Australasian Neuromuscular Network

ANN Newsletter - No. 3 / May 2011

Official launch of the ANN

The Rare Disease Symposium, held recently in Fremantle, WA, was the ideal setting to launch the Australasian Neuromuscular Network (ANN). The ANN is committed to achieving health equity for more than 20,000 individuals living in Australia and New Zealand who are affected by neuromuscular disorders. Given the rare nature of the disorders, and that patients are located all over Australia and throughout New Zealand, a collaborative network such as the ANN is extremely important.

LEFT: Prof Kathryn North; BELOW: ANN executive with special guest Prof Hanns Lochmuller from TREAT-NMD (L to R: Alastair Corbett, Nigel Laing, Kathryn North, Kristi Jones, Monique Ryan, Leanne Mills, Hanns Lochmuller, David Jack)

Research into neuromuscular disorders has entered a new era. Advances in sequencing technologies are accelerating gene discovery and our abilities to provide an accurate genetic diagnosis. Clinical trials for novel drugs and gene-based therapies are currently underway and hold great promise. The ANN will provide a forum to advance and disseminate information and guide best practice in diagnosis, care and treatment. The ANN will promote integrated training programs for clinicians and researchers. Importantly, the ANN will also provide a single voice to advocate for patients and their families. The diagnosis, prevention and treatment of neuromuscular disorders will benefit greatly from a more integrated and united national approach.

The ANN was officially launched in front of an audience of those living with rare diseases, parents, advocacy groups, government and industry representatives, researchers and health professionals. Indicative of the collaborative approach of the ANN, speakers included ANN Co-Chairs Professors Kathryn North and Nigel Laing, Prof Hanns Lochmuller (TREAT-NMD), Mrs Lesley Murphy (Muscular Dystrophy Association of Western Australia - MDWA) and Mr David Jack (Muscular Dystrophy Foundation - MDF).

The ANN was established in 2010 and has grown to more than 270 members from Australia and New Zealand. Through this collaborative integrated network, the ANN will ensure that the "best evidence from our clinical and laboratory based research will be quickly translated into best clinical practice" said Prof Kathryn North.

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INSIDE

With the focus on WA, Prof Nigel Laing provided a brief summary of how local researchers have made significant contributions to the neuromuscular field - in fact Prof Laing discovered a number of genes for neuromuscular disorders including the eponymous Laing early-onset distal myopathy. A novel technology developed by Prof Steve Wilton (antisense oligonucleotides) shows great promise as a new therapy for Duchenne muscular dystrophy. Over the past 15 years, ANN researchers (both clinical and laboratory) have established themselves at the forefront of gene discovery and translational research in neuromuscular disorders internationally. The ANN will build on this unique combination of expertise and an outstanding record in gene discovery, clinical trials, genotype-phenotype correlation studies, disease mechanism and novel therapies.

The ANN has also joined the European neuromuscular network as a partner of TREAT-NMD, and is closely affiliated with US consortia – allowing us to gain from and contribute to a global effort. Prof Hanns Lochmuller from TREAT-NMD stressed the importance of advances in clinical care and research through international collaboration. For example, the recently established Australian Duchenne muscular dystrophy (DMD) registry connects Australian and New Zealand DMD patients with more than 10,000 patients worldwide across more than 30 countries.

While registries have had a major impact on improving patient outcomes and providing access to potential new therapies for more and more patients, Lesley Murphy stressed that an early and accurate diagnosis cannot be overstated. The ANN and its diagnostic network will ensure that new diagnostic tests are quickly transferred into testing laboratories, that doctors, researchers and medical professionals are aware of what tests are available and where and that resources and training opportunities are made available.

As therapies improve through research, the ANN is committed to expanding its research into quality of life. David Jack shared his recent experience of chatting with teenagers affected by neuromuscular disorders - the group spoke of finishing school and getting a job or going to University, as well as a desire to give back to the community. Increased quality of life and life expectancy offers new opportunities to hope and dream rather than a life defined by physical decline.

The ANN community is motivated and inspired by people living with neuromuscular disorders and families affected by neuromuscular disorders. A coordinated approach to ensure early and accurate diagnosis and access to therapies and treatments will mean that more and more people with neuromuscular disorders can live long and productive lives.

Visit www.ann.org.au for further details.

upcoming events

june	july	august
13th-16th Update in Neuromuscular Disorders, UK	17th-22nd XII International Congress on Neuromuscular Diseases, Naples	18th-20th 4th Nemaline Myopathy Convention, London

The future of genetic diagnosis. What is next generation sequencing?

Next generation sequencing (NGS) is a term given to a new range of technologies that allow an individual's genetic information to be screened in a high-throughout low cost manner. It is fast becoming a reality that NGS will read a person's whole genome (3 billion letters) for less than $1000/person in one day. To put this in perspective, the Human Genome Project based on previous technology took 5 years and $300 million to sequence a whole genome.

