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Obsessive compulsive personality disorder in Progressive Supranuclear Palsy, Multiple System Atrophy and Essential Tremor

A. Nicoletti [a, 1], A. Luca [a, 1], M. Luca [b], G. Donzuso [a], G. Mostile [a], L. Raciti [a], D. Contrafatto [a], V. Dibilio [a], G. Sciacca [a], C.E. Cicero [a], R. Vasta [a], A. Petralia [b], M. Zappia [a, *]

[a] Section of Neurosciences, Department GF Ingrassia, University of Catania, Catania, Italy
[b] Department of Clinical and Experimental Medicine, University of Catania, Catania, Italy

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ABSTRACT

Introduction: aim of the study was to evaluate the presence of the Obsessive Compulsive Personality Disorder (OCPeD) in Multiple System Atrophy (MSA), Progressive Supranuclear Palsy (PSP) and Essential Tremor (ET) and in a group of healthy subjects.
Methods: patients affected by MSA, PSP and ET diagnosed according to currently accepted diagnostic criteria and a group of healthy controls were enrolled in the study. Patients with cognitive impairment were excluded from the study. The Structured Clinical Interview for Personality Disorders-II (SCID-II) has been performed to evaluate the presence of personality disorders (PeDs). The diagnosis of OCPeD was confirmed by a psychiatric interview.
Results: fifteen MSA patients (8 men and 7 women; aged 62.9 ± 7.6 years), 14 PSP patients (8 men and 6 women; aged 69.8 ± 4.4 years), 16 ET patients (10 men and 6 women; aged 70.4 ± 6.4 years) and 20 healthy subjects (10 men and 10 women; aged 65.5 ± 6.0 years) were enrolled. OCPeD was recorded in 5 (35.7%) PSP patients, 2 (13.3%) MSA patients, 2 (12.5%) ET patient and 2 (10%) controls.
Conclusion: a low frequency of OCPeD, close to those recorded in healthy subjects, was recorded in both MSA and ET patients. Conversely an higher frequency of OCPeD, similar to PD was found among PSP patients, supporting the possibility of an impairment of common basal ganglia network possibly involving the orbito-frontal circuits.

1. Introduction

Personality modifications are a well described early symptoms of several neurodegenerative diseases [1]. Personality changes in Parkinson's disease (PD) have been extensively evaluated and several studies have investigated the association between personality traits and PD, generally suggesting a personality profile ("parkinsonian personality") characterized by industriousness, inflexibility, punctuality, cautiousness and lack of novelty seeking [2].

More recently we evaluated the presence of Personality Disorders (PeDs) defined according to the Diagnostic and Statistic Manual for Mental Disorders-IV (Axis II) in PD patients [3,4]. We found a higher frequency of PeDs in PD patients respect to a control group, mainly due to a high frequency of Obsessive Compulsive Personality Disorder (OCPeD) found in about the 40% of PD patients. According to the DSM-IV, OCPeD is defined as a "pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control at the expense of flexibility, openness, and efficiency" [5]: this profile of personality overlap with the "parkinsonian personality" consistently reported in literature over the time [2,6].

Atypical Parkinsonisms such as Progressive Supranuclear Palsy (PSP) and Multiple System Atrophy (MSA) as well as Essential Tremor (ET) share several common motor and non-motor features with PD, often leading to a possible misdiagnosis above all at the early stage of disease. Even if during the past ten years, non-motor features of atypical parkinsonisms have been extensively assessed and reported, to the best of our knowledge no studies have been carried out to assess PeDs among atypical parkinsonisms, while only one study has recently evaluated the frequency of PeDs among

* Corresponding author. Section of Neurosciences, Department GF Ingrassia, University of Catania, Via Santa Sofia 78, 95123, Catania, Italy.
E-mail address: m.zappia@unict.it (M. Zappia).
[1] These authors equally contributed to this work.

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ET patients [7].

Aim of the present study was to evaluate the presence of OCPeD in a sample of MSA, PSP and ET patients and in a group of healthy subjects.

2. Methods

Patients affected by MSA and PSP were consecutively enrolled in the study during the period January–December 2014 from the Movement Disorders Center of the University of Catania. We have also enrolled a sample of ET patients of an equal size of the MSA and PSP groups. The diagnosis was made according to the Gilman's et al. criteria for MSA [8], the Litvan's criteria for PSP [9] and the Louis' criteria for ET [10]. As for the previous studies [3,4], healthy controls with no neurological or psychiatric disorders were recruited from 10 randomly selected general practitioners rosters in the Province of Catania. The study was approved by the ethical committee of the University Hospital "Policlinico-Vittorio Emanuele" of Catania. Patients and controls were enrolled only after signed the informed consent.

For patients, clinical evaluation of motor status was made using the Hoehn and Yahr stage and the Unified Parkinson's Disease Rating Scale-Motor Examination section (UPDRS-ME) [11]. A screening of cognitive functions was performed through the administration of the Mini Mental State Examination (MMSE) [12] and the Frontal Assessment Battery (FAB) [13]. Subjects with a MMSE < 24, possibly unable to correctly understand the Structured Clinical Interview for Personality Disorders, were excluded from the study. Clinical and pharmacological data were also collected. For patients taking dopaminergic agents, the Levodopa Equivalent Dose (LED) was calculated [14]. In order to exclude subjects with DSM-IV Axis I disorders the Structured Clinical Interview for DSM-IV Axis I (SCID-I) was performed [15].

