Palliative Care for Parkinson's Disease: Literature Review

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Abstract

OBJECTIVE: To inform evidence-based practice and future research by gathering and critically evaluating all the available literature investigating palliative care (PC) for Parkinson’s disease (PD) patients and their caregivers.

BACKGROUND: PC aims to address the needs of patients and families affected by progressive illness through the management of medical symptoms, psychosocial issues, and spiritual concerns. In recent times, there has been an emerging interest in applying PC to PD given its high symptom burden and effects on quality of life. However, there is a paucity of research on the benefits of PC in the PD community as well as a lack of consensus on when referrals should be issued or how management should be implemented.

DESIGN/METHODS: Here, we discuss PD symptomology that could warrant palliative care referral, the efficacy of these strategies in the PD community, and possible management models. Multiple databases were searched using keywords: Parkinson’s disease, palliative, and hospice. Reviews, systematic reviews, and meta-analysis were excluded to avoid duplication of data.

RESULTS: Our search strategy yielded 235 articles, of which thirteen met inclusion criteria. Of these, only two were comparative studies using a PD only sample which found patients receiving palliative care experienced better quality of life and improved PD symptomology. Significantly, multiple studies failed to report participants’ ethnicities, of those that reported, 74% of their studied sample was Caucasian.

CONCLUSIONS: The existing evidence presented in this review suggests that there is great need for PC strategies in the PD community for both patients and caretakers. While there are few comparative studies, evidence suggests integrated PC would be beneficial to the PD community. More studies investigating quantitative effects of PC and advanced care planning (ACP) as well as efficacy in a more diverse population and cost-efficiency of these management models are necessary for clinical implementation.

Introduction

Palliative care (PC) as a specialty focuses on improving the quality of life (QoL) of patients and families facing problems associated with incurable, progressive, and life-limiting illness by assessing and treating their symptoms and other psychological, social, and spiritual issues.[1] Neuro-palliative care is an emerging and growing field that aims to extend this framework of care to patients suffering from progressive neurodegenerative diseases such as amyotrophic lateral sclerosis (ALS), Parkinson's disease (PD), and multiple sclerosis.[2]

PD is the 14th leading cause of death in the United States, affecting 1% to 2% of people older than 65 years.[3] While often recognized by resting tremors, PD patients frequently exhibit other troubling symptomology such as rigidity, bradykinesia, postural instability, freezing of gait, and falls as well as nonmotor symptoms including sleep and mood disorders, pain, orthostatic hypotension, psychosis, and dementia that lead patients to become increasingly dependent on others.[4] These symptoms are associated with mortality, worsened QoL, nursing home placement, and caregiver distress.[3] In order to manage these complicated issues, a growing number of centers now apply PC to patients with PD by establishing multi-disciplinary clinics. [3] However, it is still unclear when PC should be introduced into the care of patients living with PD and whether these strategies are efficacious.

Importantly, studies have shown that there are racial and ethnic differences in end-of-life care perspectives where minorities are more likely to die in a hospital, have more intensive treatments at the end of life, and are less likely to participate in advance care planning (ACP) compared to white Americans.[5] Few studies have focused on these differences in the PD community specifically.

Our primary goals in this review are to discuss PD symptomology that could warrant PC referral, the demographics and cultural perspectives of PD patients regarding PC, the efficacy of PC strategies in the PD community, and possible management models.

Methods

Search strategy

Electronic searches were performed using Embase, PubMed, Cochrane Central Register of Controlled Trials (CCTR) and Cochrane Database of Systematic Reviews (CDSR) from their dates of inception to October 5, 2021. The literature involving all case reports and comparative studies were searched by using the MeSH term enquiry: “Parkinson’s disease”, “palliative”, “hospice”. The reference lists of all retrieved articles were reviewed for further identification of potentially relevant studies. All identified articles were then systematically assessed against the inclusion and exclusion criteria.

Selection criteria

The inclusion criteria used to screen all identified articles were 1) studies involving human subjects, 2) including patients with PD, and 3) reported on PC-related outcomes. All publications were limited to those in the English language. Abstracts, conference presentations, editorials, and expert opinions were excluded. Review articles were omitted because of potential publication bias and duplication of results. Only the most updated results from trials with the same sample were included in the review to avoid duplication of results.

