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Pseudobulbar affect in neurodegenerative diseases: A systematic review and meta-analysis

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Abstract

Background: Pseudobulbar affect (PBA) is characterized by uncontrolled episodes of crying and laughing which is associated with a variety of neurological diseases including traumatic brain injury, multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS), brain tumors, stroke, Parkinson's disease (PD), Alzheimer's disease (AD) and other dementias. However, there is a lack of exact estimated prevalence of PBA among neurological disorders.

Aim: In this systematic review and meta-analysis study we aimed to assess the prevalence of PBA in four neurodegenerative diseases including ALS, MS, AD, and PD.

Methods: PubMed, Scopus, and Web of Science were searched in July 2021 for studies that reported the prevalence of PBA in ALS, MS, AD, and PD patients. The mean point of PBA prevalence and odds ratios were calculated as effect size (ES) using the random-effect model with a 95% confidence interval (CI).

Results: The summarized prevalence of PBA was of PBA in PD patients were ranged between 1% and 31% with an overall meta-analysis prevalence of 16.5% and high heterogeneity (I^2: 98.7%, p: 0.000). Patients with ALS showed a PBA prevalence of 38.5%, which is higher than other neurodegenerative diseases (CI 95%: 31%-45%, I^2: 61.4%, p: 0.034). Moreover, the prevalence of PBA in MS patients in the analysis was 23.3% ranging between 11% and 35% with high-level heterogeneity according to the I^2 value (I^2: 98.9%, p: 0.000). Also, our meta-analysis showed that the PBA prevalence in AD was 16.4% (CI 95%: 7%-25%) with high heterogeneity (I^2: 97.8%, p: 0.000).

Conclusion: This review showed that PBA is common in patients with neurodegenerative diseases including PD, AD, MS, and especially ALS. Due to the lack of proper recognition, medication and treatment would not be effective and sufficient. Therefore, it can dramatically lower the quality of life in PBA patients and decrease their social interactions.

Keywords: Alzheimer's disease; Amyotrophic lateral sclerosis; Multiple sclerosis; Neurodegenerative disease; Parkinson's disease; Pseudobulbar affect.

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