Parkinson’s Disease
Mild Cognitive Impairment in Parkinson’s Disease
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Parkinson’s disease (PD) is one of the most prevalent neurological disorders in Australia, affecting one in every 350 people (Access Economics, 2011). Early research into PD focussed on the impact of motor symptoms on quality of life (Pagonabarraga, 2010). However, the lack of pharmaceutical treatments for non-motor symptoms (e.g., cognitive impairments) has led researchers to examine the epidemiology of mild cognitive impairments (MCI), to better understand their comorbid impact in PD (Mowszowski, Batchelor, & Naismith, 2010). MCI in PD are described as cognitive deficits that are not normal for age but do not impact on an individual’s functional independence (Litvan et al., 2011). Four subtypes of PD-MCI (memory single, memory multiple, non-memory single, and non-memory multiple) have been found across the five cognitive domains (e.g., memory, language, attention, executive functions, and visuospatial abilities; Litvan et al., 2011).

Older age, more severe PD, less years of formal education, late disease onset, apathy, and depression are associated with more rapid cognitive decline in people with PD (e.g., Dujardin, Sockeel, Dellaux, Destée, & Defebvre, 2009; Muslimović, Post, Speelman, & Schmand, 2005). Research has found that people with PD-MCI will progress to PD-Dementia at a rate four times the normal population (Williams-Gray et al., 2009). Irrespective of the high conversion rate, there is limited research into those PD-MCI subtypes which predict PD-Dementia (Barone et al., 2011). Research suggests that visuospatial impairment and presence of visual hallucinations are associated with a more rapid rate of cognitive decline (Ramirez-Ruiz, Junque, Martí, Valdeoriola, & Tolosa, 2007). After a one year follow-up, 45% of people with PD experiencing hallucinations had progressed to dementia and approximately 70% had cognitive impairments across multiple domains (Ramirez-Ruiz et al., 2007). Studies have also found impaired executive functions, verbal fluency, and language abilities as predictors of PD-Dementia (e.g., Hobson, Meara, & Evans, 2013; Janvin et al., 2005). Conversely, Muslimovic et al. (2007) found a slower rate of decline in visuoconstructive abilities and memory, suggesting these domains are less predictive of PD-Dementia. It is estimated that up to 80% of people with PD are affected by dementia (Aarsland et al., 2005).

PD-MCI is heterogeneous and impacts activities of daily living and quality of life (Muslimovic et al., 2007, Litvan et a., 2012). Many people with PD-MCI demonstrate different patterns of cognitive impairments (Muslimovic et al., 2007). Changes in cognitive functioning are subtle and the first impaired domain may dictate the course of cognitive impairment (Muslimovic et al., 2007). Preliminary studies have found an association between cognitive impairments and poorer activities of daily living and quality of life for people with PD-MCI (Klepac et al., 2008; Rosenthal et al., 2010). However, more research is necessary to better understand the complex impact cognitive impairments in people with PD-MCI. If researchers are able to identify which subtypes of PD-MCI will most likely progress to PD-Dementia, they may be able to target cognitive training and brain stimulation interventions to slow the progression of cognitive decline in people presenting with those subtypes. This will help reduce difficulties of daily living and improve quality of life for people with PD.
References


