

Research newsletter

Quality Research in Dementia

November 2011
Issue 112

New project grants | Research to better understand vascular dementia



Notes from the editor

Jess Smith, Research Communications Officer



Alzheimer's Society is pleased to announce the titles of five new research project grants that we will be funding. Two of these five projects will investigate potential causes and effects of vascular dementia, strengthening our

portfolio in this under-researched type of dementia.

We have also committed to extending the funding of an existing vascular dementia project for 18 months. Dr Pat Kehoe's project based at the University of Bristol is developing a new system to define and diagnose vascular dementia. Further information about this project, including progress made in the first 18 months, is presented on page 6.

We are thrilled to share the news that two of our Research Network volunteers have won an

Alzheimer's Society William Brooks award, which recognises volunteering commitment and excellence. The awards were presented to our volunteers by Alzheimer's Society's Royal Patron HRH Princess Alexandra at an afternoon tea at Buckingham Palace.

William Brooks awards 2011 - Research Network volunteers recognised

On 2 November Alzheimer's Society recognised the outstanding contributions of two Research Network volunteers at a reception at Buckingham Palace. Lynne Ramsay and Angela Clayton-Turner, both from Kent, received the William Brooks Award for volunteering, which is awarded annually to 10 Alzheimer's Society volunteers for their contribution to the Society and to people affected by dementia. Angela and Lynne received an engraved plaque from Alzheimer's Society supporter Sir Michael Parkinson during a lunch at the Royal Society before being entertained at the palace by Society Royal Patron HRH Princess Alexandra, where they both received a framed certificate.

Angela has been one of the most reliable and dedicated volunteers in the Research



Lynne Ramsay and her daughter, Michelle, at the awards ceremony.

Network for the past 12 years. She supports the Society in a number of roles but it is within the Research Network that she has really excelled. As well as being the star of our recent Research videos, she has spoken at international conferences, joined a specialist European research ethics group and assumed the role of interim Area Co-ordinator for the Central West region.

Lynne was a founding member of the Research Network when it was set up in 1999 and has turned her difficult experiences of caring for her late husband into something positive. Like Angela, Lynne is an outstanding advocate for dementia research and Alzheimer's Society and has spoken at a large number of high profile events, including the call to action on antipsychotics. Lynne has also been involved in a great variety of external research projects and was the lay representative on a sub-group of the Ministerial Advisory Group on Dementia Research that focused on setting research priorities.

Research in the press



An overview of research stories that have made the national press in the last month and how Alzheimer's Society commented on them.

A story emerged this month claiming that a compound present in coconut oil, ketone, helps to prevent deterioration in people with dementia and can even reverse symptoms. This claim was not based on a research paper but has arisen as a result of anecdotes from people who say they have found benefits from including ketone-rich coconut oil in their diets.

Dr Anne Corbett, Research Communications Manager,

cautioned, 'It would be great to be able to say that snacking on coconut macaroons or sipping on pina coladas could stave off symptoms of dementia. However, the truth is we don't yet have any scientific evidence to back up claims that coconut oil could have benefits for people with the condition.'

Current research suggests the best way to reduce your risk of dementia is to eat a balanced diet, exercise regularly, not smoke and get your blood pressure and cholesterol checked regularly.'

Research in France found that people who rate their own health as fair or poor, as opposed to good, are more likely to develop dementia. The study followed people aged over 65 for seven years after asking them to report on their general health. It found that a rating of poor health increased the risk of developing dementia by 70 per cent, while a rating of only fair health at the start of the study raised the chances by 34 per cent.

Dr Corbett commented, 'As this study shows, keeping in tip-top health will not only have short-term gain but could significantly

reduce our risk of dementia. It is therefore important that people manage any medical conditions they have, maintain a healthy lifestyle and have regular check ups with their GP.'

However, although we have established the link between poor health and dementia, we do not yet have the scientific know-how to say for certain who will go on to develop dementia.'

