The National Institute for Health Research
Biomedical Research Centre

Newsletter - Issue 2 – Summer 2008

Easy access to the Dementia Theme and Case Register

What is a Biomedical Research Centre?
Biomedical Research Centres were created by the Government as part of their strategy for research in the NHS with the focus being on finding new ways of preventing, diagnosing and treating ill-health by translating advances in biomedical research into benefits for patients.

These centres have been set up by the National Institute for Health Research (NIHR)

Our Biomedical Research Centre (BRC) is a partnership between the South London and Maudsley NHS Foundation Trust and the Institute of Psychiatry, King’s College London.

This is one of eleven Biomedical Research Centres being established nationally, and is the only specialist BRC in mental health.

What is our aim?
The aim of our NIHR Biomedical Research Centre is to translate basic biomedical research into clear improvements in health for people with mental health and related problems.

We hope that this will mean that patients benefit more quickly from advances in research.

What will we be doing?
We will bring together researchers and clinical staff within several different themes in order to develop research plans.

Within the dementia theme we will be focusing on different types of dementia and this newsletter contains several examples to explain more about the dementia theme.

The main aims of the dementia theme will be:

1. To identify biomarkers (features like brain changes or the presence of a blood protein that indicate the presence of a disease, or the likelihood of developing one).

2. To conduct early clinical trials, by using genetics and imaging (brain scans).

3. Other biomedical research designed to understand dementia.
The Dementia Case Register

To help us achieve our aims, we are creating a list of people who might be interested in taking part in current or future research projects.

This information will only be shared with other researchers with your permission.

People on the Dementia Case Register are not under any obligation to take part in any of the projects if they don't want to.

Staff from the Mental Health of Older Adults community mental health services from South London and Maudsley NHS Foundation Trust will ask if people in their care and their family and carers are interested in hearing more about the dementia theme research projects.

Megan Pritchard, the Dementia Case Register Manager, will contact people on the register to discuss current research projects that may be of interest, and take time to explain what is involved in the projects.

If you are interested in finding out more about the register or participating in any of our research you can contact Megan.

Megan can be contacted by phoning 020 7848 0626 or email: megan.pritchard@iop.kcl.ac.uk

Freda and Jim Humble have participated in a research project at the Institute of Psychiatry and have kindly written an account of their personal experiences.

A Personal View

Five years ago (aged 66 years) I started to forget where I had left my car and where my friends lived. The GP referred me to the Croydon memory Clinic and 12 months later they confirmed Alzheimer's. This came as a welcome relief. I had thought I had been going crazy but their diagnosis of my condition 'with a name' brought immediate stress freedom. My husband and I ensured our friends and family were informed. This was helpful and stimulated many informative conversations.

I was prescribed Donepezil and the support given by the Croydon memory Clinic was brilliant. I attended course alone and with my husband. He also attended a special six week course just for carers. We developed a very clear understanding of the position and learned a series of actions, techniques and mnemonics to minimise difficulties. An issue which shocked was the low percentage of funds devoted to the research of Alzheimer's and dementia, a condition which cripples so many lives.

When the Croydon Clinic indicated the Institute of Psychiatry was undertaking research, we jumped at the chance. We wanted to help in any way possible and agreed to a series of home interviews, separately at three monthly intervals over a period of two years. Our researcher Nicola was very sensitive and became almost a family friend. Each interview session took between two and three hours. My husband was interviewed first, partly about his perceptions of me and partly an analysis of the way in which he was coping. His answers were then used to trigger questions to me together with the more standard and universal system of testing and assessment.

At the end of each session Nicola calculated my MMSE scores (memory test) and brought us up to date with the latest research. This was reassuring. I am, of course, frightened about the future. I have no false hopes or illusions and intend to remain active and enjoy the remains of my intelligent life. I think the drugs are slowing down the pace of my deterioration, but I would be better able to cope if I knew I could have choices at the end of my life.

Freda Humble
Alzheimer’s disease blood biomarkers

Our aims are to find a biomarker or signature in blood that enables us to diagnose Alzheimer’s disease (AD) at an early stage, track its progression, and predict which people with mild cognitive impairment (MCI) will progress to AD. An early diagnosis of AD will in the future enable treatments that are currently in development to be used at an early stage of disease, where they are most likely to be of benefit. Accurately and sensitively measuring disease progression is critical to minimising the number of people and the length of time needed to measure the efficacy of new drugs in clinical trials.