To diagnose the presence of PeDs we adopted the widely used Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II) and the associated SCID-II Personality Questionnaire (SCID-II-PQ) [16]. The SCID-II has been constructed to be methodologically related and tightly linked to DSM criteria. In the typical use of the SCID-II assessment approach, the patient first completes a self-report questionnaire (the SCID-II-PQ). To confirm the diagnosis of PeDs, positive items are then further explored in a semi-structured and diagnostic interview (the SCID-II). The combined use of a self-rating screening tool together with the interview has been reported to have good validity for axis II diagnosis. The psychiatrist who performed the interview was blinded respect to the diagnosis of parkinsonism or ET even if we cannot exclude that some motor features (i.e. gait disturbance or tremor) could have revealed the presence of the underlying disease.

Data were analyzed using STATA 10.0 software packages. Quantitative variables were described using mean and standard deviation. The difference between means was evaluated by the *t*-test and the Analysis of Variance (ANOVA) test. The difference between proportions was evaluated by the Chi-square test.

3. Results

Eighteen MSA patients, 15 PSP and 16 ET patients were consecutively enrolled. Three MSA patients were excluded due to the presence of Axis I disorders (2 patients presented Major Depression and 1 patient suffered from Panic Attacks) while 1 PSP patient was excluded for the presence of cognitive impairment (MMSE < 24). At the end of the study, 15 MSA patients [13 parkinsonian type and 2 cerebellar type (8 men and 7 women; aged 62.9 ± 7.6 years)], 14 PSP patients [4 parkinsonian type and 10 with a classic Richardson phenotype (8 men and 6 women; aged 69.8 ± 4.4 years)], 16 ET (10 men and 6 women; aged 70.4 ± 6.4 years) and 20 healthy subjects (10 men and 10 women; aged 65.5 ± 6.0 years) were enrolled. Significant differences in age at onset (p-value 0.05), disease duration (p-value < 0.001) and UPDRS-ME (p-value 0.02) were found among the groups of patients. MSA patients presented a significantly lower MMSE score respect to both PSP (p-value 0.01) and ET (p-value 0.05) patients, while no significant difference was found between PSP and ET; on the other hand, even if a lower mean FAB score was recorded for PSP patients, such a difference was significant only respect to the ET group (p-value 0.05) (Table 1).

Concerning the pharmacological treatment, 11 MSA patients were taking levodopa while 4 were not treated with anti-parkinsonian agents. Among PSP patients, 6 were taking levodopa, 1 was taking dopamine agonists and 7 were untreated. MSA patients presented a not significantly higher mean LED respect to PSP patients (437.3 ± 366.3 versus 268.9 ± 308; p-value 0.1). Among ET patients, 6 were taking primidone, 2 topiramate, 2 clonazepam, 1 propranolol while 5 were untreated.

According to the DSM-IV classification, the OCPeD was the commonest PeD being recorded in 5 (35.7%; 95%CI 14.9–63.8) PSP patients (3 patients presenting only the OCPeD and 2 presenting more than one PeD including the OCPeD). Two (13.3%; 95%CI 3.1–42.5) MSA patients presented OCPeD (1 patient presenting only the OCPeD and 1 patient presenting more than one PeD including the OCPeD). Two (12.5%; 95% CI 2.9–40.5) ET patients presented OCPeD (1 patient presenting only the OCPeD and 1 presenting more than one PeD)); none of these two patients were taking anti-tremor drugs. Only 2 (10%; 95%CI 2.4–33.9) controls presented OCPeD. The mean FAB and MMSE score was not significantly different between the 9 patients with OCPeD and those

Table 1
General characteristics of the sample.

	MSA (15)	PSP (14)	ET (16)	Controls (20)
Education (years)	8.3 ± 3.7	8.9 ± 2.4	8.8 ± 3	8.4 ± 4.2
Age (years)	62.9 ± 7.6	69.8 ± 4.4	70.4 ± 6.4	65.5 ± 6.0
Age at disease onset (years)	58.8 ± 7.8	67.4 ± 5	56.1 ± 12.7	–
Disease duration (years)	4.1 ± 2.1	2.4 ± 1.3	14.3 ± 11.5	–
UPDRS-ME score	33.7 ± 18.4	51.1 ± 20.4	–	–
Hoehn and Yahr stage	2.5 ± 0.8	2.9 ± 1.1	–	–
MMSE score[a]	26 ± 2	27.8 ± 1.5	27.6 ± 2.3	–
FAB score[a]	13.1 ± 3.7	12.2 ± 2.9	14.3 ± 2.6	–
Total daily LED (mg)	437.3 ± 366.3	268.9 ± 308	–	–

Notes: data are means ± standard deviations.
Legend: MSA: Multiple System Atrophy; PSP: Progressive Supranuclear Palsy; ET: Essential Tremor; UPDRS-ME: Unified Parkinson's Disease Rating Scale - Motor Examination; MMSE: Mini Mental State Examination; FAB: Frontal Assessment Battery; LED: Levodopa Equivalent Dose.
[a] Corrected according to age and education level.