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Socio-demographic and clinical characterization of patients with Obsessive-Compulsive Tic-related Disorder (OCTD): an Italian multicenter study

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Summary

In the DSM-5 a new "tic-related" specifier for obsessive compulsive disorder (OCD) has been introduced, highlighting the importance of an accurate characterization of patients suffering from obsessive-compulsive tic-related disorder ("OCTD"). In order to characterize OCTD from a socio-demographic and clinical perspective, the present multicenter study was carried out. The sample consists of 266 patients, divided in two groups with lifetime diagnoses of OCD and OCTD, respectively. OCTD vs OCD patients showed a significant male prevalence (68.5% vs 48.5%; p < .001), a higher rate of psychiatric comorbidities (69.4 vs 50%; p < .001) – mainly with neurodevelopmental disorders (24 vs 0%; p < .001), a lower education level and professional status (middle school diploma: 25 vs 7.6%; full-time job 44.4 vs 58%; p < .001). Moreover, OCTD vs OCD patients showed significantly earlier age of OCD and psychiatric comorbidity onsets (16.1 ± 10.8 vs 22.1 ± 9.5 years; p < .001, and 18.3 ± 12.8 vs 25.6 ± 9.4: p < .001, respectively). Patients with OCTD patients were treated mainly with antipsychotic and with a low rate of benzodiazepine (74.2 vs 38.2% and 20.2 vs 31.3%, respectively; p < .001). Finally, OCTD vs OCD patients showed higher rates of partial treatment response (58.1 vs 38%; p < .001), lower rates of current remission (35.5 vs 54.8%; p < .001) and higher rates of suicidal ideation (63.2 vs 41.7%; p < .001) and attempts (28.9 vs 8.3%; p < .001).

Patients with OCTD report several unfavorable socio-demographic and clinical characteristics compared to OCD patients without a history of tic. Additional studies on larger sample are needed to further characterize OCTD patients from clinical and therapeutic perspectives.

Key words

Obsessive-Compulsive Disorder • Tic Disorder • Obsessive-Compulsive Tic Disorder

Introduction

Obsessive-Compulsive Disorder (OCD) and Tic Disorder (TD) represent disabling, comorbid, chronic and difficult-to-treat conditions, which may affect child and adult patients, associated with high levels of burden for patients and their relatives. Comorbidity between OCD and TD is frequent [1 2], although it can occur in different phases of patient's lifespan (longitudinally) and not necessarily in the same period (cross-sectionally). Moreover, comorbidity between OCD and TD may be at a subclinical level. It has been hypothesized that these disorders and their symptom-dimensions define a specific subtype of disorder, called Obsessive-Compulsive Tic Disorder (OCTD) [3 4]. In the 5th Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [5], OCD has been included in the new category of "OC and related disorders", with the introduction of a new "tic-related" specifier. The introduction of this specifier encourages new investigations on the epidemiology, clinical presentation, disability and therapeutic approach of OCTD [6-10].

Tics and OCD share some phenomenological, autoimmune and neuro-

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biological features [11-13] and often co-occur in affected individuals and relatives.

It has been recently highlighted that OCTD is more frequently associated with early onset, male gender, sensory phenomena and obsessions of symmetry, aggressiveness, hoarding, exactness and sounds, impulsive behaviors and ADHD comorbidity [1 2 6-10 14]. Patients with OCD and comorbid TD accounted for approximately 15% of the primary OCD sample [15] and they are smokers [16] and have a higher rate of previous suicide attempts [17].

According to these features, it seems that patients with comorbid OCD and TD have a more severe phenotype of the disorder, in terms of treatment-resistance, reduced quality of life and levels of disability. Moreover, OCTD patients report a long delay to diagnosis, a high level of functional impairment caused by OC symptoms, a history of multiple treating clinicians and current polypharmacotherapy, with the use of deep brain stimulation in some cases [18].

In order to define socio-demographic and clinical characteristics of patients with OCTD, the present multicenter study has been conducted, including a sample of OCTD patients and a sample of OCD patients with no history of tic. We hypothesized that OCTD patients might exhibit different epidemiologic and clinical characteristics compared to OCD patients with no history of tic.