A drug called Gantenerumab that is being developed to target Alzheimer's disease has reached the next stage of testing. It is the first drug of its kind to be tested in people who have not yet experienced symptoms of dementia. Biomarkers, such as brain scans and blood tests, will be used to identify people who show signs of developing dementia and the drug will be tested on them.

Dr Corbett said, 'Finding a treatment that could be used in the very early stages of dementia would be life changing for people who are developing the condition. However this is a very preliminary trial so it will be years before we know if the treatment could be effective.'

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On the cover

Research Network volunteer, Angela Clayton-Turner, receives her William Brooks award, with HRH Princess Alexandra and Sir Michael Parkinson.

Research update: Newly funded project grants

Alzheimer's Society Research has recently awarded five new research project grants, and an extension of a further project (see page 6 for a summary of this extended project). Research investigating vascular dementia is a priority for Alzheimer's Society, and so it is extremely important that two of these projects, and the project with extended funding, are focusing on vascular changes relating to dementia. These projects represent an increased investment of £1.3 million in vascular dementia research.

Investigating the causes of white matter damage and its link to dementia

Dr Atticus Hainsworth, St George's, University of London

White matter makes up the connections between different brain cells, helping signals to move quickly throughout the brain and connecting different brain areas for complex processing. It is thought that blood vessels may become

'leaky' with age, allowing blood and other proteins into the brain. White matter may be sensitive to this leakiness and become damaged, resulting in poor brain cell communication and leading to dementia.

Dr Hainsworth's research group will use donated human brain tissue to investigate whether these leaky blood vessels are a cause of white matter damage. If so, future treatments could target blood vessels to prevent the damage from occurring.

Testing the effect of the diabetes drug Liraglutide in Alzheimer's disease

Dr Paul Edison, Imperial College London

A protein associated with the development of type 2 diabetes has been shown to reduce the formation of the amyloid protein (a hallmark of Alzheimer's disease), and to protect nerve cells from damage by amyloid. The drug Liraglutide is currently used to

treat type 2 diabetes and is similar to this protective protein. In this study, people with Alzheimer's disease will be treated with Liraglutide to see whether the drug reduces inflammation and nerve cell damage in the brain, and reduces markers of Alzheimer's disease in spinal fluid.

This study will provide information about how Liraglutide may work in the brain and about the safety of the drug in people with Alzheimer's disease. This research could be an important step in the development of a new treatment for Alzheimer's

How can we change stem cells into brain cells?

Dr Virginie Sottile, University of Nottingham

Stem cells have the potential to develop into many different types of cell and can be obtained fairly easily from bone marrow. This project will investigate how genes can be

'switched on' in stem cells to make them develop into nerve cells, a type of brain cell. The team will use previous research from this lab that discovered how the process occurs in mouse stem

cells. It is hoped that if the process can be understood in human stem cells, this will provide valuable information for the use of stem cells in the repair of the brain.

Long-term reduction in blood flow — a cause of vascular dementia and Alzheimer's disease?

Dr Karen Horsburgh, University of Edinburgh

This project aims to find out more about the ways in which a long-term reduction in blood flow can affect the blood vessels in the brain and lead to the development of vascular dementia and Alzheimer's disease. The researchers will use

a model of blood flow reduction in mice to look at the changes in blood vessels and in the levels of proteins within the brain in response to the reduction in blood flow.

It is hoped that this research will help us to understand how long-term small reductions in blood flow can cause changes in the brain that can lead to dementia, with a view to preventing these changes in the future.

