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Comparison of the clinical profile of Parkinson's disease between Spanish and Cameroonian Cohorts ☆

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ABSTRACT

Background: There are limited data in terms of the clinical profile of Parkinson's disease in sub-Saharan African patients.
Objective: To compare the clinical profile and access to standard antiparkinsonian therapies of a Cameroonian cohort of patients with an age, sex, and disease duration-matched Spanish cohort (Longitudinal Study of Parkinson's disease, ELEP).
Methods: Observational, cross-sectional design. Demographic data were collected and the following ELEP assessments were applied: Scales for Outcomes in Parkinson's disease (SCOPA) Motor, Autonomic, Cognition, Sleep and Psychosocial; Hoehn and Yahr staging; modified Parkinson Psychosis Rating Scale; Cumulative Illness Rating Scale-Geriatrics; Hospital Anxiety and Depression Scale; pain and fatigue visual analog scales; Zarit, and EuroQoL.
Results: 74 patients with idiopathic Parkinson's disease were included (37 from each country) with a mean age of 64.4 ± 10.5 years old, 70.3% males, and mean disease duration of 5.6 ± 5.9 years. Compared to the Spanish cohort, Cameroonians were intermittently treated, less frequently received dopaminergic agonists ($p<0.001$), had a trend for taking lower doses of levodopa ($p = 0.06$), and were more frequently on anticholinergics ($p < 0.0005$). Cameroonians were more severely impaired in terms of motor (Hoehn Yahr stage, $p = 0.03$; SCOPA-Motor, $p < 0.001$), cognitive status ($p < 0.001$), anxiety and depression ($p < 0.001$), psychosis ($p = 0.008$), somnolence, fatigue and pain ($p < 0.001$, respectively), caregiver burden ($p < 0.0001$), and quality of life ($p = 0.002$). Instead, autonomic, comorbidity, and nocturnal sleep problems were similarly found.
Conclusions: Limited and intermittent access to dopaminergic drugs has a negative impact on motor symptoms, nonmotor symptoms and quality of life in patients with Parkinson's disease and their caregivers.

1. Introduction

Parkinson's disease (PD) is a common neurodegenerative brain disease in developed countries, where there is a high elderly population. It has been suggested that PD is seen less frequently in sub-Saharan African populations, but the lack of epidemiological studies, in terms of differences in case finding methods and diagnostic criteria, and early mortality make it difficult to compare with other populations [1]. However, due to rapid demographic changes, the prevalence of PD is possibly increasing in sub-Saharan countries. In contrast to developed countries, evidence suggests that most patients with PD are under-diagnosed and untreated, with impaired quality of life and markedly increased mortality rates [2,3]. But, even if they are diagnosed, they do not have access to sustainable, affordable, drug treatment and medical supervision, and there is a shortage of qualified personnel [1].

Due to the limited data in terms of the clinical profile of PD, and especially non-motor symptoms (NMS), a better understanding of the phenotype of PD patients in Sub-Saharan Africa is necessary. The aim of this study was to compare the clinical profile of a Cameroonian cohort of patients with PD with expected limited access to standard PD

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treatments, with an age, sex, PD duration-matched Spanish cohort with access to standard PD therapies (Longitudinal Study of PD, ELEP cohort).

2. Methods

International, multicenter, case–control, cross-sectional study included a sample of outpatients, diagnosed with idiopathic PD in accordance with the United Kingdom PD Society Brain Bank [4]. This study was approved by the Ethics Committee of the Hospital Universitario of Burgos (Spain), and Hospital Laquintinie (Douala, Cameroon). The Spanish cohort belongs to a national multicenter register called Longitudinal Study of PD (ELEP) conducted from 2006 to 2009 [5]. All participant patients signed the informed consent before being enrolled. The Cameroonian cohort was recruited from neurological consultations from different hospitals in Cameroon from February to April 2012, however Hospital Laquintinie was the main facility, and few patients came from the rest of the country.

