One-stop Integrated Multidisciplinary care for patients with Parkinson's disease: A randomized controlled pilot study

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Introduction

A multidisciplinary team approach has been advocated in the management of patients with Parkinson's disease (PD).[1] However, little is known of the efficacy of such efforts. Although the current standard care in Singapore is largely multidisciplinary in nature, involving multiple healthcare professionals, the care is often fragmented and uncoordinated.

We aimed to investigate the effects of a one-stop integrated multidisciplinary approach versus standard care on quality of life (QoL). Our secondary aims included investigating the effect of this integrated care on disability, non-motor symptoms, and patient satisfaction.

Method

Design, Recruitment and Participants

This is a randomized controlled pilot study (IRB no 2017/2639) where patients under the care of a single movement disorders specialist (PK) were screened and recruited via convenience sampling from the outpatient movement disorders and physiotherapy clinic at the Singapore General Hospital between Nov 2017 to Feb 2018. Patients were eligible for the trial if they were diagnosed with idiopathic PD by a neurologist according to the UK PD Bank criteria; with mild to advanced disease (Hoehn & Yahr stage II to IV); understood written or spoken English or Mandarin; were not participating in any ongoing PD intervention research.

Patients with other forms of Parkinsonism, severe cognitive impairments, uncontrolled depression or psychosis, and other medical conditions such as stroke or musculoskeletal conditions severely affecting mobility were excluded.

Procedures

After informed consent was obtained and baseline measures taken, patients were randomized into control or intervention group using concealed blocked randomisation.

The intervention group received integrated care for three months while the control group received standard care. The intervention comprised of a one-stop, coordinated integrated care where patients receive customised care from the movement disorders specialist (neurologist) and the multidisciplinary team (as necessary) comprising of the Advanced Practice Nurse (APN), physiotherapist, occupational therapist, speech therapist, medical social worker and dietitian. Consultations with all the different disciplines were organised within the same centre (Rehabilitation centre at National Heart Centre) and with coordinated timings. Additionally, twice monthly meetings were held to discuss patients' progress. Patients were given a Passbook where important notes from the multi-disciplinary team were recorded and shared between patients and each health professional.

Unlike the intervention group, the standard care group consulted the various health professionals they were referred to, at their primary settings and scheduled consultations were subject to availability of slots. There were no multidisciplinary team case discussion and Passbooks were not used

Outcome measures & Data analysis

Patients were assessed by blinded assessors at baseline and post intervention on the following outcomes: PD QoL questionnaire (PDQ8), Unified PD rating scale, Non-motor symptoms scale, and PD-specific patient-centred satisfaction questionnaires[2].

Data was analysed using SPSS version 25. The 2-sample Mann Whitney test was used to analyse the differences in outcomes between both groups. Significance was set at $p < 0.05$.

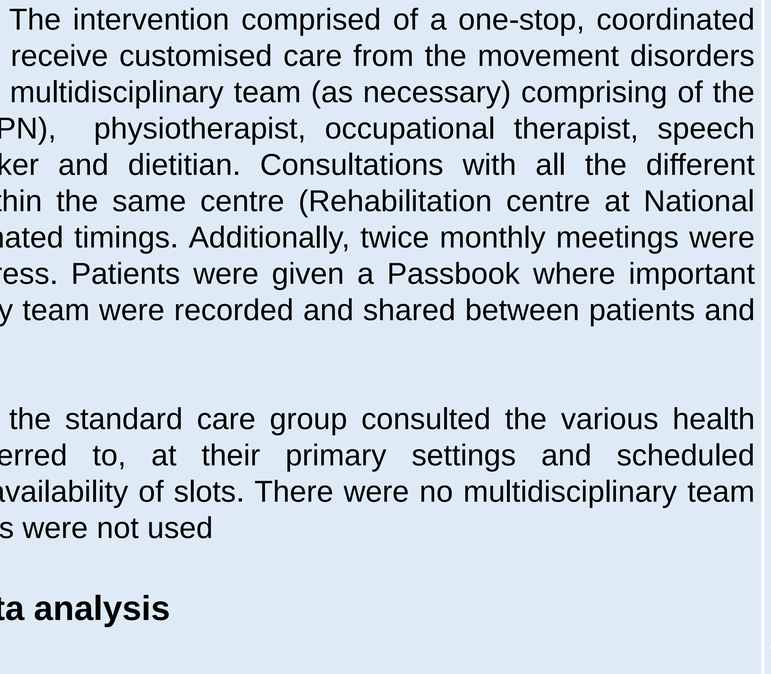

Figure 1: Consort Flowchart of study

Result

Figure 1 shows the progression of the study. Figure 2 to Figure 5 show changes from baseline and post intervention on physical, quality of life and patient satisfaction outcomes. Table 1 details the baseline characteristics of the patients. There were no significant differences in baseline characteristics between both groups.

