Clinical Features of Young-onset Versus Late-onset Parkinson's Disease

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Objectives: To assess the initial symptoms and treatments and the disease progression of patients with young-onset Parkinson's disease (YOPD) compared to those with late-onset (LOPD).

Background: The etiology of idiopathic Parkinson's disease (PD) remains unknown. There is evidence that the clinical features of YOPD and LOPD are different, but published information is scarce. Further understanding of the clinical characteristics of these two groups may help elucidate the significance of the differences.

Methods: This is a retrospective chart review of 505 patients seen at our Center between 2002 and 2010 with the diagnosis of parkinsonism. Patients were divided into early onset (≤50 years) and late onset (≥51 years) PD. Their clinical variables were compared using Chi-square, Mann-Whitney and log rank statistical tests.

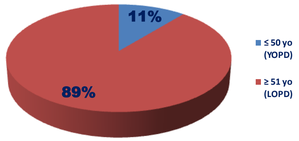
Results: 417 patients met the inclusion criteria of idiopathic PD and known age at onset.

Initial Symptom: Tremor as the predominant initial symptom was more frequent in the LOPD group (66.3% vs 47.8%, p=0.021), whereas rigidity and pain as the predominant initial symptoms were more frequent in the YOPD group (30.4% vs 8.9%, p<0.001). Overall, tremor was the most frequent predominant initial symptom in both groups. There was no difference in the frequency of bradykinesia or gait instability as the predominant initial symptom.

Initial Medication: Carbidopa/levodopa was the most frequently prescribed first medication in both groups. UPDRS Part II ADL total score was higher in the younger onset group at 5 years after disease onset (18.5 vs 14, p=0.01).

Non-motor symptom onset: There was no difference in the frequency of development of dyskinesia, dementia, depression, apathy or hallucinations. However, dyskinesia developed earlier in the YOPD group (median at 13y vs 19y). Dementia, apathy and hallucinations developed earlier in the LOPD group (median at 16 vs 28y, 18 vs 30y, and 15 vs 28 y, respectively). No difference in latency from the initial symptom onset to onset of depression was observed between the 2 groups.

Distribution by Age at Onset



N= 417

Predominant First Symptom

Symptom	YOPD	LOPD	p -value
Tremor	47.8%	68.3%	*0.02
Gait/falls	17.4%	20.8%	0.73
Pain/rigidity	30.4%	8.9%	*<0.01
Bradykinesia	23.9%	21.3%	0.83
Dystonia	0.0%	0.3%	1.00
Unknown	4.3%	4.6%	1.00

(*=statistically significant)

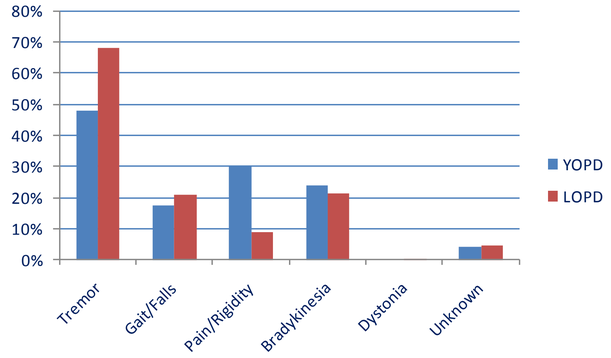
Note: Some patients had more than one predominant initial symptom

First Medication

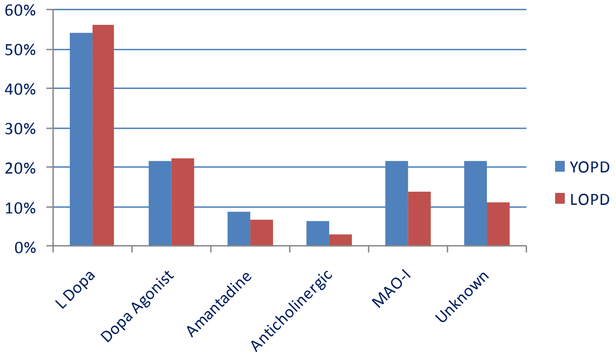
Medication	YOPD	LOPD	p -value
L Dopa	54.3%	56.3%	0.92
Dopa Agonist	21.7%	22.4%	1.00
Amantadine	8.7%	6.7%	0.85
Anticholinergic	6.5%	3.2%	0.22
MAO-I	21.7%	14.0%	0.24
Unknown	21.7%	11.1%	0.07

Note: Some patients started on more than one medication

Predominant First Symptoms



First Medication



Comparison of Time to Symptom Onset

Symptom	YOPD (median yr)	LOPD (median yr)	Log-rank	p-value
Non-motor				
Depression onset	27	20	1.69	0.19
Hallucinations onset	28	15	11.94	*<0.01
Dementia onset	28	16	18.15	*<0.01
Apathy onset	30	18	1.07	*<0.01
Motor				
Dyskinesia onset	13	19	4.19	*0.04

(*=statistically significant)

Occurrence of Non-motor Symptoms and Presence of Family History

Symptom	YOPD	LOPD	p-value
Depression	48.8%	36.6%	0.17
Hallucination	33.3%	37.4%	0.71
Dementia	34.1%	41.7%	0.42
Apathy	42.2%	40.7%	0.97
Family History of PD	15.2%	10.0%	0.40

Conclusions/Relevance: There were clinical differences between the YOPD and LOPD groups. Rigidity and pain presented as initial symptoms more frequently in YOPD. Patients with YOPD had more difficulties with activities of daily living at 5 years after disease onset. Carbidopa/levodopa was the most used initial treatment for both groups.

ACKNOWLEDGMENT: This research was supported by the Department of Veterans Affairs.