Literature Review and Discussion

Literature Search

The search strategy identified a total of 235 studies as portrayed in Figure 1. After removing 29 duplicates, inclusion and exclusion criteria were applied to titles and abstracts of the 206 articles. This yielded 41 studies that underwent full-text analysis. After removing ongoing trials with pending results, abstracts, expert opinions, and review articles, 13 studies were included in this current review. These include five comparative studies, only two with PD patients exclusively, four qualitative interview-based articles, one case series, and three retrospective studies.

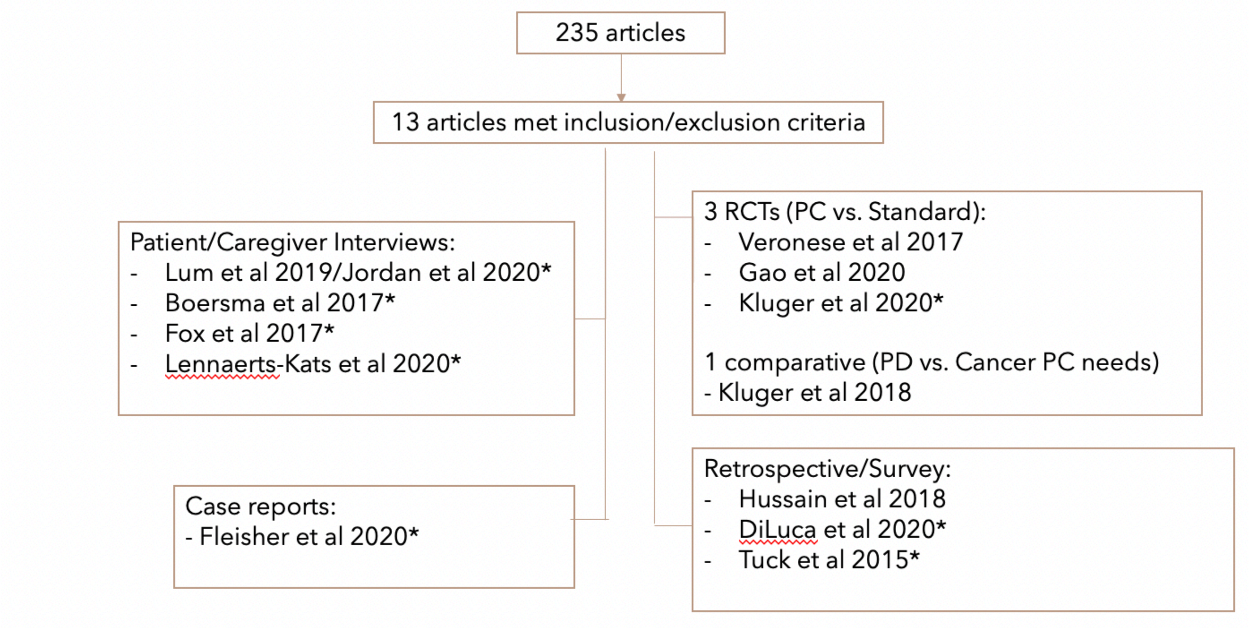

Figure 1: Search strategy results. *PD only sample

Demographics

There was a total of 399,946 patients across all studies, 398,874 with PDRD. Of the studies that reported demographic information, there were 218,176 male and 181,059 female. Average age was 70.4 years old and average disease duration was 10 years. Seven out of the thirteen studies reported ethnicity information. From these, 74% of patients, 327,432, were reportedly Caucasian/white. Five studies published information regarding years of education or highest degree completed, which consistently found patients and their caregivers completed at least high school and most had advanced degrees. Table 1 shows this information.

