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Short communication

Bradykinesia in patients with obsessive-compulsive disorder

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ABSTRACT

Objective. – To investigate the frequency of bradykinesia in patients with obsessive-compulsive disorder (OCD) and to see whether patients with OCD who also have bradykinesia display distinctive neuropsychological and neuropsychiatric features.
Methods. – We studied 23 antipsychotic-free patients with OCD and 13 healthy controls. Bradykinesia was assessed with section III of the Unified Parkinson Disease Rating Scale. The Wechsler Adult Intelligent Scales-Revised (WAIS-R) was used to assess the Full Scale IQ and to measure visuospatial, visuoconstructional ability and psychomotor speed/mental slowness.
Results. – Of the 23 patients with OCD studied, 8 (34%) had mild symptoms of bradykinesia. No relationship was found between bradykinesia and the sociodemographic variables assessed but this motor symptom was significantly associated with the severity of compulsions. Patients with bradykinesia differed from those without: they had a higher frequency of repeating compulsions, and lower IQ scores, performance scores, and WAIS-R subtest scores for similarities and picture completion. No significant differences were found between patients without bradykinesia and healthy controls in any test.
Conclusions. – Clinical assessment of motor symptoms in adult patients with OCD often discloses mild bradykinesia sometimes associated with repeating compulsions and poor WAIS-R performance scores.

1. Introduction

Bradykinesia, i.e movement slowness, is a motor symptom of basal ganglia disorders [1,2,22]. A study of handwriting and drawing movements showed bradykinesia during hand movements in unmedicated patients with obsessive-compulsive disorder (OCD) [11]. After patients receive medication with sertraline, the bradykinesia partially improves [12,13]. Finally, OCD patients selected for the presence of obsessional slowness had a loss of motor fluency and hesitancy in initiating limb movements [3,10,20]. Whether bradykinesia belongs in the clinical phenotype of OCD or manifests only in specific forms of OCD is unknown mainly because previous studies [11–13] neglected to assess the frequency of bradykinesia in OCD as measured on a standardized clinical scale [5]. Nor is it known whether OCD patients with bradykinesia have specific clinical, neuropsychological and psychopathological features. Having further information might increase our knowledge on the importance of motor symptoms in OCD.

In this study, we investigated the frequency of bradykinesia in an adult outpatient population of antipsychotic-free non-depressed patients with OCD and then sought specific neuropsychological and neuropsychiatric features that might distinguish patients with OCD with and without motor symptoms compatible with bradykinesia. We investigated bradykinesia with the standardized clinical rating scales for motor assessment commonly used in patients with basal ganglia disorders [5].

2. Patients and methods

From patients attending the Outpatient Center of the Department of Psychiatry, Sapienza University of Rome, we enrolled 25 consecutive adult outpatients with OCD (mean age 36.0 ± 14.0 years) and as a control group, 13 healthy controls (mean age 34.8 ± 9.8 years) without psychiatric disturbances. The local ethical committee approved the study procedures and participants gave written informed consent.

Inclusion criteria were aged ≥ 18 years, OCD diagnosed according to the DSM-IV, a total severity score of ≥ 14 on the Yale-Brown obsessive-compulsive scale (Y-BOCS) [7]. Exclusion criteria were current or lifetime psychiatric disorders on DSM-IV axis I, II or III, and treatment with antipsychotic drugs in the

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preceding month. Patients with OCD were receiving selective serotonin reuptake inhibitors (SSRIs), clomipramine, or SSRIs plus clomipramine. None of the control group were receiving medications acting on the central nervous system.

Bradykinesia was assessed by a rater blind to the subjects' clinical condition using nine items (17,19,23–27,29) from the motor section of the Unified Parkinson's Disease Rating Scale, Part III (UPDRS III) [5]. Each item is rated on a scale ranging from 0 to 4 (absent to severe). Patients scoring 1 or above on any of the items were considered bradykinetic.

Psychopathology was assessed with the Structured Clinical Interview for DSM-IV (SCID-I) [6] administered by three trained psychiatrists. The severity of OCD was assessed with the Y-BOCS, and OCD symptoms with the Y-BOCS symptom check list. Global functioning was measured with the global assessment of functioning (GAF) scale. The presence of depressive and anxiety symptoms was assessed with the HAM-D 21 [9] and HAM-A [8] and the overall severity of the psychiatric disorders with the clinical global impression scale. A neuropsychological examiner blind to the subjects' clinical condition administered the Wechsler Adult Intelligent Scales-Revised (WAIS-R) [23] to assess the full scale IQ and used the 11 WAIS-R subtests to measure IQ, visuospatial, visuoconstructional ability and psychomotor speed/mental slowness.

Chi^2 test (with Yates correction for 2×2 tables) or Fisher's exact test were used to compare categorical variables between patients with OCD with and without bradykinesia and healthy controls. The Mann-Whitney U test was used to compare non-parametric continuous variables. One-way analysis of variance (Anova) and the post-hoc Bonferroni test for multiple comparisons were used to compare parametric continuous variables between the three groups. The possible correlation between clinical (Y-BOCS, bradykinesia) and cognitive measures was tested by partial correlation controlling for age, disease duration, and HAM-D scores. *P* values equal to or below 0.05 were considered to indicate statistical significance. Data were analyzed using SPSS version 13.0.

