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Correspondence

An experience at a movement disorders center in Honduras

Dear editor:

We have recently started a movement disorders clinic in Honduras. The clinic has a team that consists of a neurologist trained in movement disorders, a speech therapist, a psychologist and a physiotherapist and it is located in the rehabilitation department at Hospital De Especialidades San Felipe, in Tegucigalpa. The hospital provides basic laboratory testing as well as computed brain tomography, some medications are also provided, such as levodopa, dopamine blocking agents and antidepressants. Even though the hospital does not provide dopamine agonists, MAO inhibitors, amantadine or botulinum toxin; patients may have access to these in non-public pharmacies whenever it is required, depending on individual affordability. Previously, there was only one public hospital in Tegucigalpa, Honduras that had a neurology outpatient clinic to provide services for a population of approximately 1.2 million inhabitants, until recently, when Hospital de Especialidades San Felipe endeavoured in the creation of a movement disorders clinic.

Staff from the neurology training program at Hospital Escuela Universitario were encouraged to refer all movement disorders patients to this clinic.

In addition, general physicians, rehabilitation doctors and internal medicine specialists working at Hospital San Felipe were also instructed to refer all suspected movement disorders patients.

Data regarding movement disorders in Latin America comes mainly from South American countries [1]. Furthermore, studies of Parkinson's Disease (PD) and other movement disorders are scarce in Central America and they are mainly limited to local reports.

Many studies have revealed positive outcomes of educational programs related to movement disorders in underserved areas, like Sub-Saharan Africa [2]. In our study, we assessed all patients referred to the movement disorders clinic.

After approval by the ethics committee at Hospital de Especialidades San Felipe we prospectively analyzed 121 patients monthly, using appropriate clinical diagnostic criteria and validated scales. Due to lack of follow-up visits 12 patients were subsequently excluded. All patients were assessed, diagnosed and characterized by the principal investigator, who received training abroad for movement disorders.

A cerebral tomography was performed for all patients at Hospital San Felipe. Selected cases like atypical parkinsonism, choreas and dystonias were referred to the imaging center at the National Autonomous University of Honduras to conduct a 3 T brain magnetic resonance.

Parkinsonism was the most frequent movement disorder 70/109 (64,2%), followed by tremor 20/109, dystonias 13/109 and chorea 5/109. Fig. 1.

PD was diagnosed following the UK Parkinson's Disease Society Brain Bank criteria [3], and the global motor state was measured by the Movement Disorders Society-Unified Parkinson's Disease Rating Scale part III score. (MDS-UPDRSIII) [4]. Subsequently, improvement was expressed by means of the relative change between the baseline evaluation and the final assessment at 6 months.

Overall, Parkinson's Disease patients had a mean age at visit of 65,6 ± 14,14 years; the range, 30–92 years; 61 (59,2%) were females, 54,4% had a low education level (less or equal to primary school), the mean time from onset of motor symptoms to diagnosis was 4,6 ± 6,7 years.

28.6% of PD patients were drug-naive. A comparison of PD patients with a diagnosis gap of less than 5 years and greater than 5 years revealed statistical differences in age at onset of symptoms (67.1 ± 11.2 and 59.8 ± 13.8 $P = 0.02$), education level in years (2.5 ± 0.9 and 3.1 ± 1.9 $P < 0.01$) and disease duration (2.69 ± 1.7 and 10 ± 5.6 $P < 0.01$). Table 1.

There were thirteen cases of dystonias, the mean age was 56,7 (± 11,4) years and the mean age of onset was 51,9 (± 9,6) years. Focal dystonias accounted for 76.9% and the average age at diagnosis was 56,4 (± 11,3) years. None of the focal dystonias have previously received botulinum toxin injections (BTI).

Despite the fact that most patients with Parkinsonian syndrome were diagnosed by general care physicians or general neurologists, we found a substantial gap from the approximate onset of motor symptoms and the initiation of treatment. This in line with Cilia et al., where they found a longer disease duration at the initiation of dopaminergic therapy in Ghanian patients [5]. Interestingly, in this same study the authors found 35% of patients were drug naive; similar to our results, in which we found 28%.

Botulinum toxin is first line therapy in most types of dystonias. All the patients with dystonia were drug-naive; however, the percentage of improvement was similar to previous reports [6]. Even though limitations in the health care system exist, we consider they were not due to access or affordability of BTI, but due to the lack of trained personnel.

There might be some plausible explanations for PD patients who had an earlier age at onset of motor symptoms and a late diagnosis. Primarily, because the lack of neurological consultations in public hospitals in Honduras results in referral bias. Secondly, some factors might be related directly to the patients and primary care physicians, as they are frequently unaware of some of the symptoms, maybe due to lower levels of educations. Moreover, in many cases the symptoms are related to other conditions, such as arthritis, osteoporosis or neuropathies. In addition to these factors, there is a belief among some neurologists that levodopa is toxic and should not be used until the patient presents severe mobility limitations or frequent falls.

