

Halle Quang

Apathy, empathy and depression in behavioural-variant frontotemporal dementia and Alzheimer's disease: Are we talking about the same thing?

State of the art: Apathy and reduced empathy are core features of behavioural-variant frontotemporal dementia (bvFTD) and can also be observed in Alzheimer's disease (AD). Depression is also commonly reported in these syndromes. Recent work has proposed a multidimensional framework of apathy which includes executive, emotional and initiation aspects. These aspects can manifest as symptoms resembling empathy loss and/or depression. The extent to which these symptoms represent similar/divergent clinical dimensions, and their underpinning neural networks, remains unclear. Here, we investigated the interrelations between apathy, empathy loss and depression, and its white matter correlates, in bvFTD and AD.

Methodology: Fifty-one bvFTD and 34 AD patients participated in the study. Items of the Dimensional Apathy Scale, Interpersonal Reactivity Index and Depression Anxiety Stress-Depression Subscale were examined using Principal Component Analysis. White matter integrity and its associations with clinical factors were measured via changes in fibre density and cross-section using fixel-based analysis.

Results: Items loaded into three factors: factor 1 (emotional apathy and empathy), factor 2 (executive and initiation apathy) and factor 3 (depression). Factor 1 and factor 2 were associated with reduced white matter bundle density and cross-section in fibres connecting the right frontal lobe and subcortical structures, whereas factor 3 was associated with distributed white matter reductions in the left hemisphere.

Conclusion: This study demonstrates that while clinically apathy, empathy loss and depression share some features, they can be parsed into distinct clinical and neurobiological constructs. Improved conceptualisation of these symptoms will be important for the development of personalised symptom-specific therapies.

