

Clinical assessments firstly involved the Hoehn and Yahr scale [5] to recruit patients in the early-stages of their disease. A common validated scale used to measure the progression of Parkinson's symptoms and the level of disability, early-stage was defined as any patient diagnosed with PD and a Hoehn and Yahr Stage of I or II. Stage I was defined as symptoms on one side only (unilateral) and Stage II was defined as symptoms on both sides (bilateral) but with no impairment of balance.

The Movement Disorder Society-Unified Parkinson's Disease Rating Scale (MDS-UPDRS) [6] is a common validated scale used to follow the

Abdominal Pain	0.45 ± 0.52	0.22 ± 0.67
Bloating	0.83 ± 0.94	0.44 ± 0.73
Constipation	1.25 ± 1.22	0.22 ± 0.67
Hard Stools	1.25 ± 1.29	0.33 ± 0.50
Early Satiety	0.17 ± 0.39	0.33 ± 1.00
Dysphagia	0.08 ± 0.29	0.11 ± 0.33
Tenesmus	1.25 ± 0.87	0.22 ± 0.44
UPDRS	0.58 ± 0.67	0.67 ± 1.00
Total	5.70 ± 3.59	2.50 ± 3.51

Control Groups.

Pearson's Correlation test was used to determine the association between the total gastrointestinal symptoms questionnaire score and the UPDRS motor score. A weakly positive correlation was present ($r=0.278$), however, the result was not statistically significant ($p=0.38$).

Of the PD participants recruited for this study, 5 had Stage I and 7 had Stage II disease. The mean Hoehn and Yahr scale for participants was 1.58 ± 0.52 . Patients with Stage I reported symptoms as follows: tenesmus (80%), constipation (80%), hard stools (80%), bloating (60%), early satiety (40%), reflux (40%) abdominal pain (20%) and dysphagia (0%). Stage II participants reported all symptoms, but most common were tenesmus (85.7%), reflux (57.1%), abdominal pain (57.1%) and bloating (57.1%).

Discussion

The results from this study show that patients with early-stage PD suffer from a variety of different gastrointestinal tract symptoms. Early-stage PD patients showed an increased prevalence of lower gastrointestinal tract symptoms, in particular, tenesmus, constipation and hard stools. These findings complement the one previous study investigating symptoms in the early stages [8]. Our results also displayed the odds of having tenesmus in PD compared with controls was 17.5 times more likely, whilst a strong positive correlation

