

A Short Commentary on the Racial Disparities in Parkinson's Disease

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Short Commentary

The etiology of Parkinson Disease (PD) remains elusive, but may include environmental and genetic factors leading to neuronal degeneration [1]. The difference in incidence of PD among different racial groups may provide additional insight into the etiology. In 2004, McInerney-Leo et al. reviewed twenty studies analyzing the prevalence and incidence of PD among Caucasians, African-Americans in the United States and African populations [2]. The differences in prevalence of Parkinson's disease and Parkinsonism could not be demonstrated because of poor designs and numerous biases, such as referral bias and differences in access to healthcare. Therefore, they were unable to determine the effect of race in PD. Yet, studies continue to suggest that there is a significantly higher prevalence of PD among Caucasians compared to other racial groups [3].

We completed a literature review of studies that analyzed the impact of racial disparities in diagnosis and treatment of PD [3]. A search was performed in PubMed and Medline from 2004 to 2016, for articles about racial disparities and Parkinson's disease. The time-frame covered articles published after the McInerney-Leo et al. review.

There were twelve studies that analyzed prevalence, incidence and perception of Parkinson's disease among several races, but mostly comparing African-Americans and Caucasians. Six of the twelve studies included Hispanic or Latino, Asian, and Native American populations [3]. Some studies also focused on disparities in treatment and patient care [3].

All of the studies, whether using data from tertiary centers, databases or death certificates, concluded that the prevalence and incidence of PD was higher in Caucasians than in African-Americans. Studies using information from databases, such as United States Medicare recipients, Pennsylvania Medicaid claims or the Veterans Administration were able to obtain accurate prevalence due to their large sample size, compared with studies at tertiary movement disorders centers. For example, Willis' study of the US Medicare Database included 450,000 PD cases per year [4]. There was only one study that used death certificates to understand the prevalence of PD, which highlighted socioeconomic bias in reporting Parkinson's disease at death [5].

Several of the studies observed treatment disparities in PD treatment among African-Americans compared to Caucasians [6-8]. The lack of treatment for PD can lead to increased morbidity, decreased quality of life and cause more rapid progression to disability [8]. After controlling for demographics, age, sex, geography and initial visit with a neurologist, about only one third of African-Americans with PD were started on any therapy, including physical therapy. While authors were unable to determine the cause of the treatment disparities, the findings raised the possibility of problems with the quality of provider communication [8]. African-Americans were also less likely to receive Deep Brain Stimulation treatment for refractory PD despite being at a tertiary center with a comprehensive neurology and neurosurgery team [6]. There were limitations with these studies as they were retrospective, and based on Medicaid claims, ICD-9 charts and national database.

Differences in PD prevalence can also be caused by patients' own perception of disease and expectation of aging, affecting decision to

seek care. There was one mixed-methods study that analyzed the knowledge and attitude about Parkinson's disease among older adults [9]. Barriers to PD care included level of knowledge, lack of trust in the healthcare system, language problems and attitudes about PD, such as underreporting [10].

Hospital and out-patient based studies are not ideal study designs to provide effective analysis of PD incidence or prevalence given confounders, such as socioeconomic status, cultural factors, and selection of the population being referred to a specialized center [11]. Further studies are needed, and should include a long-term community based prospective design. This type of design would improve the overall biases found in retrospective studies, and better assess if there is delay in diagnosis, or under-diagnosis of Parkinson's disease. This type of study has yet to be performed. So far we are still unable to determine a clear cause for the observed racial differences in diagnosis and treatment of Parkinson's disease.

The limitations of our review article included a lack of studies analyzing incidence, which may provide a direct link between race and risk of PD. There were a few articles that discussed incidence within their cross-sectional study design, but none of the studies included a prospective cohort design [4,12]. The article did not fully address demographic variables that may also indirectly link race to risk of PD, such as rural areas compared to urban areas.

All the above studies revealed racial differences in the diagnosis and treatment of PD that were not explained by location of care, insurance, income, healthcare utilization, clinical factors, age, sex, geography or initial visit with a neurologist. Many of the studies concluded that the differences were explained by racial disparities, defined as partiality or inequity. The types of disparities included patient's knowledge, as well as expectation of the disease process, diagnosis with underreporting and treatment from physical therapy, PD medications and deep brain stimulation. Additional studies evaluating genetic factors or biological factors, such as a population-based study are needed to further understand PD prevalence.

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