Perspectives and a Systematic Scoping Review on Longitudinal Profiles of Posterior Cortical Atrophy Syndrome

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Posterior Cortical Atrophy (PCA) is a rare and devastating syndrome that occurs most commonly in Alzheimer's patients. It is considered to be an atypical variant of Alzheimer's Disease (AD) due to the relative preservation of memory at onset. PCA is characterized by alexia, apraxia, homonymous hemianopia and visual disturbances, and brain volume atrophy in posterior regions including the occipital, temporal, and parietal lobes. All patients eventually progress to severe dementia. The etiology of PCA is poorly understood, and much like AD, treatment is based on managing symptoms. PCA patients are often disqualified from Alzheimer's clinical trials due to their unique presentation. PCA was first described in the literature in 1988 and the clinical course of the disease is not well described. PCA is suspected to be highly underdiagnosed. Of 6 million AD patients in the US, it is estimated that 5% of AD patients (300,000) have PCA. Since often PCA manifests with visual problems before major dementia symptoms, patients will be seen by ophthalmologists or optometrists, prolonging time to diagnosis. The aim of this review is to provide perspectives on the importance of understanding longitudinal profiles of PCA and report results of a scoping review to identify data and knowledge gaps related to PCA survival and longitudinal clinical and biomarker outcomes.

This study is a retrospective literature review of longitudinal clinical date of patients with PCA. PubMed databases were searched from 1976 to 2022 using the terms (longitudinal or natural history or follow-up) and (posterior cortical atrophy). 268 records were identified, 149 were related to PCA and were subsequently assessed for eligibility. Reports were excluded if they had no PCA participants, had less than two cases, were not longitudinal, or were not research studies.

Thirteen longitudinal studies were identified; all but two had fewer than 30 participants with PCA. Relatively few longitudinal data exist, particularly for survival. In PCA, posterior cortical dysfunction and atrophy progress at faster rates compared to non-posterior regions, potentially up to a decade after symptom onset. Unlike typical AD, PCA phenotype-defined cognitive dysfunction and atrophy remain relatively more severe compared to other regions throughout the PCA course. Select cognitive tests hold promise as PCA outcome measures and for staging. Further longitudinal investigations are critically needed to enable PCA inclusion in treatment trials and to provide appropriate care to patients and enhance our understanding of the pathophysiology of dementing diseases.