High Resolution Anorectal Manometry Findings in Men and Women with Parkinson's Disease, Using London Classification

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BACKGROUND

- Gastrointestinal dysfunction is one of the most common nonmotor symptom in Parkinson's Disease (PD) and occurs in 60-80% of patients
- Constipation remains one of the most prevalent symptom, and is also one of the earliest non-motor symptom to occur in PD
- Etiologies of constipation is multifactorial: slow transit constipation secondary to neuronal loss and Lewy body infiltration and pelvic floor muscle dystonia

AIMS

- Identify high-resolution anorectal manometry (HR-ARM) abnormalities in patients with PD using the London Classification
- Identify any differences in HR-ARM profiles between women and men

METHODS

- Retrospective case review of all PD patients at our institution who underwent HR-ARM for evaluation of constipation from 2015-2021
- Recordings were reanalyzed using age and sex specific normal values to report findings using London Classification
- Wilcoxon rank sum test and Fisher's exact test were used to compare men and women

RESULTS

London Classification of Manometric Parameters for Major and Minor Findings of Anorectal Disorders

Variable	All (n=36)	Female (n=19)	Male (n=17)	p-value
Disorders of anal tone and contractility (Major findings)				
Combined Hypotension and Hypocontractility	3 (8)	3 (16)	0 (0)	0.23
Anal Hypotension	7 (19)	4 (21)	3 (17)	1
Anal Hypocontractility	17 (47)	13 (68)	4 (23)	**0.01**
Disorders of rectoanal coordination (Minor findings)				
Abnormal Expulsion with poor propulsion	2 (5)	1 (5)	1(6)	1
Abnormal Expulsion with Dyssynergia	22 (61)	10 (52)	12 (70)	0.32
Abnormal Expulsion with Poor Propulsion with Dyssynergia	2 (5)	1 (5)	1(6)	1
Disorders of rectal sensation (Minor findings)				
Rectal Hyposensitivity	12 (33)	7 (37)	5 (29)	0.73
Rectal Hypersensitivity	3 (8)	2 (10)	1 (6)	1

Anorectal test results

Variable	Female (n=19)	Male (n=17)	p-value
Mean resting sphincter pressure (mm Hg)	42.7 (34.5-69.4)	58.2 (39.6-69.8)	0.1994
Max resting sphincter pressure (mm Hg)	45.7 (40-75.6)	67.2 (43.1-80)	0.1322
Max squeeze sphincter pressure (mm Hg)	89 (42.8-122.1)	162.7 (137.6-211.4)	**0.0005**
Duration of squeeze (seconds)	16.5 (4.9-20.5)	9.9 (6.3-19.2)	0.5788
Simulated Defecation			
Residual anal pressures (mm Hg)	51.7 (41.1-75.4)	83.2 (68.1-110.4)	**0.0012**
% Relaxation during push	-6 (-17-8)	-24 (-60 - - 9)	**0.0393**
Intra-rectal pressure during push (mm Hg)	32.5 (23.1-43.8)	31.8 (24.9-45.5)	0.7393
Rectoanal Pressure Gradient	-19.5 (-37.7 - - 6.1)	-71.3 (-74.9 - - 75)	**0.0056**
Sensory levels			
First sensation (mL)	30 (20-60)	40 (20-70)	0.6885
Urge to defecate (mL)	70 (60-120)	80 (60-120)	0.5717
Maximum Tolerated Volume (mL)	125 (80-160)	130 (100-210)	0.3642
Balloon Expulsion Test			
Abnormal Expulsion	10 (55)	13 (76)	0.289

Values are median (interquartile range)

SUMMARY

- Functional anorectal disorders are very common in patients with Parkinson's Disease
- Abnormal expulsion with dyssynergia and anal hypocontractility were the most common anorectal disorders in PD
- Specific key HR-ARM parameters such as anal contractility and dyssynergia differ across men and women

CONCLUSION

- High prevalence of pelvic floor disorders confirmed in patients with PD using the London Classification
- Anal hypocontractility and abnormal expulsion with dyssynergia were the most prevalent in patients with PD
- HR-ARM can be a useful noninvasive study to further evaluate PD patients with constipation and defecatory difficulties to better guide therapy and management of symptoms