Profiles of apathy in frontotemporal dementia and Alzheimer’s disease: Applying the ABC Model

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1. INTRODUCTION

Apathy is the most prevalent and disabling non-cognitive symptom of dementia and affects 90% of patients across the disease course. Despite its pervasiveness, how apathy manifests across dementia syndromes and the neurobiological mechanisms driving these symptoms are poorly understood.

Fig 1. The ABC model of apathy (Levy & Dubois, 2006, Cerebral Cortex)

2. AIMS

Here, we applied the ABC multidimensional model of apathy (Levy & Dubois, 2006) (Fig 1), which recognizes the Affective, Behavioural and Cognitive bases underpinning apathy, each with distinct mechanisms and proposed neural bases.

3. PARTICIPANTS

69 behavioural-variant frontotemporal dementia (bvFTD), 53 Alzheimer’s disease (AD) patients and 28 controls were included.

All patients were assessed by a behavioural neurolinguist, had an MRI brain scan and neuropsychological assessment.

4. MEASURES

Informants completed the Neuropsychiatric Inventory (NPI), Cambridge Behavioural Interview (CBI) and Disability and Dementia Scale (DAD), and affective, behavioural and cognitive apathy symptoms were quantified.

5. RESULTS

Fig 2. On the NPI, patients with bvFTD showed more frequent and more severe apathy than patients with AD.

Fig 3. Examination of profiles showed that bvFTD patients had higher affective and cognitive apathy. In AD, cognitive apathy was greatest.

Fig 4. Voxel-based morphometry analyses showed that affective apathy was associated with integrity of the orbitomedial PFC; behavioural apathy with the frontal pole and middle frontal gyrus and cognitive apathy with the anterior cingulate and bilateral temporal regions.

6. CONCLUSIONS

Our results support the notion that apathy is multidimensional and manifests differently across dementia syndromes. Thus, novel interventions which target these divergent mechanisms will be necessary to improve motivation and goal-directed behaviour in people with dementia.

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