

Study of an Early Wellness Program in Parkinson's Disease: impact on quality of life and early intervention guidance

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Abstract

This pilot study examined whether intervening early in Parkinson's disease (PD) with a comprehensive Wellness Program is feasible. Secondary outcomes include impact on disease specific quality of life, fatigue, mood, healthcare utilization, objective mobility, and fall risk.

Twenty-one consenting ambulatory adult subjects diagnosed with PD within the last five years completed various screenings at baseline and following a required 6-month Wellness Program intervention.

- Twenty of twenty-one subjects completed the required 6-month intervention
- Continued Program participation was 70% at 12 months and 60% at 18 months
- Overall disease specific quality of life remained stable
- Significant improvement was seen in patient reported mobility and emotion specific sub-areas at 12 months
- Patient reported communication was significantly worsened
- Fatigue was significantly decreased by 6 months while activity level remained stable
- All objective measures were significantly improved from baseline by 6 months with further improvement by 12 months
- Physician visits were significantly decreased by 18 months
- Total healthcare contact was trending towards decreased by 18 months

Comprehensive wellness intervention in early PD is feasible, effective, safe and valuable in establishing long-term beneficial habits while potentially reducing overall healthcare utilization. The results also highlight the importance of addressing communication specific symptoms early on in disease progression. Ultimately, this study will aid the design and implementation of future PD wellness interventions.

Introduction

PD is a chronic, progressive neurodegenerative disease that mainly affects older individuals. It is the second most common neurodegenerative disease in the world, after Alzheimer's disease, and is estimated to currently affect nearly one million Americans.¹

In addition to the motor symptoms, a variety of non-motor complications are common and often substantially impact patients' health related quality of life (HRQoL).²

Current standards of PD treatment include medications to improve motor function while treatments designed to address the myriad of other disease related complications remain relatively incomplete.

Recently, studies investigating the impact of various wellness interventions have proven to be effective in improving HRQoL as well as improving objective measures of disease burden such as gait and motor functioning.³

What has not been demonstrated to date is whether patients who are given the opportunity to participate in regularly administered wellness programs will continue to attend and whether benefits will continue to be realized outside the strict confines of a clinical study.

Characteristic	N = 20
Age* - years	72 ± 7.1
Sex - male	N = 12 (60%)
Time Since Diagnosis* - months	24.3 ± 17.9
Antiparkinsonian Medications Taken	
Levodopa	10 (50%)
MAOI	2 (10%)
Levodopa + MAOI	2 (10%)
Levodopa + DA	3 (15%)
Levodopa + MAOI + DA	3 (15%)

*Mean ± SD. MAOI = monoamine oxidase inhibitor. DA = dopamine agonist

Table 1: Baseline subject demographics and antiparkinsonian medications

This study was designed to examine the impact of an early Wellness Program in a retirement-aged PD community located in Sun City, Arizona. The Wellness Program was designed to include regular disease specific group-format exercise classes, PD specific education, and to promote social support among the study participants.

A survey battery, specifically designed and validated to assess common complications of the disease impacting quality of life, was administered at baseline and then recurring on a 6-month follow-up basis for a total study duration of 18 months. Additionally, various objective assessments were obtained at baseline, 6-months and 12-months. Falls and healthcare utilization were also documented.

The primary goal of this study is to determine if intervening early in PD with a comprehensive Wellness Program is feasible. Secondary goals include evaluating the program's impact on common disease specific complications.

Methods

This was an open-label, single site pilot study conducted over an 18-month time period. Data was collected from consenting ambulatory adult patients diagnosed with PD within the last five years. Patients were recruited from the Banner Sun Health Research Institute (BSHRI) Center for Parkinson Research during a regular clinic visit.

Study data was collected via a self-administered survey packet which was completed by each subject during a formal study site visit at BSHRI occurring at baseline, 6, 12, and 18 months. The survey packet consisted of seven distinct, self-administered surveys including:

- Parkinson's Disease Questionnaire-39 (PDQ-39)
- Geriatric Depression Scale - short form (GDS-15)
- Healthcare Utilization survey
- Falls survey
- Self-efficacy Scale
- Fatigue Severity Scale (FSS)
- Physical Activity Scale for the Elderly

Data was collected at BSHRI. All p-values were 2-tailed and P < 0.05 was considered statistically significant.

Results: Primary Outcome

- Twenty of twenty-one subjects completed the required 6-month intervention. Most subjects attended greater than the minimum of two required fitness classes per week. All subjects also successfully completed a three-part PD lecture series which was a requirement for participation. Subject participation following the required 6-month interventional period remained high with 14 subjects (70%) continuing to participate at 12 months and 12 subjects (60%) continuing to participate at 18 months.

