

Supplementary Table 1: Clinical characteristics of untreated patients with Parkinson's disease classified by low- and high-SCOPA-AUT score groups

	Untreated PD (n=32)	Low-SCOPA-AUT (<9)	High-SCOPA-AUT (≥9)	p-value
Age (years)	69.4±9.7	68.5±11.2	70.5±7.8	0.58
Sex (M/F)	13/19	7/10	6/9	0.95
Body mass index (kg/m ²)	22.7±5.2	21.3±6.2	24.3±3.6	0.12
Disease duration (years)	2.2±2.5	3.0±3.2	1.5±1.3	0.11
MMSE	26.8±3.7	27.4±2.8	26.1±4.4	0.44
Hoehn and Yahr stage	2.6±1.0	2.6±1.0	2.6±1.2	0.87
MDS-UPDRS III	28.9±14.9	31.7±15.0	26.1±14.8	0.32
MDS-UPDRS IV	0	0	0	-
LED (mg/day)	0	0	0	-
SCOPA-AUT total	8.5±6.0	4.2±2.8	13.4±4.8	<0.001
PDSS-2	10.6±6.2	8.1±5.1	13.2±6.3	0.021
ESS	6.5±5.6	4.8±4.1	8.1±6.5	0.12
BDI-II	11.2±8.5	7.3±7.0	15.3±8.2	0.011
RBDSQ-J	1.9±2.6	1.4±2.4	2.3±2.7	0.35
NMSS	32.1±18.1	16.7±13.7	51.2±31.6	0.0022
Non-autonomic NMSS	17.2±18.1	7.6±8.0	29.1±20.2	0.0026
DAT SPECT (average)	4.5±1.1	4.7±1.3	4.3±0.8	0.34
MIBG cardiac scintigraphy (delayed image)	2.1±1.0	2.3±1.1	1.8±0.8	0.22
Open essence*	4.0±2.4	3.7±2.7	4.2±2.1	0.55

MMSE=Mini-Mental State Examination; MDS-UPDRS=Movement Disorder Society-Sponsored Revision of the Unified Parkinson's Disease Rating Scale; LED=levodopa equivalent dose; SCOPA-AUT=Scales for Outcomes in PD Autonomic; PDSS-2=PD sleep evaluation scale-2; ESS=Epworth sleepiness scale; BDI-II=Beck's depression inventory II; RBDSQ-J=RBD screening questionnaire, Japanese version; NMSS=Non-Motor Symptom Scale for PD; DAT SPECT=dopamine transporter (¹²³I FP-CIT) SPECT; MIBG=¹²³I-metaiodobenzylguanidine

*Open essence; olfactory function test

Supplementary Table 2: Correlation between the SCOPA-AUT and clinical parameters in untreated PD patients

	SCOPA-AUT total	
	Correlation coefficient	p-value
Age	0.152	0.42
Body mass index	0.266	0.16
Disease duration	-0.043	0.82
MMSE	-0.161	0.50
Hoehn and Yahr stage	0.069	0.72
MDS-UPDRS III	-0.111	0.56
MDS-UPDRS IV	-	-
Levodopa equivalent dose	-	-
PDSS-2	0.454	0.012
ESS	0.235	0.22
BDI-II	0.641	<0.001
RBDSQ-J	0.240	0.21
NMSS	0.683	<0.001
Non-autonomic NMSS	0.688	<0.001
DAT scan (average)	-0.301	0.12
MIBG cardiac scintigraphy (delayed image)	-0.096	0.61
Open essence	-0.084	0.66

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