Methods

The recruitment is still ongoing, with a final target sample of more than 300 OCD patients.

Patients affected by OCD or OCTD of any gender and age were assessed using a novel questionnaire, under validation, developed to better characterize OCTD patients. The questionnaire is composed of 35 questions assessing the following areas: 1) prevalence of OCTD; 2) patient's main socio-demographic features (i.e., age, gender, occupation, level of education, marital status); 3) clinical history (i.e., age at OCD onset, age at TD onset, presence of other psychiatric comorbidities and age at comorbidities' onset, family history, OCD duration of untreated illness - DUI); 4) perceived quality of life, course of illness, current psychotherapy and psychopharmacological therapies, treatment response, presence of past/current suicidal ideation or attempt.

Statistical analysis

In order to compare clinical and demographic features of OCD patients with and without comorbid TD, Pearson Chi-squared tests and Student' *t*-test were used, as appropriate. All analyses were performed using SPSS 24 for Windows software (Chicago, IL) with the level of statistical significance put at 0.05.

Results

The current sample includes 266 adult patients with OCD with and without comorbid TD of either gender and any age, afferent to different psychiatric departments across Italy, distributed as follows: 47 from Policlinico Hospital, Milan; 30 from Galeazzi Hospital, Milan; 16 from San Paolo Hospital, Milan; 60 from Istituto di Psicopatologia, Rome; 30 from Rita Levi Montalcini Department of Neuroscience, Turin; 24 from Department of Neuroscience, Florence; 26 from Teramo Hospital; 33 from Department of Biomedical and Neuromotor Sciences, Alma Mater Studiorum University of Bologna.

Main demographic and clinical variables of the study sample are reported in Table I.

In the OCD participating centers, the prevalence of OCD ranges between 5-25%, while in the Tic/Tourette Center the prevalence of OCD is more than 90%.

The sample consists of 132 (51.5%) OCD patients without TD and 124 (48.5%) OCTD patients.

OCTD patients are mainly male (OCTD: 68.5 *vs* OCD: 48.5; $p < .001$), younger (OCTD: 30.7 ± 13.8 *vs* OCD: 37.4 ± 13.4; $p < .001$), with a low level of education and of professional status (OCTD: middle school diploma: 25 *vs* OCD: 7.6%; OCTD: full-time job 44.4 *vs* OCD: 58%; $p < .001$) compared to OCD patients (Figs. 1-2).

OCTD patients report a significantly earlier age at OCD onset (OCTD: 16.1 ± 10.8 *vs* OCD: 22.1 ± 9.5 years; $p < .001$), a earlier age of comorbidities' onset (OCTD: 18.3 ± 12.8 *vs* OCD: 25.6 ± 9.4: $p < .001$), a higher rate of psychiatric comorbidities (OCTD: 69.4 *vs* OCD: 50%; $p < .001$) mainly with neurodevelopmental disorders (e.g. ADHD), compared to OCD patients.

As regards pharmacological treatment (Tab. II), OCTD patients are most frequently treated with D2 antagonist and/or D2, 5-HT2 antagonist treatment compared to OCD patients ($p < .001$). OCTD patients report lower rates of current remission of symptoms (35.5 *vs* 54.8%; $p < .001$), higher rates of suicidal ideation (63.2 *vs* 41.7%; $p < .001$) and suicide attempts (28.9 *vs* 8.3%; $p < .001$), and higher rates of partial treatment response (58.1 *vs* 38%; $p < .001$) compared to OCD patients.

