



European clinical guidelines for Tourette syndrome and other tic disorders – version 2.0. Part II: psychological interventions

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Outline

- Brief background
- Table of randomized controlled trials published since 2011
- Studies sorted by theme
 - Behaviour therapy (BT): HRT/CBT and ERP
 - Cognitive interventions
 - Third-wave interventions
 - BT and pharmacotherapy
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 - Remotely delivered BT
- Recommendations and conclusions



2011 European clinical guidelines

Eur Child Adolesc Psychiatry (2011) 20:197–207
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European clinical guidelines for Tourette Syndrome and other tic disorders. Part III: behavioural and psychosocial interventions

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Update 2011-2021

- Full updated guidelines available in a total of 5 papers in European Child & Adolescent Psychiatry (ECAP)
 - Part I: assessment
 - Part II: psychological interventions
 - Part III: pharmacological treatment
 - Part IV: deep brain stimulation (DBS)
 - Summary statement

Review | Open Access | Published: 10 July 2021

European clinical guidelines for Tourette syndrome and other tic disorders: summary statement

Kirsten R. Müller-Vahl Natalia Szejko, Cara Verdellen, Veit Roessner, Pieter J. Hoekstra, Andreas Hartmann & Danielle C. Cath

European Child & Adolescent Psychiatry (2021) | Cite this article

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Update of part II (previously referred to as part III)

Review | [Open Access](#) | Published: 27 July 2021

European clinical guidelines for Tourette syndrome and other tic disorders—version 2.0. Part II: psychological interventions

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Update of part II

- Start-up meeting at the ESSTS conference in Hannover 2019, where authors could sign up their interest
- Searches of MEDLINE and PsycINFO databases
- Studies were also added through correspondence between authors
- Submitted March 2021
- Accepted July 2021



Table of randomized controlled trials published since 2011

Study	Groups	Subjects
Himle et al., 2012	F2F CBIT vs. videoconference CBIT	N=20 Age 8-17
Wilhelm et al., 2012	CBIT vs. psychoeducation and supportive psychotherapy	N=122 Age 16-69
McGuire et al., 2015	"Living with tics" vs. waitlist	N=24 Pediatric sample
Ricketts et al., 2016	Videoconference CBIT vs. waitlist	N=20 Age 8-16
Yates et al., 2016; Dabrowski et al., 2018	Group HRT vs. group psychoeducation	N=33 Age 9-13
Seragni et al., 2018	HRT vs. usual care	N=21 Pediatric sample
Rizzo et al., 2018	Behavior therapy vs. psychoeducation Pharmacotherapy vs. psychoeducation Behavior therapy vs. pharmacotherapy	N=110 Age 8-17



Table of randomized controlled trials published since 2011

Study	Groups	Subjects
Andrén et al., 2019	Internet ERP vs. internet HRT	N=23 Age 8-16
Nissen et al., 2019; Nissen et al., 2021	Individual HRT+ERP vs. group HRT+ERP	N=59 Age 9-17
Chen et al., 2020	CBIT+usual care vs. usual care	N=46 Age 6-18
McGuire et al., 2020	HRT+D-cycloserine vs. HRT+placebo	N=20 Age 8-17
Rachamim et al., 2020	Internet CBIT vs. waitlist	N=41 Age 7-18
Singer et al., 2020	DVD HRT vs. HRT	N=44 Age 7-13
Zimmerman-Brenner et al., 2021	Group CBIT vs. group psychoeducation	N=61 Age 8-15

Behavior therapy (BT): HRT/CBIT

- Habit reversal training (HRT)
 - Awareness training
 - Competing response training
- Comprehensive behavioral intervention for tics (CBIT)
 - HRT
 - Relaxation training
 - Contingency management
 - Functional interventions

Wilhelm et al. (2012)

- **Aim:** Evaluate the efficacy of CBIT compared with psychoeducation and supportive psychotherapy (PST)
- **Design:** Single-blind superiority RCT
- **Sample:** N=122, 16-69 years.
- **Intervention:** CBIT vs. PST
- **Key results:** Medium between-group effect (0.57) on the Yale Global Tic Severity Scale – Total Tic Severity Score (YGTSS-TTS), in favor of CBIT. No controlled follow-up, but 12 out of 15 initial treatment responders remained classified as treatment responders at a 6-month follow-up.

