Defining diseases and tracking progression in frontotemporal lobar degeneration

https://neurodegenerationresearch.eu/survey/title-of-pidefining-diseases-and-tracking-progression-in-frontotemporal-lobar-degeneration/

Title of project or programme

Title of PI Defining diseases and tracking progression in frontotemporal lobar degeneration

Principal Investigators of project/programme grant

Title	Forname	Surname	Institution	Country
Professor	Nick	Fox	University College London	UK

Address of institution of lead PI

Institution	University College London
Street Address	Institute of Neurology, 12 Queen Square
City	London
Postcode	WC1N 3BG

Country

- United Kingdom

Source of funding information

Medical Research Council

Total sum awarded (Euro)

1662059.89

Start date of award

01-07-2009

Total duration of award in months

60

The project/programme is most relevant to

- Alzheimer’s disease and other dementias

Keywords

Research abstract in English

Frontotemporal lobar degeneration (FTLD) is a heterogeneous group of neurodegenerative diseases that collectively constitute a common cause of young onset dementia and a substantial source of human, clinical and socio-economic hardship. If disease-modifying therapy for FTLD is to be realised, robust biomarkers of disease onset and progression and accurate diagnosis and stratification of FTLD

subtypes informed by emerging information about disease mechanisms will be required. Here we propose a comprehensive 5 year longitudinal programme of research designed to identify and validate biomarkers of disease onset and progression in FTLD and its subtypes, and to assess their translational potential to other health care delivery and clinical trials settings. The specific aims of the programme are to assess biomarkers of earliest disease manifestation through the study of at-risk individuals; to assess biomarkers of disease progression; to classify diseases and disease subtypes; and to evaluate novel techniques and disease mechanisms. To address these aims we will recruit from an established large longitudinal cohort of FTLD patients, and in particular, presymptomatic and ‘at risk’ individuals from a number of genetic FTLD pedigrees, allowing detection and tracking of earliest disease manifestations. We will draw on a successful track record of developing and applying innovative and translatable image analysis techniques and novel neuropsychological instruments to define and track neurodegenerative diseases. The programme will capitalise on established collaborations with partner laboratories in image computing, tractography, functional brain imaging, neurogenetics and neuropathology. Subjects entering the study will be assessed prospectively and longitudinally with detailed clinical evaluation, neuropsychology, structural and functional MRI, and post mortem data on patients with FTLD whom we have followed historically will be correlated retrospectively with candidate biomarkers to assess their predictive and neurobiological validity. A suite of techniques will be used to analyse behavioural and imaging data, including linear and nonlinear registration, tractography, cortical thickness and unbiased voxel-based pattern recognition and morphometric techniques, with particular emphasis on techniques with diagnostic and translational potential. Mixed linear models and multivariate statistical techniques will be applied to the identification and evaluation of candidate biomarkers. The programme will yield robust, generalisable and novel biomarkers of disease onset, evolution and classification in FTLD, and offers significant follow-on opportunities for guiding clinical trial design and shaping health care delivery in young onset dementia.

Lay summary
In which category does this research fall?

- Clinical research