THE JOURNAL OF
CLINICAL PSYCHIATRY
THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: Tic-related Versus Tic-Free Obsessive-Compulsive Disorder: Clinical Picture and 2-Year Natural Course

Authors: Froukje E. de Vries, MD; Danielle C. Cath, MD; Adriaan W. Hoogendoorn, PhD; Patricia van Oppen, PhD; Gerrit Glas, MD; Dick J. Veltman, MD; Odile A. van den Heuvel, MD; and Anton J. L. M. van Balkom, MD

DOI Number: 10.4088/JCP.14m09736

List of Supplementary Material for the article

Disclaimer

This Supplementary Material has been provided by the author(s) as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Supplementary methods and results

Supplementary methods:

NOCDA study

The purpose and set up of the Netherlands OCD Association (NOCDA) study is described in Schuurmans et al [1]. We cite some sections from the original paper:

The Medical Ethical Committee VUmc gave their approval for the current study in October 2005 (NL41717.029.12) and all of the participating centres have acquired permission to cooperate in this study from their own local Medical Ethical Committees. All participants to the study received written and verbal information with regard to the study with specific attention drawn to their right to refuse or stop participating at any time during the study, as well as specific information on the investment required from the participant.

Data collection was performed by research assistants that were either research nurses or psychologists with considerable clinical experience with OCD. They received a two-day training course and regular follow-up training sessions to address questions raised during data collection. The first two interviews were audiotaped and monitored by the fieldwork coordinator to address any misunderstandings or errors in performing the measurements. All subsequent interviews were audiotaped and about 10% of the interviews was randomly monitored to assure consistent quality of the data collection.

Comprehensive baseline assessments consisted of interviews (11 interviews) and self reports (18 self report measures) a medical examination and blood sampling for DNA analysis. See table 1 in Schuurmans et al. [1] for all measures that were taken. The baseline assessment took approximately five hours (composed of three hours interview and two hours self-report). In some cases the assessment was done in two visits. If necessary the interviewers assisted participants with filling out self-reports. Notably not all measures taken at baseline were used for the current report.

The follow-up visit after two-years consisted of a comparable extensive assessment, including interviews and self-report measures and was performed by the same research assistants. From

these follow-up measurements only the Y-BOCS severity interview and information on the treatment over the past two years were used for the current paper.

Y-BOCS symptom checklist

The Y-BOCS symptom checklist (Y-BOCS-SC) was developed by the Obsessive Compulsive Foundation International Genetics Consortium and is a self-report version based on the original interview version of Goodman et al.[2]. Although some items from different dimensions were left out, factor analysis of the present version led to the same symptom dimensions as the original list [3]. Four symptom dimensions were assessed [4], including 'aggressive, sexual, religious, somatic obsessions, checking compulsions' (20 items), 'symmetry obsession, repeating, counting, ordering compulsions' (10 items), 'contamination obsessions and cleaning compulsions' (9 items) and hoarding obsessions and compulsions (2 items).

Tic screener.

"A tic is a sudden, non-purposeful, twitch or movement. Do you currently or did you ever experience any of the following (common) tics?"

1. Eyeblinking?
2. Other facial tics?
3. Head shaking?
4. Shrugging?
5. Cussing, using foul language?
6. Making sounds?
7. Growling?
8. Throat clearing/coughing/sniffing?

Tic disorder diagnoses

Tics were categorized in chronic motor tics (one or more motor tics), chronic vocal tics (one or more vocal tics), Tourette's Syndrome (two or more motor tics as well as one or more vocal tics) and tics not otherwise specified (one motor tic and one or more vocal tics) according to reported tics on the Yale Global Tic Severity Scale.

ADHD subcategories

Current scores of ADHD symptoms were used to calculate a probable diagnosis of ADHD of the inattentive subtype (6 or more symptoms present), hyperactive subtype (6 or more symptoms present) or combined (10 or more symptoms present). As reports on current symptoms were regarded more reliable than reports on past symptoms, only scores for current symptoms were used.

Autism subscales

The Autism Quotient was used to construct five subscales; contact and communication skills, social skills, attention switching, attention to detail and (lack of) fantasy [5].

Remission rates

A secondary analysis was conducted to determine remission rates in both groups, for which only cases with follow-up data were used. Remission was defined as (i) a decrease in the Y-BOCS of 7 points or more and (ii) a Y-BOCS score<13. The improvement criterion of the Y-BOCS of > 7 is derived from calculations of 'the reliable change index'. The formula to calculate this index takes into account the unreliability of a certain measurement instrument. Thus, by using the reliable change index, the clinician can be sure that the change measured with the Y-BOCS is not merely a chance finding, accounted for by the unreliability of the measurement instrument, but is in fact a 'really' observed change. In addition, we used a data driven cut-off point indicating remission on the Y-BOCS of 12, determined with the reliable change index set at > 1.96 [6-9].

Supplementary results

Tic disorder diagnoses

Within the tic-related group 36% of the patients had chronic motor tics, 12% chronic vocal tics, 52% Tourette's Syndrome and 7% tics not otherwise specified.