Other trials on HRT/CBIT since 2011

- McGuire et al. (2015): RCT – Living with tics (abbreviated CBIT) vs. Waitlist
 - N = 24, Pediatric sample.
 - Significant between-group effect on the YGTSS Impairment score (primary outcome), but not TTS. Maintained at follow-up.
- Seragni et al. (2018): RCT - HRT vs usual care
 - N = 21, Pediatric sample.
 - No significant between-group effect on any reported YGTSS score. Significant within-group effect when groups were combined at 3-month follow-up.

Behavior therapy (BT): ERP

- Exposure and response prevention (ERP)
 - Response prevention (tic suppression)
 - Exposure (to premonitory urges and environmental factors)
- Andrén et al. (2019): RCT - Internet ERP vs Internet HRT
 - N=23, 8-16 years. Significant within-group effect for ERP only. No group comparison.
- Nissen et al. (2019, 2021): RCT - Combination of ERP and HRT in Group vs Individual
 - N=59, 9-18 years. Significant within-group effects, no significant between-group effect.
- Andrén et al. (2020): Naturalistic open study
 - ERP (n=46) and HRT (n=14), 6-17 years. Large within-group effect. No group comparison.

Cognitive interventions

- Cognitive interventions (CI) identify maladaptive beliefs about tics or premonitory urges, and challenge and restructure those
- So far no RCT has supported CI as standalone treatment
- A new “cognitive psychophysiological” treatment model (“Facotik”) has been proposed by Kieron O’Connor involving cognitive-behavioral and psychophysiological elements
- Two open trials have been published in 128 adults (O’Connor et al., 2018) and 13 children (Leclerc et al., 2016) with tic disorders, indicating tic severity reduction after treatment

Third-wave interventions

- Third-wave interventions include concepts such as metacognitive training, mindfulness and acceptance-based approaches
- Acceptance-based approaches:
 - Franklin et al. (2011) (N=13, 14–18 years) pilot study of a combined treatment of HRT and acceptance and commitment therapy (ACT), showing comparable results to traditional HRT
 - Gev et al. (2019) (N=45, 8–17 years). Acceptance of PU. Significant decrease in frequency and intensity of urges and discomfort level and tic frequency.
- Mindfulness-based approaches:
 - Reese et al. (2015) (N=18, 16–67 years) open trial on feasibility and efficacy of a modified form of mindfulness-based stress reduction (MBSR-tics). Significant improvement of tic severity.
 - Reese et al. (2021) online application of MBSR. Modest improvement of tic severity.
- Resource-activation:
 - Viefhaus et al (2019) (N=24, 8–19 years) within-subject pilot trial. Significant improvement of tic severity.

BT and pharmacotherapy

- Only one RCT has been published comparing BT to pharmacotherapy (PT) (Rizzo et al., 2018)
 - **Aim:** Compare the efficacy of BT to PT, and BT to psychoeducation (PE)
 - **Design:** Single-blind (?) superiority RCT
 - **Sample:** N=110, 8-17 years.
 - **Intervention:** BT (HRT or ERP), PT (risperidone, aripiprazole or pimozide), PE
 - **Key results:** Significant between-group effects on the YGTSS-TTS for BT vs. PE and PT vs. PE (in favor of BT and PT)
 - **Limitations:** Potentially underpowered study. Did not report on adverse events, which would have been interesting since the assumed less adverse events in BT is key in recommending BT prior to PT in treatment guidelines
- Pilot study on use of D-cycloserine to enhance the effect of HRT (McGuire et al., 2020)

Group-delivered BT

- BT via a group format, rather than individual sessions with the therapist
- Several RCTs since 2011, with some mixed results and uncertain statistical power:
 - Yates et al. (2016): N=33, 9-13 years. Group HRT vs. group PE. Significant between-group effect on the YGTSS Motor Tic Severity Score, however no report of YGTSS-TTS.
 - Nissen et al. (2019): N=59, 9-17 years. Group HRT+ERP vs. individual HRT+ERP. No significant between-group effect, but significant within-group effects for each group, on the YGTSS-TTS. Potentially underpowered study for between-group comparisons.
 - Zimmerman-Brenner et al. (2021): N=61; 8-15 years. Group CBIT vs. group PE. No significant between-group effect on the YGTSS-TTS. Significantly increased YGTSS-TTS in both groups at post-treatment, seemingly driven by increased vocal tic severity, which decreased again at the 3-month follow-up. Potentially underpowered study for between-group comparisons.