2.1. Assessments

Sociodemographic data and PD clinical history and treatment information were collected during the neurological interview. The scales used for this study were translated into French, and the official translation was supervised by the Cameroonian co-investigator (JD). The presence and severity of the motor and NMS of PD were assessed using scales validated for use in the Spanish PD population according to the ELEP protocol [5]. The presence and severity of cognitive disorders (attention-executive, memory-learning, and visuo-spatial functions) were assessed using a scale specific for PD (SCOPA-Cog) [6], the motor severity, disability (difficulty in activities of daily living), and the motor complications, using the SCOPA-Motor scale [7]. The SCOPA-Motor scale has been validated in Spain, showing almost equivalence (r_S of 0.96) with the motor section of the Unified Parkinson's Disease Rating Scale (UPDRS) [8]. The SCOPA-Motor scale was chosen instead of the UPDRS because of its better clinimetric characteristics and feasibility for use in a clinical setting [8]. The presence of depression/anxiety was assessed using the generic Hamilton Anxiety and Depression Scale (HADS) [9]; nocturnal sleep disorders and diurnal drowsiness using the specific SCOPA-Sleep scale [10]; psychosis using the specific Parkinson Psychosis Rating Scale (PPRS) [11]; and comorbidity using the Cumulative Illness Rating Scale-Geriatric (CIRS-G) [12]. Impulse control disorders and apathy were not specifically evaluated when the ELEP study in Spain was conducted. The only question as regards to some aspects of impulse control disorders was the presence of hypersexuality, as an item of the PPRS. The presence of autonomic symptoms was assessed using the SCOPA-AUT [13]. Pain and fatigue were evaluated using visual analog scales. Patients' quality of life was evaluated using the Euro-QoL, and caregiver burden the Zarit questionnaire [14,15]. The overall severity of PD was assessed using the Hoehn and Yahr (HY) stages during the "on" state [16]. For all scales, higher scores mean higher severity of the

Table 1
Parkinson's disease clinical characteristics.

	Total population			Non-treated with dopaminergic drugs	
	Spain	Cameroon	Comparison p value	Spain	Cameroon
Sample	37	37		3	5
Age (years) Mean ± SD	64.9 ± 10.5	64.2 ± 10.4	0.73	66.2 ± 13.8	64.0 ± 10.5
Gender (male, %)	26 (70)	26 (70)	1.00		
PD duration (years) Mean ± SD	5.3 ± 4.6	5.8 ± 7.2	0.67	1.33 ± 0.5	11.00 ± 12.9
Education (years) Mean ± SD	9.8 ± 6.6	7.9 ± 4.5	0.37	2.3 ± 3.2	4.0 ± 0
Family history of PD (%)	0	1 (0.02)	1.00	0	0
Hoehn Yahr stage ≥ 3 (%)	8 (21.6)	18 (48.6)	<0.0001	1 (33.3)	2 (40)
SCOPA-Motor	14.8 ± 9.1	26.8 ± 9.5	<0.0001	14.83 ± 9.1	26.31 ± 9.5
Motor impairment	8.6 ± 5.3	15.3 ± 5.6	<0.0001	10.5 ± 2.1	12.8 ± 7.1
Disability	5.0 ± 3.7	9.4 ± 4.1	<0.0001	6.5 ± 2.1	8.8 ± 2.9
Motor complications Mean ± SD	1.1 ± 2.2	1.4 ± 2.0	0.65	0	1.4 ± 2.6
CIRS-G Mean ± SD	4.6 ± 3.4	6.3 ± 4.8	0.66	4.6 ± 3.4	6.3 ± 4.8
HADS-anxiety Mean ± SD	6.1 ± 4.2	9.3 ± 3.5	<0.0001	5.3 ± 4.6	18.2 ± 5.0
HADS-depression Mean ± SD	5.4 ± 4.3	8.9 ± 2.5	<0.0001	2.0 ± 1.0	10.8 ± 2.4
SCOPA-Aut Mean ± SD	17.8 ± 10.3	20.9 ± 10.8	0.34	12.3 ± 3.0	11.3 ± 4.0
SCOPA-Cog Mean ± SD	24.7 ± 7.0	15.0 ± 8.9	<0.0001	24.0 ± 7.0	15.0 ± 8.9
PPRS Mean ± SD	1.2 ± 1.8	2.5 ± 2.3	0.01	1.2 ± 1.8	2.5 ± 2.3
Fatigue Mean ± SD	18.7 ± 21.5	48.2 ± 25.8	<0.0001	6.6 ± 11.5	62.0 ± 23.8
Pain Mean ± SD	14.0 ± 19.9	32.3 ± 20.9	<0.0001	14.0 ± 19.9	32.3 ± 20.9
EuroQoL Mean ± SD	66.3 ± 17.1	53.1 ± 17.4	0.0002	93.3 ± 2.8	82.5 ± 9.5
Zarit Mean ± SD	14.5 ± 11.2	35.0 ± 12.2	<0.0001	14.5 ± 12.2	35.0 ± 12.2
Levodopa frequency (%)	33 (89)	28 (77)	0.34 0.09	0	0
Dose: Mean ± SD	405.8 ± 312.3	296.1 ± 226.8			
Dopamine agonists (%)	30 (81)	8 (21.6)	<0.0001	0	0
Anticholinergics (%)	0	8 (21.6)	0.005	0	2

PD = Parkinson's disease; CIRS-G = Cumulative Illness Rating Scale-Geriatric; HADS = Hamilton Anxiety Depression Scale; SCOPA-Aut = SCOPA Autonomic Scale: SCOPA-Cog = SCOPA-Cognition scale; PPRS = Parkinson Psychosis Rating Scale.