

Supplementary Material

1 SUPPLEMENTARY TABLES

Table I. Heart rate and blood pressure during clinical protocol

Parameter	no-OH N = 7 ¹	OH N = 7 ¹	PD N = 11 ¹	MSA N = 3 ¹
HR (bpm)				
Seated	63.17 (12.87)	72.95 (19.10)	67.08 (18.39)	71.67 (6.55)
Supine	59.71 (10.51)	67.94 (14.34)	62.43 (14.09)	68.96 (4.80)
Standing	68.84 (12.11)	82.13 (22.67)	73.70 (20.36)	82.06 (11.69)
SBP (mmHg)				
Seated	147.96 (17.63)	138.59 (36.11)	149.71 (27.37)	119.70 (13.89)
Supine	147.56 (17.47)	162.79 (38.26)	158.48 (32.05)	143.06 (17.25)
Standing	157.90 (24.11)	120.77 (28.11)	146.73 (27.27)	112.22 (37.46)
DBP (mmHg)				
Seated	78.84 (12.66)	78.93 (14.47)	81.53 (12.60)	69.20 (11.72)
Supine	77.90 (12.21)	85.87 (14.27)	83.37 (13.25)	76.44 (15.36)
Standing	85.53 (10.20)	76.09 (14.05)	84.74 (10.47)	66.39 (10.73)

¹n; Mean (SD)
 Parkinson's disease (PD); Multiple system atrophy (MSA); Orthostatic hypotension (OH); Heart rate (HR); Systolic blood pressure (SBP); Diastolic blood pressure (DBP)

Table II. Motor Testing in OFF and ON States

Parameter	OFF-Mean	OFF-SD	ON-Mean	ON-SD	Test	Statistic	Cohen's d	p
MDS-UPDRS III	31.857	9.840	20.142	8.872	t-test	7.978	2.212	<0.001
Hoehn & Yahr	2.142	0.515	1.785	0.557	Wilcoxon	0.000	0.745	0.025

Table III. Concomitant blood pressure-related medications in participants on levodopa

Participant Group	OH	Medication	Dosage
MSA	y	Midodrine	2.5 mg qD
PD	y	Olmesartan	10 mg qD
PD	y	Midodrine	10 mg tid
PD	y	Midodrine	10 mg p.r.n
MSA	y	Midodrine	7.5 mg tid
PD	n	Amlodipine	7.5 mg qD

Table IV. Clinical Levodopa OFF-ON Comparisons

Feature	OFF-Mean	OFF-SD	ON-Mean	ON-SD	Test	Statistic	Cohen's d	p	P _{adj}
HR	70.969	13.714	73.087	13.385	t-test	-1.342	0.372	0.202	0.404
PPG _{amp}	0.258	0.189	0.226	0.179	t-test	1.562	0.433	0.142	0.165
PAT	189.356	39.755	199.479	34.005	t-test	-1.880	0.521	0.082	0.126
PTT	96.804	39.380	97.478	33.438	t-test	-0.126	0.035	0.901	0.901
SCG _{amp}	32.251	9.488	26.829	6.682	t-test	2.186	0.606	0.047	0.111
PEP	92.610	20.730	101.873	18.643	t-test	-4.560	1.264	0.000	0.003
LVETi	406.658	28.312	400.216	23.029	Wilcoxon	25.0	0.273	0.090	0.126
PEP/LVETi	0.229	0.054	0.255	0.049	t-test	-3.175	0.880	0.007	0.025
HRV-LF	289.273	259.854	222.872	276.994	t-test	2.269	0.629	0.040	0.245
HRV-HF	93.947	84.557	78.168	90.999	Wilcoxon	39.0	0.336	0.426	0.639
HRV-LF/HF	3.796	1.503	3.788	1.830	t-test	0.012	0.003	0.989	0.989
HRV-SDNN	36.212	17.033	40.027	34.360	t-test	-0.576	0.160	0.573	0.688
HRV-RMSSD	5.314	1.271	4.989	1.728	t-test	1.378	0.382	0.191	0.404

Table V. At-home Levodopa OFF-ON Comparisons

Feature	Estimate	Conf. lower	Conf. upper	SE	DF	t	p	P _{adj}
HR	-0.294	-3.192	2.604	1.478	70	-0.199	0.842	0.921
PPG _{amp}	0.008	-0.079	0.096	0.044	70	0.187	0.851	0.851
PAT	2.613	-10.627	15.854	6.755	70	0.386	0.698	0.851
PTT	2.114	-10.064	14.292	6.213	70	0.340	0.733	0.851
SCG _{amp}	0.002	-0.002	0.006	0.002	70	0.824	0.409	0.851
PEP	0.682	-5.905	7.271	3.361	70	0.203	0.839	0.851
LVETi	-5.483	-17.476	6.510	6.119	70	-0.896	0.370	0.851
PEP/LVETi	0.005	-0.016	0.027	0.011	70	0.516	0.605	0.851
HRV-LF	45.687	-45.424	136.798	46.486	70	0.982	0.325	0.921
HRV-HF	2.408	-45.678	50.495	24.534	70	0.098	0.921	0.921
HRV-LF/HF	0.5	-0.321	1.321	0.419	70	1.192	0.233	0.921
HRV-SDNN	1.718	-6.406	9.843	4.145	70	0.414	0.678	0.921
HRV-RMSSD	-0.166	-0.763	0.430	0.304	70	-0.547	0.584	0.921