Discussion

The first relevant finding of our study is the different prevalence of OCD and TD in primary OCD *vs* Tic/Tourette centers, indicating that Tic and Tic-related specifier is a consistent phenotype in primary OCD patients, but in primary TD/Tourette patients, comorbid OCD seems the rule rather than the exception [19 20]. Our findings confirm that OCTD defines a more severe phenotype of OCD compared with OCD without Tic. We found a significantly higher male prevalence in the OCTD

TABLE I. *Socio-demographic and clinical features of OCD vs OCTD patients.*

		OCD N = 132	OCTD N = 124
M:F		64 (48.5%): 68 (51.5%)	85 (68.5%)*: 39 (31.5%)
Family history		74 (56.5%)	79 (63.7%)
Psychiatric comorbidity		66 (50%)	86 (69.4%)*
Affective disorders		39 (37.9%)	27 (27%)
Psychosis		3 (2.9)	2 (2%)
Anxiety disorders		11 (10.7%)	16 (16%)
Personality disorders		5 (4.9%)	2 (2%)
Neurodevelopmental disorders		0	24 (24%)*
Eating disorders		2 (3.9%)	0
Poly-comorbidity		4 (3.9%)	11 (11%)
Age		37.4 ± 13.4	30.7 ± 13.8*
Age at OCD onset		22.1 ± 9.5	16.1 ± 10.8 *
Age at TIC onset		-	12 ± 9.5
Age at comorbity onset		25.6 ± 9.4	18.3 ± 12.8 *
DUI (months)		64.6.4 ± 88.6	60.8 ± 77.8
Married		49 (37.4%)	36 (29%)
Professional status	Unemployed	32 (24.4%)	22 (17.7%)
	Full-time	76 (58%)*	55 (44.4%)
	Part-time	2 (1.5%)	3 (2.4%)
	Retired	6 (4.6%)	4 (3.2%)
	Student	15 (11.5%)	40 (32.3%)*
Level of education	Middle school diploma	10 (7.6%)	31 (25%)*
	High school diploma	67 (51.1%)	62 (50%)
	University degree/master degree	54 (41.2%)*	31 (25%)

Values for categorical and continuous variables are expressed as N (%) and mean ± SD, respectively
** p < .001*

group, compared to the OCD without TD group. This finding seems to be consistent with most of the current literature indicating a male preponderance in tic-related OCD [7]. As regards the onset of first OCD symptoms, we found an earlier onset in OCTD patients compared to OCD patients without tics. This finding is in line with Diniz et al. [21], which found that patients with OCD and Tic Symptoms (TS) presented an earlier age at onset compared to OCD patients without tics.

Moreover, we found that psychiatric comorbidity rate was significantly higher in OCTD patients compared to the group without TD. OCTD patients showed a significantly higher comorbidity with neurodevelopmental disorders, such as attention-deficit/hyperactivity disorder and autism spectrum disorders. This finding is consistent with previous research from Coffey and colleagues and Lewin and coauthors, showing a higher prevalence of comorbid neurodevelopmental disorders both in children and adults with OCTD, when compared to OCD patients without TD [19 22].

Previous studies and ICOCS reports showed significant positive correlation between the number of comorbid DSM-IV-TR Axis I-disorders and OCD severity and duration of illness [15 23]. In the present study, the OCTD subgroup showed an overall higher severity of illness. This is the first study exploring socio-demographic features of OCTD patients; in particular, OCTD patients showed significantly lower rates of university/master education and full-time employment compared to OCD patients without TD. It should be that the burden of OCTD se-

