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COMMENTARY

WILEY PEDIATRIC PULMONOLOGY

The habit cough: Diagnosis and treatment

Miles Weinberger MD[1,2]

[1] University of Iowa, Iowa City, Iowa

[2] University of California San Diego, Rady Children's Hospital, San Diego, California

Correspondence
Miles Weinberger, MD, University of California San Diego, Rady Children's Hospital, San Diego, CA.
Email: miles-weinberger@uiowa.edu

Doctors Wright and Balfour-Lynn from the Royal Brompton Hospital in London described the diagnostic characteristics of the Habit Cough in 55 children seen over a 6-year period.[1] The ages of the 55 children (median ~10 years) were virtually identical to that of the 140 children in whom we made that diagnosis over a 20-year period at the University of Iowa.[2] The prior duration of the cough was also similar, median 3 months seen at Brompton Hospital and 4 months at our clinic. Like our experience in Iowa, the doctors at the Brompton found that a frequent repetitive cough totally absent once asleep was a generally sufficient characteristic to warrant the diagnosis. However, the similarity ended after the diagnosis was made. While many of the Brompton patients continued to cough, some for weeks or months, the patients in Iowa left the clinic without the cough

The Brompton physicians limited treatment to explanation and reassurance. Similar to a report of children with this problem from Mayo Clinic, (Rochester Minnesota)[3] more than 25 years ago, many had persistent symptoms of this debilitating disorder for weeks or longer. It was over 50 years ago that Dr. Bernard Berman, a Boston allergist, termed the disorder as Habit Cough, and described an effective treatment for this disorder in six children, using measures that he described as relying "solely on the art of suggestion."[4]

Stimulated by Dr. Berman's experience, we began to use a suggestion therapy method in our clinic at the University of Iowa. Our approach emphasized empowering the child with the ability to resist the urge to cough and thereby interrupt what appeared be a vicious cycle where the cough produced a focus of irritation in the airway that acted as the nidus for the continued cough. Our initial report in 1991 described 9 children, median age 11 years, whose repetitive sustained cough present for up to 2 years (median 2 months) was stopped using a form of suggestion therapy during the clinic visit.[5] Cessation of the cough occurred within 15 min of the suggestion therapy session (30 min for 1 very skeptical very bright male adolescent). A 1 week follow-up found one child with no recurrences and eight with minor transient return of symptoms self-controlled with utilization of the autosuggestion technique taught during the clinic visit (Table 1). Seven of the nine could be contacted a median of 2.2 years later. Sustained absence of cough was reported for those seven. A psychological questionnaire, the SCL-90-R, completed by the families of those seven, identified no abnormalities.

Following our initial report, we continued that diagnostic and treatment approach. Diagnosis in the Pediatric Allergy and Pulmonary Clinic at the University of Iowa was based on the same criteria described in the Brompton report, a frequent repetitive cough totally absent once asleep. Eighty-five patients seen over a 20-year period had the typical cough present when seen in our clinic. Those patients were treated with suggestion therapy by one of six pediatric pulmonologists. Cessation of cough was accomplished with suggestion therapy by the attending clinician in all but three patients. Details of the treatment failures are described in a subsequent review of the subject.[6] Fifty-five patients seen during the 20-year period had a convincing history of active habit cough but were not coughing during the clinic visit. Where cough was not present when seen in the clinic, autosuggestion, the same principle as our suggestion therapy was taught so that the child could prevent any return of cough from again becoming chronic (Table 1). Patients were instructed to contact us for return of cough that could not be managed with the autosuggestion techniques. That occurred only once, where the pulmonologist seeing the patient misdiagnosed a 9-year-old girl with nocturnal coughing as habit cough.

Another method for treating habit cough was known as the bedsheet technique.[7] This involved wrapping a bedsheet tightly around the child's chest with the strong suggestion that his would enable cessation of coughing. We utilized that once when a young immature child was unable to focus during a suggestion therapy session. Hypnosis, which can be considered as a type of suggest therapy, has also been described as effective for this disorder.[8] With various methods of suggestion therapy that can be utilized by the

TABLE 1 Major elements of suggestion therapy to stop the habit cough

- Approach the patient with confidence that the coughing will be stopped.
- There is no value in providing an explanation for the parents first beyond saying that you will show the child how to resist the urge to cough. The explanation will be self-evident if the cough is stopped. The parents are asked to simply sit quietly with cell phones off.
- Explain the cough to the child as a vicious cycle that started with an initial irritant, perhaps a cold, that is now gone. Now cough itself is the cause of irritation that then causes more cough.
- Instruct the patient to concentrate solely on holding back the urge to cough, for an initially brief timed period, for example, one-half of 1 min. Progressively increase this time period and utilize an alternative behavior, such as sipping lukewarm water or inhaling a soothing cool mist from a vaporizer, to "ease the irritation."
- Tell the patient that each second the cough is delayed makes it easier to suppress further coughing.
- Keep the patient focused by continuing to provide repetitive instructions. Emphasize that holding back a cough is difficult and takes a lot of concentration, but providing reassurance that the patient can do it.
- Repeat expressions of confidence that the patient is developing the ability to resist the urge to cough; "it's becoming easier to hold back the cough, isn't it" (*nodding affirmatively generally results in a similar affirmation movement by the patient*).
- When ability to suppress cough is observed (usually by about 10 min), ask in a rhetorical manner, "You're beginning to feel that you can resist the urge to cough, aren't you?" (*said with an affirmative head nod*).
- Discontinue the session when the patient can repeatedly respond positively to the question, "Do you feel that you can now resist the urge to cough on your own?" This question is only asked after the patient has gone 5 min without coughing.
- **Autosuggestion**: Express confidence that if the urge to cough recurs that the patient can do the same thing at home. We called this *autosuggestion*. This involved expressing confidence that 15-min sessions at home concentrating on holding back the urge to cough using sips of lukewarm water to "ease the irritation causing cough." We emphasized that there should be no distractions from parents or sibs; this was the child's activity. For patients with a convincing history of habit cough but were not coughing when seen, we provided autosuggestion instructions while reassuring the patient that they would then be able to stop the cough.