Table VI. Dose-Response Correlation

Feature	Correlation	Coefficient	p	P _{adj}
HR	Pearson	-0.269	0.351	0.858
PPG _{amp}	Pearson	-0.644	0.012	0.051
PAT	Pearson	0.358	0.208	0.292
PTT	Pearson	0.146	0.617	0.617
SCG _{amp}	Pearson	-0.241	0.405	0.472
PEP	Pearson	0.573	0.031	0.074
LVETi	Spearman	-0.547	0.042	0.074
PEP/LVETi	Pearson	0.635	0.014	0.051
HRV-LF	Pearson	0.165	0.572	0.858
HRV-HF	Spearman	0.185	0.252	0.858
HRV-LF/HF	Pearson	-0.420	0.134	0.807
HRV-SDNN	Pearson	0.003	0.990	0.990
HRV-RMSSD	Pearson	0.030	0.918	0.990

Table VII. Comparison of Clinical Levodopa Responses between OH and no-OH Groups

Feature	OH-Mean	OH-SD	no-OH-Mean	no-OH-SD	Test	Statistic	Cohen's d	p	P _{adj}
HR	4.745	4.639	-0.507	5.425	t-test	1.802	1.040	0.096	0.144
PPG _{amp}	-0.027	0.067	-0.037	0.081	t-test	0.249	0.143	0.807	0.807
PAT	6.947	23.156	13.296	14.048	MWU	19.0	0.331	0.534	0.807
PTT	-3.338	23.095	4.685	13.134	t-test	-0.739	0.427	0.473	0.807
SCG _{amp}	-7.301	8.716	-3.542	8.766	t-test	-0.744	0.430	0.470	0.807
PEP	10.177	8.497	8.349	5.777	t-test	0.435	0.251	0.670	0.807
LVETi	-7.042	25.805	-5.842	21.026	MWU	29.0	0.050	0.620	0.807
PEP/LVETi	0.028	0.035	0.024	0.023	t-test	0.262	0.151	0.797	0.807
HRV-LF	-112.085	66.325	-20.717	116.973	t-test	-1.664	0.960	0.121	0.146
HRV-HF	-42.153	45.967	10.594	29.777	MWU	6.0	1.362	0.017	0.052
HRV-LF/HF	0.342	1.881	-0.359	2.658	MWU	33.0	0.304	0.317	0.317
HRV-SDNN	-9.887	12.166	17.516	24.759	t-test	-2.433	1.404	0.031	0.063
HRV-RMSSD	-0.899	0.738	0.249	0.492	t-test	-3.171	1.831	0.008	0.048

Table VIII. Comparison of At-home Levodopa Responses between OH and no-OH Groups

Feature	Estimate	Conf. lower	Conf. upper	SE	DF	t	p	P _{adj}
HR	4.192	-14.694	23.079	9.636	34	0.435	0.663	0.796
PPG _{amp}	-0.017	-0.131	0.095	0.057	34	-0.308	0.757	0.888
PAT	-7.360	-32.567	17.847	12.861	34	-0.572	0.567	0.888
PTT	-5.134	-29.665	19.396	12.515	34	-0.410	0.681	0.888
SCG _{amp}	0.001	-0.005	0.008	0.003	34	0.453	0.650	0.888
PEP	-1.169	-10.376	8.037	4.697	34	-0.249	0.803	0.888
LVETi	6.965	-11.382	25.314	9.361	34	0.744	0.456	0.888
PEP/LVETi	-0.002	-0.031	0.027	0.015	34	-0.140	0.888	0.888
HRV-LF	-175.472	-376.873	25.927	102.757	34	-1.707	0.087	0.263
HRV-HF	-59.890	-156.510	36.730	49.297	34	-1.214	0.224	0.448
HRV-LF/HF	-0.117	-1.683	1.449	0.799	34	-0.146	0.883	0.883
HRV-SDNN	-18.280	-35.494	-1.067	8.782	34	-2.081	0.037	0.224
HRV-RMSSD	-0.493	-1.598	0.611	0.563	34	-0.875	0.381	0.571