Remotely delivered BT

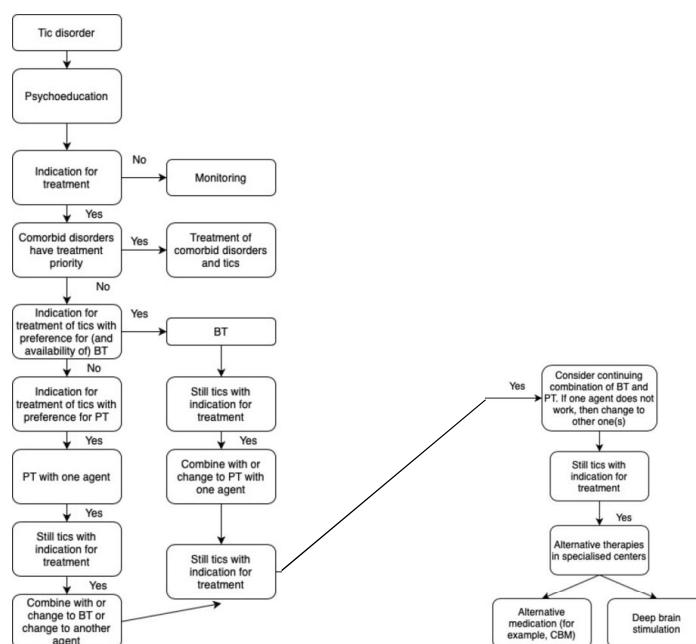
- Due to long travel distances and a limited availability of BT therapists, remotely delivered BT has increased in popularity the last years
- Videoconference-delivered BT
 - Himle et al. (2012): N=20, 8-17 years. Videoconference CBIT vs. face-to-face CBIT. No significant between-group effect on the YGTSS-TTS. Significant within-group effects for each group on the same measure.
 - Ricketts et al. (2016): N=20, 8-16 years. Videoconference CBIT vs. waitlist. Significant between-group effect on the YGTSS-TTS (in favor of CBIT).

Remotely delivered BT

- Internet-delivered BT
 - Andrén et al. (2019): N=23, 8-16 years. Internet ERP vs. Internet HRT, both with therapist support via text messages inside an internet platform. Significant within-group effect on the YGTSS-TTS for the ERP-group, but not for the HRT-group. Study did not aim to compare groups.
 - Rachamim et al. (2020): N=41, 7-18 years. Internet CBIT, with therapist support via telephone, vs. waitlist. Significant between-group effect on the YGTSS-TTS (in favor of CBIT).

Recommendations

- Psychoeducation is recommended as the initial intervention for all patients
- When psychoeducation alone is insufficient, BT (HRT/CBIT and ERP) is recommended as a first-line intervention
 - No data to support when to choose HRT/CBIT or ERP in particular
- Cognitive interventions and third-wave interventions are not recommended as stand-alone interventions
 - Could be offered as second-line interventions (or augmentations) if evidence-based options such as BT or pharmacotherapy are not available
- Regarding remotely delivered BT, there is some preliminary data for videoconference delivery and internet delivery, but not clear recommendations are provided





Conclusions

- BT (HRT/CBT or ERP) is recommended as a first-line intervention
- Few properly powered RCTs since 2011, which in turn makes the 2021 recommendations similar to the ones from 2011
- Several large studies of internet-delivered BT are currently ongoing, which may have an impact on future recommendations. Two of these will actually be presented at the session that starts 2 PM this afternoon.
- See the ECAP publications for full information about the updated treatment guidelines



Thank you for your attention!

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