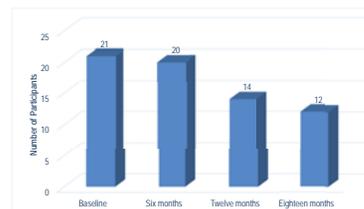


Figure 1: Wellness Program participation

Results: Secondary Outcomes

- Overall disease specific quality of life, as measured by the PDQ-39 Single Index score, remained stable at 18 months. Significant improvement was seen in patient reported mobility and emotion sub-areas at 12 months. The communication specific sub-area was significantly worsened at 12 months.

Outcomes	Baseline Median (IQR)	6 months Median (IQR)	12 Months Median (IQR)	18 Months Median (IQR)
PDQ-39 Single Index	20.1 (11.8, 29.4)	21.7 (13.7, 25.7)	19.2 (13.0, 21.8)	22.2 (6.9, 29.6)
PDQ-39 Sub-Areas				
Mobility	21.25 (15, 43.8)	21.25 (8.75, 30) [*]	12.5 (5, 35) [*]	16.5 (3.75, 48.75) [*]
ADL	18.7 (16.7, 29.2)	14.6 (8.3, 22.9) ^{**}	8.3 (8.3, 20.8)	16.65 (6.25, 29.2)
Emotions	20.85 (8.3, 37.5)	18.75 (10.4, 31.25)	12.5 (8.3, 29.2) [*]	18.75 (4.2, 19.15)
Stigma	6.3 (0, 12.5)	3.15 (0, 25)	6.3 (0, 12.5)	0 (0, 18.8)
Social Support	8.3 (0, 16.7)	8.3 (0, 25)	0 (0, 8.3) [*]	8.3 (0, 16.7)
Cognition	18.8 (18.8, 31.3)	25 (12.5, 31.3)	25 (12.5, 31.3)	28.15 (12.5, 31.3)
Communication	16.7 (8.3, 33.3)	25 (14.6, 33.3) [*]	25 (16.7, 41.7) [*]	20.85 (8.3, 41.7) [*]
Bodily Discomfort	25 (8.3, 33.3)	29.15 (16.7, 41.7)	25 (16.7, 41.7)	16.7 (8.3, 41.7)

Pairwise comparison: 1- Baseline vs. 6 months, 2- baseline vs. 12 months, 3- baseline vs. 18 months, 4- 6 months vs. 12 months, 5- 6 months vs. 18 months, 6- 12 months vs. 18 months. If there is a number, then the pairwise comparison was statistically significant using the Wilcoxon Sign Rank (p<0.05). An (*) indicates the p-value was between 0.05 and 0.10 thus a marginal difference. ADL = Activities of daily living.

Table 2: Parkinson's Disease Questionnaire-39 Single Index and Sub-Area scoring

- Fatigue was significantly improved from baseline to 6 months. Median FSS scores at baseline 6, 12 and 18 months were 40.5 (IQR 25.5, 48), 35 (IQR 20, 41), 32.5 (IQR 16, 45.5) and 31 (IQR 18, 37.5), respectively. Subjects demonstrated a stable level of physical activity across the duration of the study.
- Mood, as measured by the GDS-15, was unchanged. Median GDS-15 scores at baseline, 6, 12 and 18 months were 3 (IQR 1.5, 6), 2.5 (IQR 2, 4.5), 2 (IQR 1, 3) and 3 (IQR 2, 4), respectively.

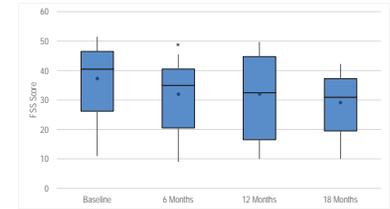


Figure 2: Fatigue Severity Scale scores (*) indicates a significant difference (p<0.05) from baseline

- Physician visits were significantly less from baseline to 18 months (4 visits at baseline vs. 3 visits at 18 months). Total healthcare contact was trending towards decreased at 18 months.
- All objective measures were significantly improved from baseline. Six-Minute walk test improved from 1180 feet at baseline to 1327 and 1485 feet at 6 and 12 months, respectively.
- A total of 5 falls were reported by 3 subjects during the 6-month interventional period. None resulted in serious injury. There were no serious adverse events.

Discussion and Conclusions

Wellness Program participants achieved significant improvements in a variety of commonly affected disease complications including mobility, emotions, and fatigue while maintaining a stable overall HRQoL. Our data indicates that early comprehensive wellness intervention is feasible and can promote long-term, lasting habits while potentially reducing PD patient healthcare utilization. Future wellness interventions should aim to address communication specific concerns early on in the disease course.

Next steps would be to complete a randomized controlled study of this Wellness Program.

References

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