

Stroke

The Stroke Unit, under the leadership of Dr Judith Frayne, participates in many national and international multicentre stroke trials, including both industry-sponsored and investigator-driven trials. In 2010, these included studies nearing completion and a new investigator driven study looking at early mobilisation after stroke.

Alzheimer's Disease and Other Dementias

Alzheimer's disease has been called 'the approaching epidemic'. Optimally, treatment for Alzheimer's should be started as early in the disease as possible, when the only problem is of mild memory loss. In conjunction with Associate Professor Glynda Kinsella (La Trobe University), supported by an NHMRC grant, patients continue to be studied to ascertain whether teaching memory strategies at an early stage may improve everyday memory function. Judy Allen-Graham's postdoctoral studies continue on the functions of APP, the nerve cell protein that is broken down to form the toxic amyloid protein of Alzheimer's disease.

Professor Storey is on the international steering committee and the cognitive endpoint committee of the NIH-funded \$50 million, 19,000 participant ASPREE trial of aspirin in the healthy elderly, for which dementia is a primary endpoint. He is also a CI on an Australian National University-led NHMRC-funded substudy, ENVISion, assessing the effects of aspirin on brain MRI, cognition and retinal vasculature, running over five years.

Inherited and Sporadic Ataxias and Other Neurogenetic Disorders

Spinocerebellar ataxias (SCAs) affect those parts of the brain concerned with coordination. Many cases have a genetic cause. Our clinical work in the inherited ataxias involves finding and describing new varieties of ataxic illness. In late 2009, we published our third previously undescribed inherited ataxia, SCA 30, and in 2010, we completed our studies (in conjunction with colleagues in Sydney and Wellington) into a newly recognised sporadic ataxia, CANVAS. The lead author is Dr David Szmulewicz, who was one of our advanced trainees in 2009.

Research into motor deficits in a mouse model of spinocerebellar ataxia.



In conjunction with Professor David Amor at the Murdoch Institute, we are pursuing genetic localisation of oculopharyngeodistal myopathy in a large pedigree studied by us and Dr Michael Fahey (Monash Medical Centre), as well as two apparently previously undescribed distal myopathies – one dominant and one recessive.

Gluten sensitivity (which underlies coeliac disease) has been proposed as a common cause of sporadic (non-genetic) ataxias by producing antibodies that damage the cerebellum, although this is contentious. Dr Louise Kelly and Volga Tarlac obtained antibodies to gluten (gliadin) in HLA-transgenic mice (a gift from University of Melbourne), and in 2010, showed that these high titre antibodies do not affect cerebellar function or structure. This work is to be presented at the American Academy of Neurology meeting in 2011.

The group continued to collaborate with Monash University (Gippsland) to produce portable apparatus with which to conduct various novel tests of upper limb coordination. Lyn Lindsay has started as a part-time PhD student on this project in 2010.

Movement Disorders

The research team, coordinated by Associate Professor David Williams, now includes Perdita Cheshire, a PhD student who is working on brain tissue archived at the Australian Brain Bank Network to investigate the possible causes of medication-related abnormal excessive movements in advanced Parkinson's disease. Associate Professor Williams also co-supervises a University of Melbourne PhD student who is performing longitudinal neuropsychological studies on patients with movement disorders.

Together with the scientists in The Alfred Movement Analysis Laboratory, the team tests diagnostic and electrophysiological measures of tremor: dystonic tremor, orthostatic tremor and essential tremor.

Associate Professor Williams was invited to talk at international meetings including the Asian Oceania Section Movement Disorders Society Bi-Annual Meeting, Parkinson's Disease and Movement Disorders Annual Congress and Neuroscience Japan Annual Meeting.

Cognition in Cerebellar Stroke and Hepatitis C

Chris O'Halloran, a La Trobe Neuropsychology student whose Masters is co-supervised by Professor Storey, has completed his studies on localisation of cognition and affective function in the cerebellum, and has submitted. Neuropsychologist Dr Rubina Alpitsis studies the effects of hepatitis C infection on cognition, in conjunction with the Gastroenterology Unit, funded by an Alfred Research Trusts Small Project Grant.

Postgraduate Students

2 PhD Students
1 Other Doctoral Student

Publications

13 Journal Articles