Blood is a relatively accessible tissue that is believed to sensitively capture disease processes occurring in the brain and is easy to collect. Furthermore, it is relatively inexpensive to sample and analyse. For this reason, we have focused our attention on measuring changes occurring in blood proteins, the molecules that direct the production of proteins (called mRNA) and other blood metabolites. Proteins have been successfully studied in blood from people with AD at the Institute of Psychiatry for some time. We have identified a subset of proteins that track with disease severity and with alterations in brain volume in AD. In time these could be used to predict the effect of drugs in clinical trials, perhaps in combination with other measures.

A relatively new approach is the identification of mRNA molecules in blood cells that change over time during the course of disease, which may help distinguish which people have AD at an early stage or will go on to develop AD. We are currently assessing this approach using microarray chips with blood samples from a group of 300 people who have AD, MCI or an absence of dementia. Microarrays allow us to simultaneously measure every type of mRNA that exists in blood cells (of which there are around 45,000-100,000) and measure how much of each type of mRNA there is. A short list of mRNAs that best capture either diagnosis of AD or MCI and/or disease severity will then need to be further evaluated in samples from independent sets of people to see whether they continue to perform as well as predicted.

Integral to achieving these aims is the establishment of the Dementia Theme Case Register. The high quality and uniform assessment of large numbers of people across the Mental Health of Older Adults (MHOA) Directorate will enable us to easily identify sufficient numbers of suitable people we can approach for the further evaluation of any biomarkers or blood signatures we identify in the first phase of our biomarker project. This will take us a long way down the road to turning any promising research findings in to a suitable test. Such biomarker tests would dramatically improve the speed at which new promising drugs for AD can be assessed and go a long way to fulfilling one of the objectives of the National Dementia strategy to achieve early diagnosis.

This work has been made possible from a grant from the Alzheimer’s Research Trust and support from the National Institute for Health Research Biomedical Research Centre.

Dr Angela Hodges, Lecturer in Old Age Psychiatry
Tissue donation for neuroscience research – a gift of hope.

Donation of brain tissue for research is a precious and unique gift. In order to understand diseases that cause dementia we need to look at changes that occur in the brain itself and which underlie memory and neurological problems. The best way to understand these changes is to examine samples of brain tissue donated after death. The tissue provides an essential resource for neuroscience researchers in the battle to design new research strategies and develop future treatments.

The MRC London Neurodegenerative Diseases Brain Bank at the Institute of Psychiatry was established in 1989 and has become a leader in the field of brain tissue collection. As well as providing samples to scientists here at the Institute we regularly receive requests for tissue from leading research centres throughout the UK and abroad. Since the majority of these studies can be carried out on a small amount of tissue, each donated brain provides a large number of samples for many research groups. As no patient is exactly the same, tissue from all diseases affecting the brain and from all patient groups is always needed. Donations from patients who have previously undergone in depth assessments as part of clinical studies are particularly valuable.

The donation of normal brain tissue is also extremely important. By looking at healthy brain tissue donated by older people we can see how the brain is affected by normal ageing and make detailed comparisons between this tissue and tissue affected by disease. This allows us to see how different diseases develop and progress and leads to a better understanding of the causes of disease so that treatments can be improved.

It is usually better to make plans for donation well in advance and to discuss your intentions with your family and health professionals as donation could not proceed without the consent of your relatives. The brain bank has wide experience in organising donations throughout the UK and follows best practice in ethical issues relating to informed consent, donor family care, storage of tissue and release of tissue to researchers.

For more information please see our website www.iop.kcl.ac.uk/brainbank or contact the Brain Bank team on 020 7848 0290.

Dr Claire Troakes, Brain Bank Co-ordinator

MHOA Research & Development Committee presents…

‘What’s New in Research?’

Tuesday 14 October, 9.30am – 3.30pm

Institute of Psychiatry, De Crespigny Park, SE5 8AF

Seminar Rooms 1 & 2

Hurry to book your free place by contacting Wendy Crabtree

Wendy.Crabtree@slam.nhs.uk  Tel: 020 3228 1628