practicing pediatric respiratory specialist and success described since Dr. Berman's report in 1966, there should be no justification for this chronic functional cough to continue for most children and adolescents once the diagnosis is made. I have seen our experience in Iowa reproduced at other institutions. Just recently, a first-year allergy/immunology fellow at my current institution joyfully told me 1 day how she diagnosed habit cough and successfully treated a 10-year-old boy she saw in her clinic using the principles described in our previous publications.

As to the parents that did not accept the explanation of habit cough at the Brompton, if the actively coughing child stops coughing during the suggestion therapy session, the nature of the cough is then self-evident. Explaining the self-perpetuation of the cough to the parents should follow the suggestion therapy session. Once the cough is stopped in the clinic, the patient should be told that they, and not the doctor, stopped the cough. Since the urge to cough has been observed by us to persist for up to a day after successful cessation, autosuggestion was taught to used for any recurrences (described at the bottom of Table 1).

The Brompton physicians reviewed some of the confusion regarding the diagnostic terminology of this disorder. A publication from an "Expert Panel" made up predominantly of physicians with adult specialties, pulmonologists and neurologists, lumped together all age groups with chronic functional cough.[9] Attributing the chronic repetitive cough without an apparent cause to a tic disorder, psychopathology, or just calling it a somatic cough disorder has not been helpful in either understanding or treating this disorder. Parents are likely to be disturbed at the suggestion that their child has a psychological problem or a tic disorder (they have often heard of Tourette's syndrome). However, a review of published case reports found this problem predominantly affects children and adolescents.[10] The clinical characteristics of the small number of adults described with persistent functional cough may be different than that seen by the Brompton doctors or us in children and adolescents. The median age for this disorder was about 10 years at both the Brompton and Iowa clinics with a range that decreased inversely with adolescent ages (Figure 1).

The habit cough is not rare. With the Brompton and our experience at the University of Iowa averaging nine and seven per year, respectively, it is likely that similar numbers will be seen at other referral centers. This troublesome disorder is associated with substantial morbidity, misdiagnoses, and inappropriate medical treatment. Consistent with the advice in the publication from the

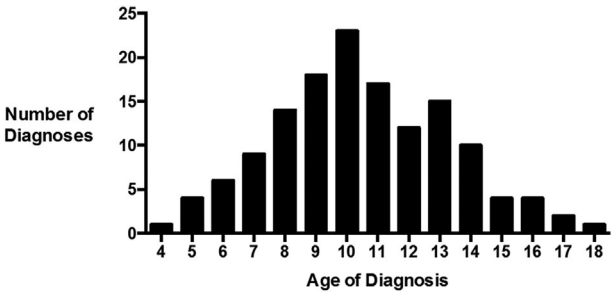

FIGURE 1 Age of diagnosis of 140 children and adolescents diagnosed with habit cough at the University of Iowa Pediatric Allergy & Pulmonary Division over a 20 year period (with permission from J Allergy Clin Immunl-Practice)

Brompton, the diagnosis in Iowa was also made by the characteristic history of a repetitive cough that is absent once asleep. Little or no testing is generally justified. Wright and Balfour-Lynn treated by reassuring the parents and waiting for eventual cessation. For some that means weeks or months of a continued troublesome cough before attrition occurs. Specifics of treatment methods in the literature have varied, but the unifying principle is suggestion that empowers the patient with the ability to break the cycle of cough stimulating further cough. If the cough is present when seen by the physician, showing the patient how to stop the cough provides a cure and should be done by all pediatric pulmonologists encountering this problem.

ORCID


Miles Weinberger http://orcid.org/0000-0003-2341-2094

REFERENCES

1. Wright MFA, Balfour-Lynn IM. Habit-tic cough: presentation and outcome with simple reassurance. *Pediatr Pulmonol*. 2018;1–5.
2. Weinberger M, Hoegger M. The cough without a cause: the habit cough syndrome. *J Allergy Clin Immunol*. 2016;137:930–931.
3. Rojas AR, Sachs MI, Yunginger JW, O'Connell EJ. Childhood involuntary cough syndrome: a long-term follow-up study [abstract]. *Ann Allergy*. 1991;66:106.
4. Berman BA. Habit cough in adolescent children. *Ann Allergy*. 1966;24:43–46.
5. Lokshin B, Lindgren S, Weinberger M, Koviach J. Outcome of habit cough in children treated with a brief session of suggestion therapy. *Ann Allergy*. 1991;67:579–582.
6. Weinberger M, Lockshin B. When is cough functional, and what to do? *Breathe (Sheff)*. 2017;13:22–30.
7. Cohlan SQ, Stone SM. The cough and the bedsheet. *Pediatrics*. 1984;74:11–15.
8. Anbar RD, Hall HR. Childhood habit cough treated with self-hypnosis. *J Pediatr*. 2004;144:213–217.
9. Vertigan AE, Murad MH, Pringsheim T, et al. Somatic cough syndrome (previously referred to as psychogenic cough) and tic cough (previously referred to as habit cough) in adults and children: chest Guideline and Expert Panel Report. *Chest*. 2015;148:24–31.
10. Lokshin B, Weinberger M. The habit cough syndrome: a review. *Amer J Asthma Allergy Peds*. 1993;7:11–15.

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