

315 - Prevalence and clinical associations of tau in Lewy body dementias: a systematic review and meta-analysis

Kai Sin Chin; Nawaf Yassi; Leonid Churilov; Colin L Masters; Rosie Watson

Background: Neurofibrillary tangles (NFT) formed by tau proteins, a pathological hallmark of Alzheimer's disease, are a common co-pathology in people with Lewy body dementias, which include dementia with Lewy bodies (DLB) and Parkinson's disease dementia (PDD).

Aims: To investigate the prevalence of tau in Lewy body dementia, and its association with clinical outcomes.

Methods: A systematic search was conducted on Medline, Embase and PubMed using the search term: ("dementia with Lewy bodies" OR "diffuse Lewy body disease") AND ("tau protein" OR "tauopathy" OR "neurofibrillary tangle"). A total of 42 articles met the inclusion criteria for data extraction. Random-effect meta-analyses were performed to obtain pooled estimates for prevalence, and risk ratios (RR) or standardised mean difference (SMD) for clinical outcomes measures.

Results: Braak NFT stage \geq III was observed in 67% (n=1399, 95%CI 59%-76%) of DLB and 52% (n=429, 95%CI 26%-78%) of PDD at autopsy. Abnormal CSF phosphorylated-tau levels were present in 27% (n=705, 95%CI 23%-30%) of DLB and 15% (n=172, 95%CI 5%-24%) of PDD cases. Higher tau burden in DLB was associated with reduced likelihood of manifesting visual hallucinations (RR 0.56; 95%CI 0.40-0.77) and motor parkinsonism (RR 0.62; 95%CI 0.40-0.98), lower diagnostic accuracy of DLB during life (RR 0.49; 95%CI 0.38-0.64) and worse cognition prior to death (SMD 0.60; 95%CI 0.44-0.76).

Conclusions: Tau is more common in DLB than PDD and may negatively impact clinical diagnostic accuracy in people with DLB. Prospective longitudinal studies are needed to understand the roles of co-morbid neuropathologies in Lewy body dementias.