Behavior Therapy for Pediatric Trichotillomania: A Randomized Controlled Trial

Martin E. Franklin, Ph.D., Aubrey L. Edson, B.A., Deborah A. Ledley, Ph.D., Shawn P. Cahill, Ph.D.

Objective: To examine the efficacy and durability of a behavioral therapy (BT) protocol for pediatric TTM compared with a minimal attention control (MAC) condition. It was hypothesized that the BT condition would be superior to MAC at the end of acute treatment, and would also demonstrate durability of gains through the maintenance treatment phase. **Method:** A randomized controlled trial in which 24 youths were assigned to either a pilot-tested BT protocol, consisting of eight weekly sessions, or to MAC, consisting of three sessions and five telephone calls over 8 weeks. Independent evaluators assessed outcome at pretreatment (week 0) and post-treatment (week 8) for BT and MAC, and again at week 16 for BT patients only. The primary outcome measure was the National Institute of Mental Health Trichotillomania Severity Scale (NIMH-TSS). **Results:** For the BT condition, the week 8 mean NIMH-TSS score was significantly lower than that of the MAC condition. The BT condition's mean week 8 score was also significantly lower than their own mean week 0 score, whereas no such reductions were observed for the MAC condition. Upon completion of acute treatment at week 8, the BT group's gains were maintained through an 8-week maintenance treatment phase. **Conclusions:** BT produced a superior outcome compared with a condition that controlled for participation in a pediatric TTM research study, nonspecific therapist contact effects, repeated assessments, and the passage of time. Maintenance of gains after acute BT provides preliminary support for the durability of treatment gains. **Clinical Trial Registration Information**—Cognitive Behavioral Treatment of Pediatric Trichotillomania; http://www.clinicaltrials.gov; R21 MH 61457 J. Am. Acad. Child Adolesc. Psychiatry, 2011;50(8):763–771. **Key Words:** trichotillomania, behavior therapy, TTM

Trichotillomania (TTM), classified as an impulse-control disorder in *DSM-IV TR*,[1] involves repetitive hair pulling that results in significant hair loss. In adults, TTM has been associated with significant functional impairment,[2,3] psychiatric comorbidity,[3-6] and, in some cases, medical complications such as skin irritation, infections, and repetitive use injuries to the hands.[7] The disorder also appears to take a significant toll on affected children and adolescents in terms of associated impairment and comorbidity,[8] but small sample sizes and other methodological shortcomings of studies in the extant literature highlight the need for replication and extension. Individuals who ingest the hair are also at risk for gastrointestinal complications stemming from trichobezoars (i.e., hairballs) if the individual ingests the hair after pulling.[8,9] TTM may also be more common than previously believed[2,10-12]; hair pulling and associated distress has been found in 1% to 3% of college samples,[13,14] which further underscores the need for early identification and treatment of this often disabling condition.

With the exception of recently published randomized controlled studies supporting the efficacy of olanzapine[15] and *N*-acetylcysteine,[16] pharmacotherapy for TTM in adults has generally not proved efficacious.[17,18] Behavior therapy (BT) and cognitive-behavioral therapy (CBT) protocols have been found to be efficacious in ran-

This article is discussed in an editorial by Dr. Douglas Woods on page 747.

domized controlled trials in the acute treatment of adult TTM,[8,19,20] yet relapse appears to be common after treatment discontinuation.[21-23] Keuthen et al.[24] found that although pulling symptoms did not significantly decrease from post-treatment to follow-up in a sample of adults with TTM, self-esteem declined, and there was a downward trend among psychosocial impact scores. Moreover, despite the fact that clinical and survey studies converge to indicate that pediatric onset is the norm, there are no published randomized controlled trials (RCTs) of any pharmacotherapy or psychotherapy regimens for TTM in youth to guide clinical practice.

The primary purpose of the present study was to demonstrate the feasibility of conducting a RCT of BT for pediatric TTM and to develop patient recruitment, assessment, and treatment strategies toward the end of conducting a larger future study to examine the efficacy of BT more fully. The design involved randomization to the following: 1) a weekly BT package developed for pediatric TTM; or 2) minimal attention control (MAC). The control group was selected to allow for estimation of the nonspecific effects of participation in a research study for pediatric TTM, minimal contact with a therapist, repeated assessments and the passage of time. For ethical reasons, MAC participants were discontinued from the study at week 8 and were offered open treatment by the study team; all patients randomized to BT participated in a maintenance treatment phase (four visits over 8 weeks) that allowed for examination of the durability of gains after participation in acute BT. Based on our review of the adult literature on patient response to behavioral treatment for TTM, we generated an exploratory hypothesis that CBT, but not MAC, would yield statistically significant reductions in hair pulling symptoms at the end of the acute treatment phase (week 8), and that gains made during acute BT would be maintained through the maintenance treatment phase (week 16).

METHOD

Participants

Participants were recruited into a randomized controlled trial examining the efficacy of behavior therapy for pediatric TTM that was being conducted at the University of Pennsylvania School of Medicine. A total of 24 children and adolescents with TTM participated in the present study, with 12 participants assigned to each condition. Inclusion criteria were age 7 through 17, primary diagnosis of TTM, minimum IQ of 80, and minimum symptom duration of 6 months. Exclusion criteria were a primary diagnosis other than TTM, current bipolar illness, developmental disorder, thought disorder; current psychotherapy, or current psychotropic medication. Provided that TTM was determined by the evaluator to be the primary concern, comorbid conditions were allowed (Table 1 lists sample demographic and clinical characteristics). As has been the case in other recent investigations of TTM in youth,[4] criteria B and C (increasing and decreasing tension) of the *DSM-IV-TR* criteria for TTM were optional for inclusion, as these criteria have been found to exclude patients with clinically significant hair pulling.[21,25,26] All 24 patients completed the acute phase (week 8) of treatment, and all 12 patients randomized to BT completed the 8-week maintenance phase. Because all MAC patients were offered open BT at week 8 on ethical grounds (withholding of treatment), no maintenance data on MAC are available. Patient flow from initial telephone screening through study completion is depicted in Figure 1.

Consenting Procedure, Randomization, and Trial Oversight

At the intake meeting, study personnel provided a detailed description of the trial and procedures, discussed associated risks and benefits, and encouraged parents/guardians and participating children to ask questions before providing informed consent (parent/guardian) and assent (child/adolescent) participant. Patients were randomly assigned to either BT or MAC using a computer-generated, randomized, permuted blocking procedure. As is the case in most psychotherapy outcome studies, patients and treating clinicians were aware of the assignment to condition; masking was maintained for the primary and secondary dependent measures by use of a trained independent evaluator who was not otherwise involved in the patient's care. The study was approved by the Institutional Review Board at the University of Pennsylvania School of Medicine, and a Data and Safety Monitoring Plan was developed in concert with program officers at the National Institute of Mental Health (NIMH) and was implemented during the trial.

Measures

Diagnostic criteria for TTM were assessed using the Trichotillomania Diagnostic Interview (TDI),[12] which examined TTM diagnosis according to *DSM-IV* criteria. Diagnostic criteria for other psychiatric disorders were surveyed using the Anxiety Disorders Interview Schedule for Children (ADIS-C),[27] a semi-structured interview with established psychometric properties.[27,28] The TDI and ADIS-C were used to assess diagnostic inclusion criteria and were conducted at