Participants with no follow-up data

Complete two-year follow-up data were present in 203 (75%) of the tic-free OCD group and 70 (65%) of the tic-related group. The subjects who were lost to follow-up had significantly lower levels of education (11.3 ± 3.2 vs. 13.0 ± 3.1 years of education in the follow-up sample $t_{(374)}$=-4.7, p<0.001). The participants with no two-year follow-up also had non-significantly higher Y-BOCS scores at baseline ($t_{(373)}$=1.7, p=0.09) and were non-significantly more often from the tic-related than tic-free group (χ^2=3.7, p=0.06). Within the tic-related OCD group, the participants with or without follow-up data available did not differ on tic severity ($t_{(73)}$=0.81, p=0.9).

Remission rates

No significant differences were found in remission rates between the two groups with complete follow-up data (non-tic related group: 32% remission; tic-related group: 24% remission; χ^2=1.3, p=0.25).

Supplementary eTable 1: Subscales for autism and probable diagnosis of ADHD.

	OCD without tics (n=270)		OCD with tics (n=107)				
	n	%	n	%	X^2	df	p
Probable current ADHD diagnosis (number)	52	19%	36	34%	8.9	1	0.003
ADHD combined type	10	4%	8	8%	6.1	3	0.11
ADHD hyperactive type	20	7%	17	16%	9.6	3	0.023
ADHD inattentive type	42	16%	27	25%	8.5	3	0.037
	mean	SD	mean	SD	t	df	p
Autism Quotient total score	113.6	15.5	119.0	17.4	-2.8	356	0.005
Social skills subscale	21.8	5.5	22.6	5.3	-1.2	356	0.23
Attention switching subscale	26.6	5.1	27.2	5.7	-0.9	356	0.39
Attention to detail subscale	23.1	5.2	24.6	5.4	-2.4	354	0.02
Communication subscale	20.3	4.2	21.8	4.7	-2.9	354	0.004
Imagination subscale	21.8	4.8	22.7	4.5	-1.6	353	0.12

Supplementary eTable 2: medication use at follow-up

medication use at follow-up	OCD without tics (n=184)		OCD with tics (n=59)			
	number	%	number	%	X^2(df=1)	p-value
any antidepressant	107	58%	35	59%	3.2	0.20
SSRI	76	41%	18	31%	5.1	0.079
TCA	19	10%	11	19%	6.1	0.047
antipsychotic	22	12%	12	20%	5.9	0.053
psychostimulant	0	0%	4	7%	15.9	0.00

SSRI; selective serotonine reuptake inhibitor, TCA; tricyclic antidepressant, df; degrees of freedom

Supplementary eTable 3: Current co-morbid axis I diagnoses

Current co-morbidity	OCD without tics (n= 270)		OCD with tics (n=107)			
	Number	%	Number	%	χ^2(df=1)	p
Major depressive disorder	53	20%	17	16%	0.7	0.40
Dysthymic disorder	14	5%	7	7%	0.3	0.61
Bipolar disorder	4	2%	0	0%	1.6	0.21
Social anxiety disorder	48	18%	24	22%	1.1	0.30
Panic disorder with or without agoraphobia	29	11%	6	6%	2.4	0.12
Generalized anxiety disorder	24	9%	11	10%	0.2	0.68
Post traumatic stress disorder	5	2%	7	7%	5.5	0.02
Specific phobia	23	9%	8	8%	0.1	0.74
Psychotic disorders	7	3%	3	3%	0.01	0.91
Substance dependence	10	4%	6	6%	0.7	0.41
Somatoform	11	4%	11	10%	5.4	0.02
Eating disorders	16	6%	3	3%	1.6	0.21

Reference List

1. Schuurmans J, van Balkom AJ, van Megen HJ, et al. The Netherlands Obsessive Compulsive Disorder Association (NOCDA) study: design and rationale of a longitudinal naturalistic study of the course of OCD and clinical characteristics of the sample at baseline. Int J Methods Psychiatr Res 2012;21: 273-285

2. Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive Compulsive Scale. I. Development, use, and reliability. Arch Gen Psychiatry 1989;46: 1006-1011

3. Katerberg H, Delucchi KL, Stewart SE, et al. Symptom dimensions in OCD: item-level factor analysis and heritability estimates. Behav Genet 2010;40: 505-517

4. Leckman JF, Grice DE, Boardman J, et al. Symptoms of obsessive-compulsive disorder. Am J Psychiatry 1997;154: 911-917

5. Baron-Cohen S, Wheelwright S, Skinner R, et al. The autism-spectrum quotient (AQ): evidence from Asperger syndrome/high-functioning autism, males and females, scientists and mathematicians. J Autism Dev Disord 2001;31: 5-17

6. Jacobson NS, Truax P. Clinical significance: a statistical approach to defining meaningful change in psychotherapy research. J Consult Clin Psychol 1991;59: 12-19

7. Hageman WJ, Arrindell WA. A further refinement of the reliable change (RC) index by improving the pre-post difference score: introducing RCID. Behav Res Ther 1993;31: 693-700

8. van Oppen P, de Haan E, van Balkom AJ, et al. Cognitive therapy and exposure in vivo in the treatment of obsessive compulsive disorder. Behav Res Ther 1995;33: 379-390

9. Kempe PT, van Oppen P, de Haan E, et al. Predictors of course in obsessive-compulsive disorder: logistic regression versus Cox regression for recurrent events. Acta Psychiatr Scand 2007;116: 201-210