Understanding how biological markers can help to diagnose and monitor Alzheimer's disease

Lead applicant: Dr Petroula Proitsi
Institution: Institute of Psychiatry, King's College London
Grant type: Fellowship
Amount awarded: £199,777
Duration: 3 years

Scientific title: Understanding how transcriptomic, genomic and proteomic variation is associated with metabolic changes in Alzheimer's disease

Why did we fund this project? Comments from our Research Network:

'...precise and reliable bio markers would make a huge difference to patients and carers.'

'A potentially powerful study which could impact on the future diagnosis and treatment of people with AD.'

'An energetic and exciting proposal - achievable'

What do we already know?

A lack of understanding of the biological changes that occur during Alzheimer's disease means that there are no definitive diagnostic procedures and tracking the progression of the disease in individuals is not as easy and accurate as it could be.

Biomarkers are biological signals that can be easily measured and can be used as indicators of disease presence and stage. We are beginning to understand more about the changes in biomarkers within the blood and spinal fluid during Alzheimer's disease - specific changes that can be measured within these and can accurately identify Alzheimer's disease would be extremely useful tools to help to monitor a person's dementia status throughout their journey with Alzheimer's disease.

How will this be done?

Dr Proitsi will analyse blood samples from participants to see if any differences between people with Alzheimer's disease, people with Mild Cognitive Impairment and people without the disease, can be identified reliably.

This will involve analysing the presence and levels of a range of proteins and the presence of certain markers of certain processes (these markers will be present as a result of certain biological processes within the brain). The DNA of participants will also be analysed to identify any links between certain forms of genes and the different production of any of these proteins or markers. Brain scans of all of these participants will also be done.

All of this information will then be analysed together to create a picture of factors that are changed during Alzheimer's disease and how they relate to each other.

How will this benefit people with dementia?

Understanding what changes occur in the brain, and which signals then appear in the blood, is key to increasing our understanding of the development of Alzheimer's disease, which will help in the search for new treatments, in addition to helping to diagnose people earlier and more accurately.

Being able to diagnose Alzheimer's disease earlier and accurately will help many people with dementia to gain and accurate diagnosis. This will allow them to gain access to treatments, support and services that will help them to live well with dementia.

Knowledge about markers of processes within the blood will also help to develop ways to track the disease process within individuals and so offer more tailored support.

Alzheimer's Society National Dementia Helpline

England, Wales and Northern Ireland: 0300 222 11 22

9.00am-5.00pm Monday-Friday

10.00am-4.00pm Saturday-Sunday

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