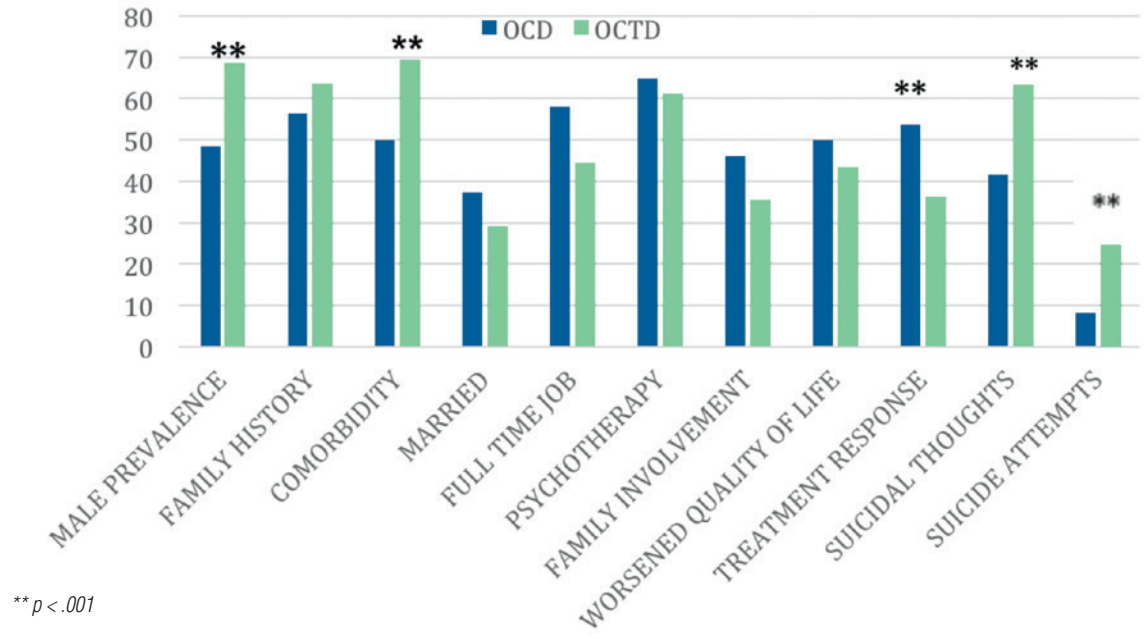
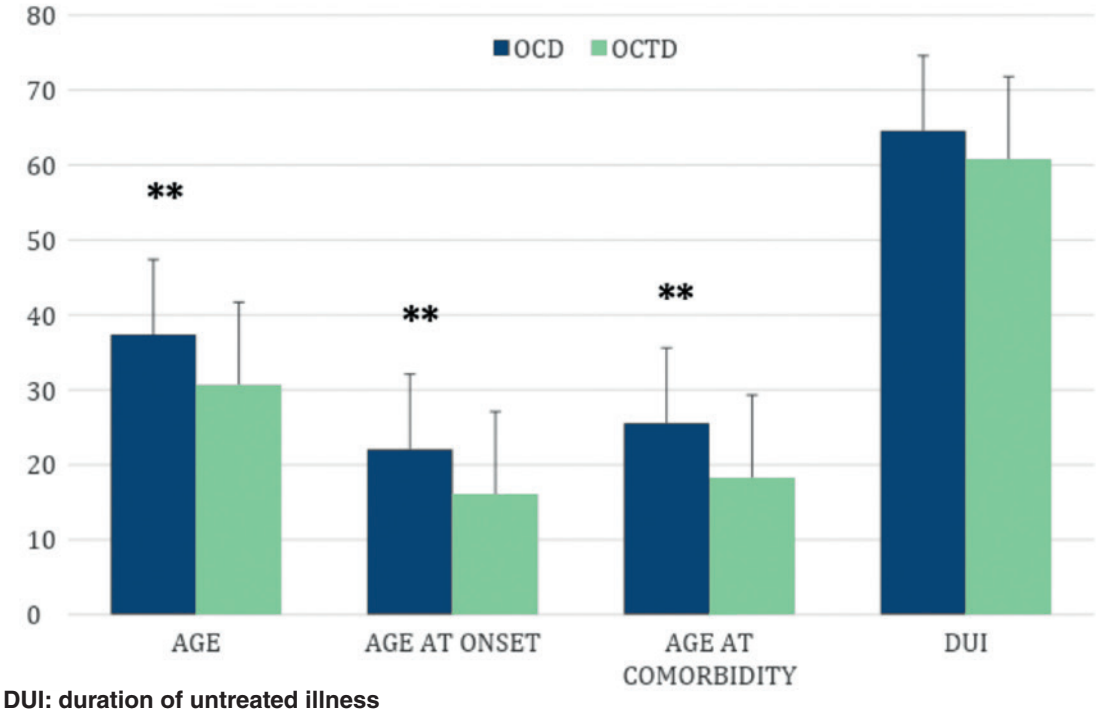


FIGURE 1. *Summary of categorical variables in OCD vs OCTD patients.*

TABLE II. *Treatment related variables (prior and current) in OCD vs OCTD patients.*