Table 1: Baseline Characteristics

	Intervention (n=8) Mean ± SD (range)	Standard care (n=8) Mean ± SD (range)
Age, years	67.7 ± 6.6 (58-81)	60.2 ± 10.8 (47-81)
Gender, n(%) Male	5 (62.5%)	5 (62.5%)
Disease duration, years	7.0 ± 3.4 (3-12)	5.9 ± 2.5 (3-11)
	Median, IQR (range)	Median, IQR (range)
Modified Hoehn and Yahr Stage	2.0, 1 (2-4)	2.5, 1 (2-3)
Unified Parkinson's Disease Rating Scale	35.5, 11.5 (27-46)	23.5, 10.5 (15-35)
Non-motor symptoms scale (NMSS)	34, 45 (7 – 68)	26.5, 32 (15 -135)
Montreal Cognitive Assessment (MoCA)	28.0, 3 (26-30)	28.5, 2 (24-30)
Parkinson's Disease Quality of Life (PDQ8)	12.5, 18.0 (3.1-43.8)	20.3, 31.3 (0-46.9)

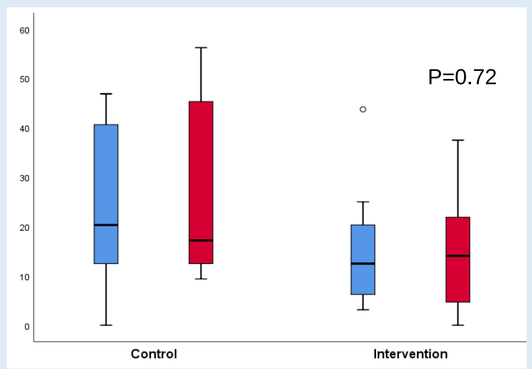

Figure 2: Changes in quality of life

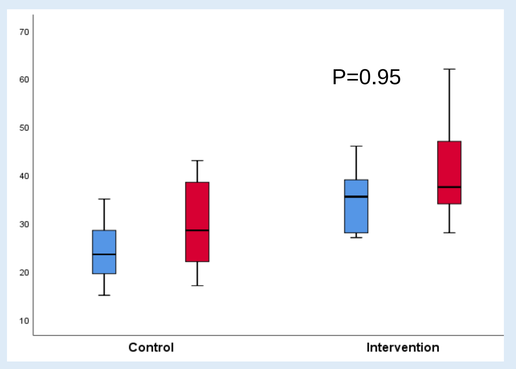

Figure 3: Changes in UPDRS motor scores

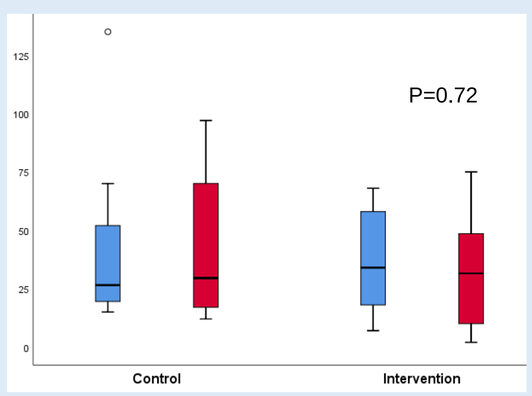

Figure 4: Changes in Non-motor symptoms

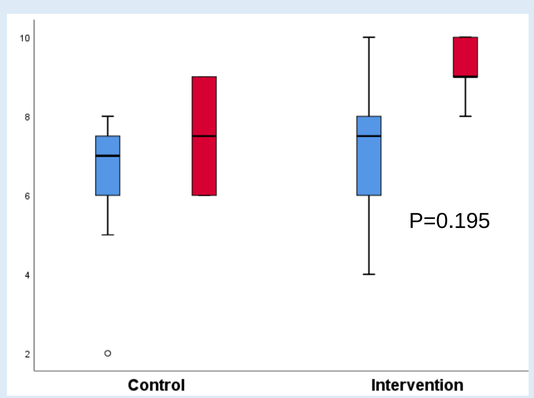

Figure 5: Changes in patient satisfaction

P values of between group differences are reported.

Discussion

This study showed that patients in the intervention group demonstrated greater reduction in non-motor symptoms, and increased patient satisfaction scores, especially in the Continuity and Collaboration of professionals subscale (p=0.08) as compared to the control group.

The only other RCT[3] which compared specialist multidisciplinary care versus general neurologist care showed significant improvement in QoL after 8 months of intervention. This difference may be due to the fact that our control arm also received multidisciplinary care.

No previous similar studies have measured levels of patient-centred satisfaction. A one-stop centre helped to enhance communication amongst health professionals evident in the higher patient satisfaction scores in the intervention group. In depth qualitative interviews of patients at the end of the study highlighted the importance of a case coordinator which does not exist in the current healthcare system.

Conclusion

A one-stop integrated care appears to provide non-significant improvement in non-motor symptoms and satisfaction in people with Parkinson's versus standard, non-integrated care. This study showed that a one-stop integrated care is feasible in our local setting. However, the efficacy of such an approach, remains to be further investigated in a larger trial, sufficiently powered to detect significant differences.

References

1. Van der Martck et al Parkinsonism & Related Disord. 2014:S167-73
2. Van der Eijk et al Parkinsonism & Related Disord. 2012: 1011-6
3. Van der Martck et al. Mov Disord. 2013:605-11