

Delineation of Striato-Cortical contributions to Behavioral symptoms in Frontotemporal Dementia

<https://www.neurodegenerationresearch.eu/survey/delineation-of-striato-cortical-contributions-to-behavioral-symptoms-in-frontotemporal-dementia/>

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Institution

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Delineation of Striato-Cortical contributions to Behavioral symptoms in Frontotemporal Dementia

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Research Abstract

Second to Alzheimer's disease (AD) in prevalence, frontotemporal dementia (FTD) is a neurodegenerative condition resulting from the progressive deterioration of the frontal and temporal lobes of the brain. Cognitive and behavioural impairments are the most early and prevalent characteristic of FTD. In numerous studies, these disturbances have been related to cortical atrophy, but recent findings suggest an early involvement of subcortical dysfunctions. Among these subcortical structures, it has been suggested that striatal atrophy is an early feature of FTD. The striatum has important structural and functional connections with frontal, temporal and insula regions, which have been all implicated in the generation of behavioural symptoms. Still, at this stage it is not clear how either cortical or striatal brain regions or their interaction generate these symptoms.

In this project, we propose to characterize and contrast the integrity of the striatal subregions (nucleus accumbens, caudate nucleus, putamen) in FTD, AD and Parkinson's disease (PD), which have respectively more cortical or striatal dysfunction, and in healthy aged controls. In addition, we will employ state-of-the-art structural and functional neuroimaging to delineate striatal and cortical contributions to behaviour in FTD and controls. Finally, we will develop novel tasks assessing the functions supported by striatal structures specifically. These tests will allow a clinical delineation of cortical and striatal degeneration at diagnosis.

The results will lead to a better characterization of behavioural dysfunctions in neurodegeneration and in FTD particularly. This project will inform future diagnostic guidelines and disease modifying therapies in FTD. Also, in exploring the behavioural disturbances due to striatal subregions dysfunctions, these findings will provide an insight into the functions of the striatum and will help to understand the normal functioning of this critical cerebral structure.

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