3. Results

Of the 25 patients with OCD initially enrolled, 23 completed the study. No significant differences were found in demographic variables between patients and controls (Table 1). None of the patients had a history of tics or had tics at the time of examination.

Of the 23 OCD patients, only eight (34.6%) manifested mild bradykinesia. None of the healthy controls manifested bradykinesia. Of the eight patients with OCD with bradykinesia three were taking SSRI, two clomipramine and three SSRI and clomipramine. Of the 15 patients with OCD without bradykinesia, seven were taking SSRI, four clomipramine, two SSRI and clomipramine and two were not taking medications. Correlation analysis disclosed no correlation of bradykinesia with any sociodemographic variable, or with the severity of obsessions but a significant correlation with the severity of compulsions (partial correlation coefficient = 0.58, $p < 0.01$). Repeating compulsions were more frequent in OCD patients with bradykinesia than in those without (71.4% vs 28.6%; Chi^2 test 5.17, $p = 0.03$).

Patients with bradykinesia had lower total IQ and WAIS-R scores than those without bradykinesia and healthy controls (Table 2). They also had lower verbal WAIS-R scores than the healthy control group, whereas Anova disclosed no significant difference in this domain between patients with and without bradykinesia (Table 2). No differences were found in total IQ scores, performance and verbal scores in patients without bradykinesia and healthy controls (Table 2). Anova comparing age-weighted scores in WAIS-R subtests in patients with and without bradykinesia and healthy controls found significant differences only in similarities, symbol-digit coding and picture completion tasks (Table 3). No correlations were found between bradykinesia and the other variables studied (data not shown). Post-hoc analysis disclosed that patients with bradykinesia scored significantly lower in all these domains than healthy controls, and they also scored lower in similarities and picture completion than patients without bradykinesia. No significant difference was found in any subtest between patients without bradykinesia and healthy controls.

Table 1
Sociodemographic and psychometric characteristics of patients and controls.

	OCD-NB	OCD-B	HS	*P* values	Contrast
N	15	8	13		
Age, years, mean (SD)	33.3 (14.6)	41.0 (14.2)	34,8 (9,8)	*$F = 0.94$;df = 35 N.S.	
Gender, female, %	33.3	25.0	53.8	**N.S.	
Graduated, N (%)	2 (13,3)	1 (12,5)	1 (7.7%)	**N.S.	
Married, %	20	12.5	38.5	**N.S.	
Familiarity, N (%)	6 (40)	5 (62.5)	0	**$p > 0.01$	
Age at onset, mean (SD)	16.8 (4.7)	20.7 (10.1)	N.A.	N.A.	
UPDRS severity, mean (SD)	0.00 (0.00)	5.12 (3.94)	0.00 (0.00)	*$F = 24.77$; df = 35 $p < 0.001$	OCD-B > HS ($p < 0.001$) OCD-B > OCD-NB ($p < 0.001$)
YBOCS total, mean (SD)	26.13 (5.4)	26.62 (12.1)	0.8 (2.0)	*$F = 60.3$; df = 35 $p < 0.001$	HS < OCD-B ($p < 0.001$) HS < OCD-NB ($p < 0.001$)
Total obsessions	14.33 (2.9)	13.25 (6.04)	0.5 (1.2)	*$F = 63.4$; df = 35 $p < 0.001$	HS < OCD-B ($p < 0.001$) HS < OCD-NB ($p < 0.001$)
Total compulsions	11.80 (3.7)	13.4 (6.04)	0.2 (0.8)	*$F = 60.3$; df = 35 $p < 0.001$	HS < OCD-B ($p < 0.001$) HS < OCD-NB ($p < 0.001$)
HAM-D total, mean (SD)	9.80 (5.5)	10.4 (4.34)	4.4 (3.4)	*$F = 6.23$; df = 35 $p < 0.01$	HS < OCD-B ($p < 0.05$) HS < OCD-NB ($p < 0.05$)
HAM-A total, mean (SD)	7.93 (6.3)	11.12 (7.2)	2.0 (1.5)	$F = 8.1$; df = 35 *$p < 0.01$	HS < OCD-B ($p < 0.01$) HS < OCD-NB ($p < 0.05$)
GAF, mean (SD)	51.00 (8.90)	46.25 (11.9)	88.5 (4,3)	*$F = 91.33$; df = 35 $p < 0.001$	OCD-B < HS ($p < 0.001$) OCD-NB < HS ($p < 0.001$)
CGI, median (range)	5 (3 ÷ 5)	5 (2 ÷ 5)	0 (0 ÷ 3)	***$p < 0.001$	OCD-NB > HS ($p < 0.01$) OCD-B > HS ($p < 0.001$)

OCD-NB: OCD patients without bradykinesia; OCD-B: OCD patients with bradykinesia; HS: healthy subjects; UPDRS: unified Parkinson's Disease Rating Scale; YBOCS: Yale-Brown Obsessive Compulsive Scale; HAM-A: Hamilton Rating Scale for Anxiety; HAM-D: Hamilton rating scale for depression; GAF: Global Assessment of Functioning; CGI: Clinical Global Impression.

* *p* value by univariate analysis of variance; ** *p* value by chi-square test; *** *p* value by Mann-Whitney U test.