaluation22,26–28 but that may respond to treatment for anxiety, depression, and domestic violence.

The pediatric literature has reported that children with psychogenic cough may have an underlying psychiatric disorder, most commonly a conversion disorder (21.9%), followed by mixed anxiety and depressive disorder (12.2%).22 While this has been reported in case series, there are again no data from prospective studies that have examined this. Also, irrespective of the cause of the cough, psychological influences on the severity of cough have been documented in children.29
Like adults, chronic cough in children may also be a form of somatization of an underlying problem.

**Recommendations**

3. In adults with chronic cough, the presence or absence of nighttime cough or cough with a barking or honking character should not be used to diagnose or exclude a diagnosis of psychogenic cough. Level of evidence, low; benefit, substantial; grade of recommendation, B

4. In children with chronic cough, the characteristics of the cough may be suggestive of, but are not diagnostic of, psychogenic cough. The presence or absence of nighttime cough should not be used to diagnose or exclude psychogenic cough. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

5. In adult and pediatric patients with chronic unexplained cough, common psychosocial problems such as anxiety, depression, domestic violence, and child abuse/neglect that are often associated with somatization disorders should be evaluated. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

**Treatment**

In the context of acknowledging the inherent inaccuracies of the diagnoses of habit and psychogenic cough, the treatments of both conditions have almost exclusively been reported in the pediatric literature and in nonrandomized and noncontrolled studies. Suggestion therapy has been the principal treatment in children with the presumption that once the control of cough has been established, the symptom may completely resolve. This and a variety of techniques have been reported\(^{10,30,31}\) as being successfully employed to facilitate the child being able to hold his/her cough and thus break the cough-irritation cycle. Other techniques that have been described include self-hypnosis, speech therapy techniques, wrapping a bed sheet around the chest, and behavioral intervention.\(^{3}\) In some situations, a multidimensional approach has also been advocated.\(^{32}\) However, the evidences of success in all of these studies were based on nonrandomized, noncontrolled case studies that were, for the most part, retrospective in nature. To our knowledge, there are no studies that have detailed the techniques that have not been successful. Although a variety of antitussive agents have been used as short-term adjunctive therapy to help control the cough, no agent, to our knowledge, has been studied in patients with either habit cough or psychogenic cough in a randomized, double-blind, placebo-controlled fashion. Nevertheless, behavior modification and/or psychological counseling or psychiatric intervention should be considered for patients with either of these conditions or with any cough associated with troublesome psychological manifestations.

6. In adult and pediatric patients with chronic cough associated with troublesome psychological manifestations, psychological counseling or psychiatric intervention should be encouraged, after other causes have been ruled out. Level of evidence, expert opinion; benefit, small/weak; grade of recommendation, E/C

**Summary of Recommendations**

1a. In adult patients with chronic cough, the diagnoses of habit cough or psychogenic cough can only be made after an extensive evaluation has been performed that includes ruling out tic disorders and uncommon causes (as described in another section), and cough improves with specific therapy such as behavior modification or psychiatric therapy. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

1b. In adult patients with chronic cough that remains persistently troublesome despite an extensive and thorough evidence-based evaluation, and after behavior modification and/or psychiatric therapy have failed, unexplained cough should be diagnosed rather than a habit cough or psychogenic cough. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

1c. In children with chronic cough, the diagnoses of habit cough or psychogenic cough can only be made after tic disorders and Tourette syndrome have been evaluated and cough improves with specific therapy such as behavior modification or psychiatric therapy. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A

2. In adult patients with cough, the diagnosis of habit cough should not be made unless biological and genetic tic disorders
associated with coughing such as Tourette syndrome have been ruled out. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A.

3. In adults with chronic cough, the presence or absence of nighttime cough or cough with a barking or honking character should not be used to diagnose or exclude a diagnosis of psychogenic cough. Level of evidence, low; benefit, substantial; grade of recommendation, B.

4. In children with chronic cough, the characteristics of the cough may be suggestive of, but are not diagnostic of, psychogenic cough. The presence or absence of nighttime cough should not be used to diagnose or exclude psychogenic cough. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A.

5. In adult and pediatric patients with chronic unexplained cough, common psychosocial problems such as anxiety, depression, domestic violence, and child abuse/neglect that are often associated with somatization disorders should be evaluated. Level of evidence, expert opinion; benefit, substantial; grade of recommendation, E/A.

6. In adult and pediatric patients with chronic cough associated with troublesome psychological manifestations, psychological counseling or psychiatric intervention should be encouraged, after other causes have been ruled out. Level of evidence, expert opinion; benefit, small/weak; grade of recommendation, E/C.

References