Chronic stress as a risk factor for Alzheimer's disease

Professor Clive Holmes, University of Southampton

A lot is known about the impact of chronic stress on the development or worsening of a range of diseases, but stress has never been investigated as a potential factor in the

progression from Mild Cognitive Impairment (MCI) to Alzheimer's disease. About 60 per cent of people with MCI go on to develop Alzheimer's disease. This study will use questionnaires and markers in

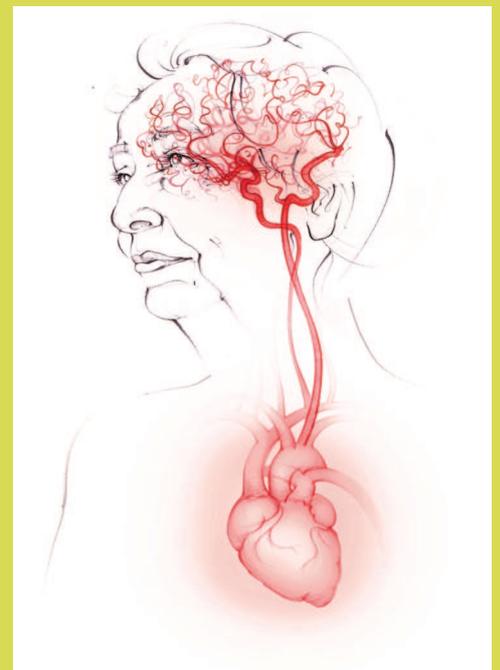
blood and saliva to measure the effect that stress can have in the progression from MCI to Alzheimer's disease.

Jargon buster: Vascular dementia

Vascular dementia is the second largest cause of dementia in the UK. It is caused by problems with blood supply to the brain, for example due to a blockage in a blood vessel. Vascular dementia is often linked to stroke, or series of mini-strokes, or vascular disease that results in the long-term reduction of blood supply to the brain. Brain cells need a good blood supply to survive. When blood supply is cut off, cells start to die. This can lead to the symptoms of dementia.

One in three people who have a stroke will go on to develop vascular dementia. Unlike Alzheimer's disease, people with vascular dementia usually experience sudden declines in symptoms, followed by a period of no change.

There is increasing evidence that what is good for the heart is good for the head. A healthy diet and regular exercise, normal blood pressure and normal cholesterol levels can help to maintain a healthy cardiovascular system and may help to prevent strokes and the development of vascular dementia.



Developing a new way to diagnose and classify vascular dementia

Dr Olivia Skrobot

Dr Olivia Skrobot is a post-doctoral researcher working on the project grant awarded to Dr Patrick Kehoe at the University of Bristol, which has recently been given extended funding by Alzheimer's Society for a further 18 months. The project aims to develop a new system to define and diagnose vascular dementia.

Vascular dementia is the second most common form of dementia after Alzheimer's disease. It actually comprises a group of related conditions that have a detrimental impact on people, their relatives and society and there is urgent need for a better understanding of the causes and possible treatments. However, currently there is a very limited amount of necessary large-scale research to enable this. One of the largest obstacles to this is the existence of many different criteria currently used to select and group people who are included in studies. When different selection criteria are used by researchers, it makes it difficult to combine or compare the research findings. The aim of our study is to try to bring researchers and clinicians to agreement on a single set of criteria and terms that will be used in research and diagnosis.

Our study is called the Vascular Impairment of Cognition Classification Consensus Study, which we abbreviate to 'VICCCS'. As we want VICCCS to result in a criterion that will be universally accepted and used by the international community, we have tried to identify and invite as

many researchers and clinicians from around the world as possible to participate. The study involves surveying our international participants using a series of online questionnaires. It has been running since the start of this year and has completed four rounds of surveys.

The initial questions we asked identified which criteria are currently used by researchers and clinicians in the field, the positive and negative elements of these criteria, and if there is currently an existing criterion that is already suitable for more universal use. The results showed, as expected, that our participants currently use multiple criteria and do not think there is one existing criterion that can be used in its current form.

In response to this, we are now working towards creating a new version, based on a composite of positive elements from the more favoured existing criteria, voted for by our participants. Our participants have also agreed that the new criterion should be broadened to identify people with milder impairments due to vascular damage, as well as those who have vascular dementia. This broadening of the scope of the

new criteria will allow meaningful research into developing treatments that may delay or prevent possible progression to more severe symptoms or dementia. People who present a mixed contribution of vascular and other forms of dementia (eg Alzheimer's disease) will also be encapsulated and defined more clearly than before.