From our search, DiLuca et al was the only study that openly addressed demographic differences in access to PC.[6] Overall, they found that rate of PC consultation, in the inpatient/hospitalized setting, increased from 0.85% in 2007 to 4.49% in 2014. Hispanics, black, and white patients had similar rates of referral. Women were less likely to be referred to PC. Other factors associated with higher rate of referrals included private insurance when compared to Medicare and higher income.[6]

Study	*#Patients (PD)*	*#Caregivers*	*Male/Female*	*Ethnicity*	*Education (average or %)*	*Income*
Kluger 2018	*137 (90)*	*-*	*-*	*-*	*16.1 years*	*-*
Veronese 2017	*50 (16)*	*45*	*30/20*	*-*	*-*	*-*
Gao 2020	*350 (140)*	*229*	*178/172*	*91% Caucasian*	*58% above high school*	*-*
Kluger 2020	*210 (210)*	*175*	*135/75*	*91.9% Caucasian; 1.4% Hispanic; 1.9% Asian; 0.9% Black*	*66% Bachelor or higher degree*	*56% >$60,000*
Lum 2019/Jordan 2020	*30 (30)*	*30*	*11/23*	*90% Caucasian; 3.3% Black; 6.6% Asian; 0% Hispanic*	*93.3% Bachelor or higher degree*	*70% >50,000*
Boersma 2017	*-*	*15*	*2/9*	*-*	*16.8 years*	*45% >45,000*
Fox 2017	*19 (19)*	*12*	*-*	*-*	*-*	*-*
Lennaerts-Kats 2020	*-*	*10*	*2/8*	*-*	*-*	*-*
Fleisher 2020	*52 (52)*	*52*	*33/19*	*67.3% Caucasian; 13.5% Black; 13.5% Asian; 5.8% Hispanic (or no answer)*	*-*	*-*
Hussain 2018	*300 (51)*	*-*	*150/150*	*92% Caucasian; no further information*	*-*	*-*
DiLuca 2020	*397,963 (397,963)*	*-*	*217,479/180,484*	*82% White; 6% Black; 6% Hispanic; 5% other*	*-*	*-*
Tuck 2015	*267 (267)*	*-*	*156/99*	*95.3% White (inc. Hispanic); 0.4% Black; 0.8% Native American; 2.3% Asian*	*-*	*-*

Table 1: Demographic information provided by the original manuscripts.

PC Needs in PD

Seven out of the thirteen studies focused on the needs of patients and their caregivers throughout the disease course through semi-structured interviews, comparative, and retrospective means. All studies found that PD patients and their caregivers had high symptom burden and needed extra support. There was a strong, ongoing theme regarding concerns for the future and uncertainty, especially from the caregivers' perspective. [4,7–11]

Kluger et al investigated the PC needs of PD patients by administering QoL questionnaires (PDQ-39), global symptom burden (MSAS), and mood, grief, and spiritual well-being questionnaires (HADS) to 90 PD patients and comparing their responses to 47 advanced cancer patients', a group whose PC needs are well-established. Results showed that PD patients had similar or higher levels of PC needs as patients with advanced cancer. Specifically, they found that PC issues including high symptom burden, poor spiritual wellbeing, and grief were common across the disease spectrum and similar in prevalence and severity to patients with advanced cancer. They also found that 92% of PD patients reported a preference for ACP before or at the time of diagnosis and reported a preference for having these discussions with a physician.[4] Notably, there was no comment on ethnic background for either group except to say that there were no significant differences between them.

Tuck et al in 2015 sent surveys to PD patients to learn their preferences for discussing prognosis and end-of-life care. They received 267 completed surveys by patients. From these, 95.3% were reportedly white Caucasian or Hispanic patients. Results showed that 94% of patients wanted prognosis and treatment information early, 50% wanted to discuss advanced care documents early, 27% wanted early discussions regarding end-of-life planning, and 21% wanted early discussions about end-of-life care options such as hospice. Most patients believed the neurologist should ideally raise questions of life expectancy, ACP, and end-of-life care options. Importantly, though, two patients believed these issues should not be discussed at all. [8] It is not clear why patients made this selection; however, it is significant for future clinical practice to always incorporate a patient-centered approach, especially when discussing such sensitive topics.

