In their randomized clinical trial of therapist-supported, internet-delivered exposure and response prevention (ERP) or structured education in 221 youths with Tourette syndrome (TS) or chronic tic disorder (CTD), Andrén and colleagues found a significantly higher treatment response (47% vs 29%) and higher treatment acceptability with ERP compared with education, at little additional cost. While this study failed to achieve its primary outcome, change in total tic severity on the Yale Global Tic Severity Scale (YGTSS-TTS) at 3 months, both the ERP and education groups had significant improvements from baseline, with a reduction of 6.08 points and 5.29 points, respectively. An identical study called the ORBIT trial, codeveloped by the same group but administered in the UK rather than Sweden, found a significant difference between ERP and education on the YGTSS-TTS, with a mean difference between groups of −2.29 points (95% CI, −3.86 to −0.71 points) at 3 months. In the study by Andrén et al, a slightly greater improvement was seen with ERP on the YGTSS-TTS at 3 months compared with the ORBIT study (6.08 vs 4.50 points), with the educational intervention also resulting in a greater improvement (5.29 vs 1.60 points) in Swedish compared with UK participants, suggesting that in Swedish participants, education may have been a more active intervention.

Tourette syndrome is a common neurodevelopmental disorder with a prevalence of approximately 1% in school age children. Current evidence-based guidelines from the American Academy of Neurology provide a Level B (should) recommendation for the use of behavioral therapies, specifically the Comprehensive Behavioral Intervention for Tics (CBIT), as a first-line treatment over medications for people with access to this therapy. This recommendation was based on high confidence in the evidence, with 2 class I studies demonstrating a meaningful difference (standardized mean difference, 0.56; 95% CI, 0.31-0.82) in tic severity with CBIT vs psychoeducation and supportive therapy. With the data available at the time the guidelines were written, ERP, and CBIT by teleconference or internet protocol delivery system, were given a level C (may) recommendation. Together, the positive results of Andrén and colleagues’ study and the ORBIT trial support a stronger recommendation on the use of ERP for tics, and the use of internet-delivered administration as a successful method of providing ERP for this indication.

From a broader perspective, the findings from this study provide further support for the acceptability and efficacy of behavioral treatments for tic disorders. The initial psychoanalytic conceptualization of tics and lack of efficacy of this approach, followed by the discovery of effective pharmacotherapeutic approaches in the 1960s, spurred reconsideration of Tourette syndrome as a brain-based disorder and triggered a backlash against nonpharmacologic treatments. In line with this thinking and to further reduce stigma, patients and family members were warned that attempts to suppress, control, or self-manage tics were harmful or even dangerous. To this end, patients, and their families, were considered as passive participants in treatment with little or no agency over their illness.

The development of more sophisticated behavioral interventions for tics, beginning in the 1990s, demonstrated the acceptability and feasibility of this approach and provided patients, especially children, an alternative to pharmacotherapy. More significantly, this work triggered a paradigm shift in the conceptualization and management of tics, with patients and families now...
taking active roles, not only in managing tics, but also reshaping their environments to reduce or eliminate factors associated with the expression and maintenance of these symptoms.

Most tics are preceded by a premonitory urge, an uncomfortable somatic sensation, which is then immediately relieved by expression of the tic.\(^4\) This relief serves to reinforce the tic behavior through the process of negative reinforcement. In the simplest form, including the study by Andrén et al, behavioral treatment seeks to disrupt the negative reinforcement cycle by training patients to repeatedly resist ticcing in the presence of the premonitory urge. Although the actual mechanism of action underlying observed behavioral treatment gains remains to be documented, a recent study found acute responders in the child CBIT trial maintained treatment gains over a 10-year follow-up interval.\(^5\) Based on prior work by Andrén and other investigators,\(^6\) as well as similarities between the ERP and CBIT approaches, it is reasonable to expect that ERP gains will also be durable.

This is not by any means to say that medication no longer plays a role in the treatment of TS. In fact, a significant proportion of the patients we see in our clinics are receiving some form of pharmacotherapy for their tics, often in conjunction with behavior therapy. However, the work by Andrén and colleagues provides further confidence in the utility of ERP for the treatment of youths with TS and other persistent tic disorders. Impressively, less than 3% of participants (6 of 221) in the Andrén et al study terminated treatment prematurely. Perhaps even more importantly, the validation of a therapist-assisted remote intervention has the potential to address several of the many significant barriers faced by individuals and families in search of effective treatment for their tic disorder. Most health regions experience major barriers to accessibility to behavioral therapies because of a lack of trained care professionals, long waiting times, cost, and travel distance required to see a qualified therapist. The ability to use a remote delivery system with therapist support could greatly increase both acceptability and capacity for care and is a meaningful advance in the ability to provide therapeutic interventions in our field. Disparity in care for tic disorders exists globally, even within highly developed countries, because of centralization of medical knowledge and skills within larger cities. Future commercialization of this internet-delivered program is expected to benefit children and families affected by TS globally and is timely considering the ongoing movement from office-based to remote clinician and app-based care.

ARTICLE INFORMATION
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