VICCCS has been well received by the research community and we have been invited to present our findings at two international conferences this summer. We hope this support will continue so that ultimately all researchers will use the VICCCS criterion, enabling large-scale combined efforts that will progress our knowledge of the causes and possible treatments for people with this debilitating group of conditions.

60 seconds with... Dr Pat Kehoe

Dr Patrick Kehoe is the holder of a project grant at the University of Bristol and supervises Dr Olivia Skrobot in working to define and diagnose vascular dementia.



What did you study at University?
For my first degree in Dublin I did a joint honours degree in pharmacology and genetics and I then specialised in genetics for my PhD in Cardiff.

What led you into dementia research and why?

When I was looking for PhDs, there were many on cancer-related research and few on dementia. Yet I was particularly drawn to one dementia project (in Cardiff) that sought to understand some of the catastrophic changes that were only just being uncovered at that time.

What research are you working on at the moment?

I am working on quite a wide array of things but they all fit largely under a banner of understanding mechanisms that cause and contribute to the development and progression of Alzheimer's disease, vascular dementia and to a lesser extent dementia with Lewy bodies. One of my areas of biggest focus is the interplay between risk factors for heart disease, mainly high blood pressure, and how this relates to the development of dementia in later life.

What has been your biggest research achievement / most exciting moment of your career so far?

In 1999, I discovered that a gene called ACE, which changes levels

of an enzyme (also called ACE) in the blood and is heavily involved in blood pressure regulation, was associated with an increased risk of Alzheimer's disease. ACE has since been found to degrade the damaging amyloid beta peptide that causes a lot of damage in Alzheimer's disease.

What do you feel will be the next big breakthrough in your field?

I may be biased here but I think having a better handle on the relationship between blood pressure and diabetes and the later development of dementia could be a major step forward in reducing rates of dementia. In the nearer future, I am hopeful that some vaccination studies underway will make progress to at least delay the progression of the disease and serve as a major step forward.

What is the best part of being a scientist?

That the research and findings of any one group in the world could potentially change the lives of so many for the better.

What is most misunderstood about dementia?

That people with dementia have nothing more to offer society.

What does Alzheimer's Society represent to you?

A front-line organisation fighting

for the welfare of people with dementia, and providing the necessary support that researchers need to tackle the disease head-on.

What is the best part of working with Alzheimer's Society?

They support research and listen to the needs of researchers, patients and carers and help them all achieve their aims through fundraising and important lobbying initiatives.

What is the most difficult part of being a research scientist?

The lack of funding that is available in the greater scheme of things. The dementia charities play a huge role and punch above their weight in terms of supporting research. Yet given the cost of dementia to society, the government and NHS budgets, it still is quite mind-blowing how little the investment is in dementia research to attempt to address its impact. While the last few years have seen a change for the better, there is still room for improvement.

Which fictional character would you like to be and why?

Indiana Jones – an academic who has fantastic adventures around lost secrets of the past.

Favourite brain function?

Imagination.

Which superhero would you be?

Superman – he can do everything super fast and I would get more done!

What did you want to be when you grew up?

Actually... a scientist!

The Research Network

People with dementia and their carers are integral to our grants programme. We believe that they make a unique and valuable contribution to our work. Their knowledge and passion ensures our research funding is allocated to projects that address the real needs and concerns of people with dementia and their carers.

Research Network volunteers:

- set our research priorities
- prioritise and comment on grant applications
- sit on grant selection panels
- monitor ongoing projects funded by Alzheimer's Society
- tell others about the results of research.

If you have been a carer for someone with dementia or you have dementia and are interested in joining the Research Network, please contact the Executive Administrative Officer and request an application form, or go online at alzheimers.org.uk/researchnetwork

If you are not a carer or a person with dementia, but you would like to learn more about our research and keep up to date, you are welcome to become a **Friend of Research**. Just fill in the form on the website (above) and you'll receive a monthly copy of the Research newsletter and information on all our research events.

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