	OCD N = 132	OCTD N = 124
Previously treated in other medical centers	89 (67.9%)	84 (68.3%)
Psychotherapy	85 (64.9%)	76 (61.3%)
Psychopharmacological treatment (current)	126 (96.2%)	122 (98.4%)
Antidepressants	119 (90.8%)	112 (90.3%)
D2 antagonist and/or D2, 5-HT2 antagonist treatment	50 (38.2%)*	92 (74.2%)*
Mood stabilizers	32 (24.4%)	29 (23.4%)
Gaba receptor agonist	41 (31.3%)*	25 (20.2%)
Family involvement	60 (46.2%)	44 (35.5%)
Worsened quality of life	65 (50%)	54 (43.5%)
Current treatment responders	70 (53.8%)*	45 (36.3%)
Current partial treatment responders	49 (38%)*	72 (58.1%)*
Residual tic symptoms	-	35 (36.5%)
Residual OCD symptoms	48 (82.8%)*	60 (62.5%)*
Residual OCD + tic	-	27 (27.8%)
Current remission	69 (54.8%)*	44 (35.5%)*
Past remission	43 (37.4%)*	72 (60%)*
Treatment resistance	17 (13.2%)	22 (17.9%)
Suicidal thoughts	20 (41.7%)*	24 (63.2%)*
Suicide attempts	4 (8.3%)*	11 (28.9%)*

Values for categorical variables are expressed as N (%)
** p < .001*



DUI: duration of untreated illness
*** p < .001*

FIGURE 2. *Summary of continuous variables in OCD vs OCTD patients.*

verity could have had a role on both education and employment, as previously noted on quality of life and psychosocial functioning [18 24 25].

In terms of clinical features, the administered questionnaire included a specific section investigating treatment response and symptoms' remission. In this respect, a higher rate of OCTD patients was treated with an D2 antagonist and/or D2, 5-HT2 antagonist treatment, showing less favorable characteristics, such as lower current treatment response rate, higher current partial response rates, and lower current remission rates, compared to OCD patients without TD. This finding is consistent with previous literature reporting specific higher severity features for OCTD patients [1].

Finally, another relevant novel finding of the present study concerns suicidality. OCTD patients showed significantly higher rates of lifetime suicidal ideation and attempts compared to OCD without TD subgroup. A previous ICOCS study on suicide attempts in OCD patients showed higher rates of suicide attempts in patients with psychiatric and medical comorbidities, who had TD and Tourette as more frequent comorbid conditions [17].

The present study has some limitations, such as the lack of information on the severity of the disorder (measured with specific psychopathological scales) and the cross-sectional assessment design. Further follow-up studies are needed to better characterize long-term course of OCTD patients, their functional impairment and treatment response.

Conclusions

Based on the present findings, a tailored, personalized and multidisciplinary treatment seems a priority in the management of OCTD patients, given their early onset and long-term disabling course.

Conflicts of Interest

Bernardo Dell'Osso: speaker's fee from Lundbeck, Angelini and FB Health.

Joseph Zohar: Grant/research support from Lundbeck, Brainsway, Servier and Pfizer; consultant or on advisory boards for Servier, Pfizer, Abbott, Lilly, Actelion, AstraZeneca, Janssen and Roche; speakers' bureaus for Lundbeck, Roch, Lilly Servier, Pfizer, Brainsway, Sunpharma and Abbott.

Orsola Gambini: took part in a European multicentre study sponsored by Medtronic about DBS in OCD. The study is concluded, results are under elaboration.

Domenico de Berardis: speaker's fee from Lundbeck, Angelini, Janssen and Eli-Lilly

A. Carlo Altamura: Speaker's fee from Lundbeck, Angelini and Janssen.
Beatrice Benatti, Eric Hollander, Liliana Dell'Osso, Naomi A. Fineberg, Matteo Marcatili, Sylvia Rigardetto, Matteo Briguglio, Donatella Marazziti, Federico Mucci, Antonio Tundo, Roberta Necci, Roberta Galentino, Sara De Michele, Claudio D'Addario, Domenico Servello, Umberto Albert, Giuseppe Maina, Diana de Ronchi, Mauro Porta: Nothing to Declare.

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