To conclude, Parkinson's disease and other movement disorders gap to diagnosis and subsequent initiation of treatment is delayed in Honduras, similar to some regions of Sub-Saharan Africa. Furthermore, these factors are being addressed and the cohort of patients is followed closely in order to study other aspects such as initiation of motor and non motor fluctuations, genetic testing in movement disorders,

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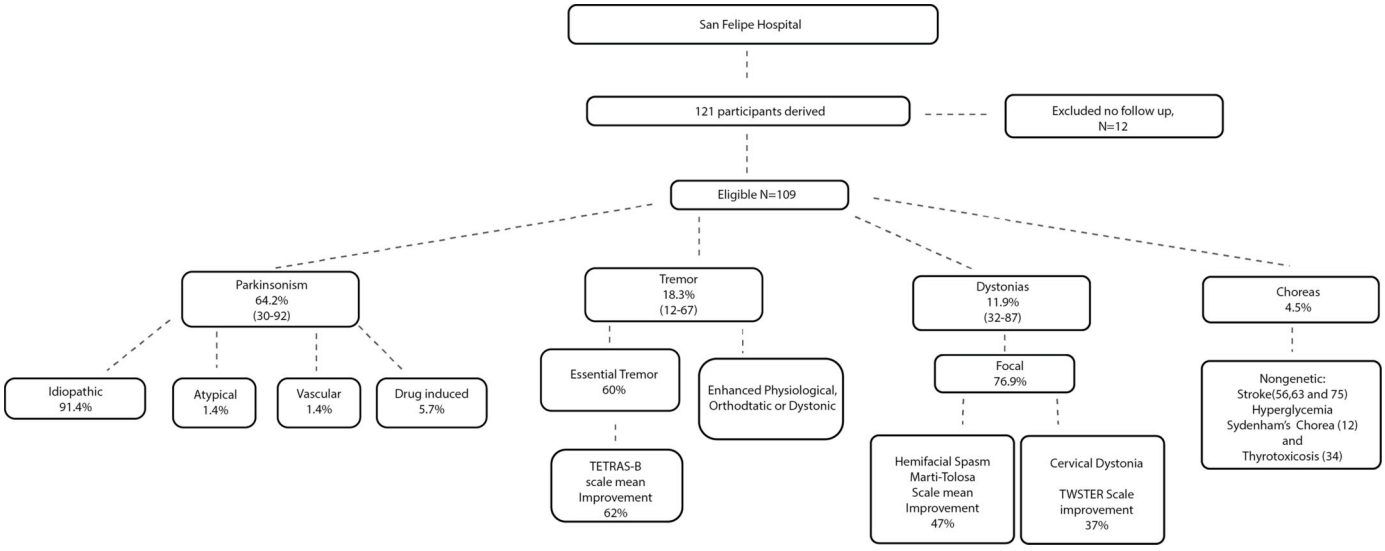

Fig. 1. Flow chart of participants in the study. TETRAS The Essential Tremor Rating Scale; TWSTRS Toronto Wester Spasmodic Torticolis Rating Scale.

Table 1
Demographics and time to diagnosis of Parkinsonism.

	< 5 years n = 48	> 5 years n = 22	*P value*
Age (Years)	69.4 ± 11	70.3 ± 11.2	.75
Female, (%)	47.9%	63.6%	.16
Education in years	2.5 ± 0.9	3.1 ± 1.9	P = 0.01
Age at Onset (Years)	67.1 ± 11.2	59.8 ± 13.8	P = 0.02
Onset of symptoms before age 40(%)	2%	9%	.3
Disease duration (Years)	2.6 ± 1.7	10 ± 5.6	P < 0.05
MDS-UPDRS III Baseline	30 ± 15.3	38.5 ± 16.5	.04
MDS-UPDRS III Follow up	18.6 ± 12.1	24.9 ± 13.2	.05
Percentage of improvement	38.4 ± 21.9	34.8 ± 20.5	.5
Patients with dyskinesia (%)	10.4%	20%	.1
Levodopa daily dose mg/day	578 ± 330.6	655.6. ± 456.8.	.4
Patients using Dopamine Agonists (%)	22%	30%	.4
Patients using Amantadine (%)	8%	20%	.1
Patients using IMAO-B (%)	22%	20%	.8
Drug Naive	28.6%	–	

Abbreviations: MDS-UPDRS: Movement Disorders Society-Unified Parkinson's Disease Rating Scale.

treatment of advanced PD in resource limited countries as well as improving motor outcome and quality of life of patients with movement disorders.

Authors contributions

Alex Medina Escobar: conception and design, collection and assembly of data, data analysis and interpretation, manuscript writing.

Pedro Gomez: data analysis and interpretation, revision of the manuscript for intellectual content.

Jorge Ortiz: conception and design, collection and assembly of data, data analysis and interpretation, manuscript writing.

Claudia Avila: data analysis and interpretation, revision of the manuscript for intellectual content.

Rina Medina: data analysis and interpretation, revision of the manuscript for intellectual content.

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