Interviews with patients and caregivers demonstrated that most were unfamiliar with PC but once explained, felt they could benefit from such services.[7,8,11] Significantly, patients and caregivers were concerned about the future and its uncertainty. Most desired to have a comprehensive tool for planning such as a roadmap showing "rest stops" and "important milestones." [9] Examples of these included when to cease driving, have access to walkers/wheelchairs, professional caregivers, nursing homes, etc.[9] Two major concerns were financial stability and living situation throughout the disease course.[9,11] Most patients and caregivers felt that patient-centered PD care was very important as some patients did not want to discuss end-of-life care and preferred for their caregivers to handle these conversations.[9] They also felt cliched responses such as "everyone is different" were unhelpful and often left them comparing themselves to other individuals with PD rather than trusting their health care providers. [9,12]

In interviews with bereaved family members, Lennaerts-Kats et al found that loved ones felt as "professional caregivers" and often lacked time for themselves while dealing with grief and feelings of guilt during the caregiving period and after death. [12] These individuals also felt that proactive PC planning was important.[12]

Hussain et al studied what specific symptomology triggered PC referrals in the last 2 years of life in patients suffering from neurological conditions including a subset of PDRD patients from a retrospective review of 300 patient charts.[10] They found that deterioration of physical function, dysphagia, and significant complex symptoms and pain was the top reason for referral. Meanwhile, weight loss, respiratory symptoms, recurrent infections, and aspiration pneumonia were, in descending order, the remaining reasons for referral.[10] Of note, 92% of the patients in this study were reportedly Caucasian and there was no further information on ethnic background.

These studies highlight the prevalence of need and utility of PC throughout the disease course. Importantly, they provide a framework for an approach to optimizing PC in PD, as a graded and integrated process maturing from time of diagnosis to more advanced stages. Interviews with patients and caregivers alike, have also highlighted the importance of considering caregiver needs throughout the disease course. These individuals are often suffering from burn out as they become professional caregivers to their loved ones. An ideal evidence-based approach has not been defined and may not exist—rather an individualized approach to each patient and caregiver may be more appropriate, guided by an attentive patient-doctor relationship with regular assessment of needs and symptoms.

Significantly, most of the patients and caregivers included in these studies are white/Caucasian. Given the vast differences in cultural perspectives regarding end-of-life goals, these findings on PC needs in PD are not generalizable to the entire PD community. Interviews and studies on more diverse sample populations are needed to fully understand these patients' needs.

PC Approach vs. Standard of Care

Overall, there were four comparative studies investigating the difference between the PC approach to standard of care with a neurologist and primary care physician, two of which included PD patients exclusively. [1,3,13,14]

Veronese et al and Gao et al studied neuro-palliative care generally and included a subset of PD patients.[1,14] Veronese et al implemented a fast-track PC access with specialist services including a physician, nurse, neuropsychologist, and physiotherapist. Patients were seen weekly on average and discussed by the team bi-weekly. Results showed no changes in mortality between the PC and standard groups; however, there was significant improvement in QoL, pain, breathlessness, sleep disturbance, intestinal and urinary symptoms, and mouth discomfort in the PC group. [1] Similarly, Gao et al followed patients for 6-8 weeks with three contact points where patients and providers found increased symptom reduction and decrease in mean health and social care costs in the PC group, though not statistically significant. PC was perceived by patients and caregivers as "building resilience, attending to function and deficits, and enabling caregivers." [14]

To date, there is only one randomized controlled trial studying PC in a PD sample exclusively. Kluger et al found improved QoL as well as a statistically and clinically significant benefit in motor symptoms in the PC group. Participants in the PC group were also more likely to have ACD. There was no difference in health care use and no adverse events associated with PC intervention. Notably, participants in the standard of care group did not score better on any outcome measure compared to the PC group. [3]

Lum et al also compared PC with standard of care using semi-structured interviews and found that PC approach positively influenced ACP. Patients and caregivers thought PC approach often led to having a clear plan with tangible resources and guidance towards discussions and documentation, which ultimately gave them peace of mind. In standard care settings, some described lack of physician support for the ACP process, mixed messages about its necessity, and time constraints to discuss ACP in clinic visits. [13]

These studies highlight the benefits PC has on patients suffering from chronic, progressive neurological conditions including PD. Notably, these studies found no benefit to keeping participants in standard of care practices and no adverse effects to implementing PC including but not limited to unchanged mortality rates and health care costs. It should be emphasized that the standard of care in these studies included a neurologist and primary care provider, which is more comprehensive care than many patients with PD receive. Many uncomplicated PD patients are mostly followed by their primary care physician, only seeking specialist care at the time of diagnosis or when complications arise. The true difference in QoL, PD symptomology, and caregiver burden may be larger than is described in these studies.

It is important to highlight that similarly to the studies investigating PC needs in the PD community, these comparative studies mostly used a Caucasian/white sample population. Thus, it is difficult to determine whether these interventions will benefit patients of other cultural backgrounds equally.

Models of PC Approach

Most studies investigating PC approaches use an interdisciplinary clinic approach where the patient is followed by a neurologist, primary care physician, nurse, social worker, and/or chaplain as well as a palliative medicine specialist or neurologist with expertise in palliative medicine. Patients were followed for a range 6-weeks to one year depending on the study. In-person and telephonic visits were scheduled to identify problem lists based on the patient's, caregiver's, and family's concerns, create a care plan that the family and patient agreed with, and follow up to assess progress. However, while some studies would follow patients on a weekly or bi-weekly basis[14], others would follow up every 3 months, though patients could contact the team as needed.[3] Fleisher et al, however, designed a new model for home visits rather than doctor visits. Their model proposes four visits every four months for one year where a nurse, study coordinator, and social worker travel in person to the patient's home to perform an in-depth home safety assessment and medication reconciliation while a movement disorders specialist is available via telemedicine for all visits.[15] Their pilot study involving 52 patients and their caregivers is currently underway. However, results from two case reports published following this model demonstrated the benefit of medication reconciliation and home safety assessments not just in PD but in handling the patients' comorbidities. One of the patients decreased his falls by 80%, was able to walk more freely around his home, and participated in his grandchild's wedding which he previously did not believe to be possible. The second patient also experienced improved QoL after medication changes, resolution of hallucinations and pedal edema, as well as avoided falls. [15]

There are clear advantages and disadvantages to both models. Multidisciplinary clinics are more commonly used and rely on doctor visits. Multiple programs have adopted a model where patients see multiple physicians, social workers, and nurses throughout the day. While this is great for patient care as all issues are addressed at once, it might be difficult for patients or caregivers to take full days from work to attend a doctor's visit. Logistically, this model is also less favorable for busier practices, as there will be fewer patients seen daily. Offices where space may be limited would also be at a disadvantage. Furthermore, these visits may be costly for patients, especially those uninsured or underinsured, given the extra medical personnel necessary. Importantly, none of the studies report on the cost of these clinics given their continued experimental nature.

Home visits, on the other hand, are more accessible to patients, especially those with mobility issues or driving impediments. They also provide the added benefit of a thorough home assessments which is often useful in identifying potential hazards and assessing functionality within the patient's own environment. Medication reconciliations are also more efficient as patients have their medications readily available, rather than relying on their memory in the office. However, these visits would be less efficient for healthcare personnel as traveling to and from patients' homes is considered. Visits are also more time consuming as all medical personnel would be present for the full extent of the visit. Fleisher et al ameliorated this issue by creating telehealth visits with the movement disorders specialists, rather than visiting patients in their home. This option, overall, would most likely not be available to patients who live in remote areas. Additionally, while a price has not been assigned to these visits given their experimental status, one could potentially see the added expense of traveling and spending more time with healthcare staff. Table 2 provides a summary of the advantages and disadvantages of these two management models. Results on feasibility and funding from these home visits are still necessary.

	Home visits	**Multidisciplinary clinics**
Personnel	Nurse, study coordinator, social worker travel to home while movement disorder specialist hosts telemedicine visit.	Depends on the program, but usually a neurologist, nurse, neuropsychologist, physiotherapist, chaplain, and social worker.
Advantages	• Accessibility (mobility issues, remote areas) • Home assessments • Medication reconciliation	• Time efficiency • Doctor visit structure
Disadvantages	• Time consuming • Cost	• Accessibility • Space • Cost

Table 2: Summary table displaying differences between management models

Conclusion

The available evidence, including comparative studies as well as interviews, suggests that there is a great need for PC strategies in the PD community for both patients and caretakers. Importantly, evidence suggests integrated PC would be beneficial to the PD community, improving QoL and PD symptomology. However, more studies investigating quantitative effects of PC and ACP are still needed. Significantly, exploring the efficacy of these strategies in a more diverse population is imperative given cultural differences regarding these important topics. Finally, effectiveness and cost-efficiency of the different management models are necessary for clinical implementation.

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