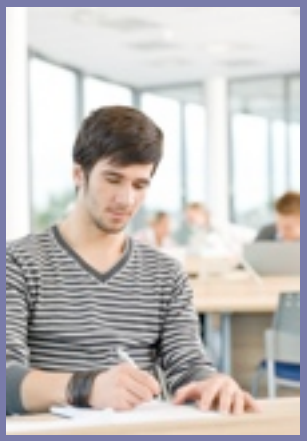
NGS has had a huge impact on biomedical research and is set to revolutionise diagnosis, intervention and prognosis with numerous articles suggesting that personalised medicine is within reach. NGS could lead to routine sequencing of individuals, including prenatal, at birth or any time there is a clinical imperative. This will inform appropriate treatment/intervention, identify 'at risk' patients, identify specific drug targets, and enable early accurate diagnosis. However; the application of NGS in personalised medicine and clinical diagnosis is complex. The hurdles and questions that need to be addressed include validation of tests and certification of laboratories and ethical, legal and social issues as well as how to analyse and store the vast amount of sequence data produced.

Supporting patients and parents through genetic counselling to communicate genetic information and facilitate informed decision making will continue to play an important role, and in conjunction with NGS offered through research laboratories, may provide doctors and families with new opportunities to screen for diseases with expert guidance and medical advice.

As the number and speed of genetic tests continues to increase, there is increasing pressure on medical professionals to understand genetics and genomics. A European report outlines core competencies that have been agreed to and approved by the European Society of Human Genetics [European Journal of Human Genetics (2010) 18, 972–977]. As outlined below, they provide a guide for skills needed by doctors in this 'human genome era' of medicine.

Core competencies needed in genomic medicine for doctors:

1. Identify individuals who may have or may carry a genetic condition.
2. Communicate information about genetics in an understandable, comprehensible and sensitive way, helping patients to make informed decisions and choices about their care.
3. Manage patients with genetic conditions, using accepted guidelines
4. Obtain specialist help and advice on inherited conditions.
5. Coordinate care with other primary-care professionals, geneticists and other appropriate specialists.
6. Offer appropriate psychological and social support to patients and families affected by a genetic condition.



The ANN aims to maintain a list of research and genetic testing laboratories within Australia and New Zealand, including contact details and gene tests available, to supplement information also found on sites such as HGSA. We will let members know when this information is available. The ANN will also connect medical professionals and researchers to address clinically relevant questions.

SHORT COURSE IN MEDICAL GENETICS AND GENETIC PATHOLOGY

18-21 June 2011 Graduate House University of Melbourne

The objectives of the course are to provide an update of advances in understanding the cellular pathogenesis of inherited and acquired human diseases; recent advances in genetic and epigenetic testing technologies; as well as strategies for harnessing an increasing diversity and volume of laboratory data that can be generated to address specific clinical questions. Overviews will also be provided of advances in screening for genetic risk, genetic diagnosis and management of genetic disorders.

Click HERE to register

Protein Power! Nutrition study commences at Royal Children's Hospital, Melbourne

An exciting new nutrition study commenced this January at The Royal Children's Hospital (RCH) in Melbourne. The study is a collaboration between researchers from The Children's Neurosciences Centre (RCH) and Monash University, Department of Nutrition and Dietetics.

We asked Professor Helen Truby and Zoe Davidson from Monash a few questions about the study.

Can you tell us a bit about the study?

This study looks at the use of protein based nutritional supplements in boys with DMD. We are looking to see if these nutritional supplements can improve or maintain functional ability over the period of the study. By functional ability, we are essentially referring to walking ability.

What type of supplements are you using?

Specifically, we are looking at two supplement regimes. The first of these is a "standard" nutritional supplement which is a protein shake together with some multivitamins. The second is the "enhanced" nutritional supplement which is the protein shake with creatine monohydrate, glutamine and HMB as well as the multivitamins. Boys in the study will be on each supplement for 5 months.

How did this nutrition study come about?

There is a lot of interest in the use of nutritional supplements for children with neuromuscular conditions. Research conducted in the DMD mouse model suggests some benefits from supplements; however, there are very few clinical trials. Without these trials, it is very hard to say if families should be spending money on nutritional supplements or not. We wanted to investigate this area further so we can make recommendations based on clinical evidence.

Have there been any other clinical trials like this before?

The short answer is no! Whilst a handful of clinical trials have looked at creatine monohydrate and glutamine, this is the first study to use these supplements together. This is also the first study to look at a protein based supplement and to use HMB. We are really excited to see the results because it has not been done before.

What outcomes do you hope to see from this study?

Ultimately, we hope to see some benefits for boys with DMD; whether this is an increase in the amount of activity they can do, or maintaining the same level of function over 12 months.

Who else is involved in the study?

We are collaborating with Dr Monique Ryan and Associate Professor Andrew Kornberg from the Neuromuscular Clinic at RCH. We have also been very fortunate to receive some support from MDA, John T Reid Charitable trusts and RCH to get this study up and running. We are also in the process of setting up a second site in Queensland with the help of Dr Kate Sinclair and Dr Anita Cairns.

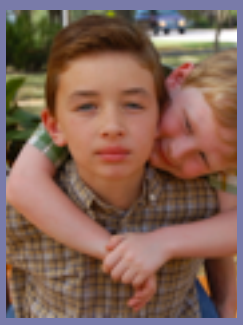
Are you recruiting?

Yes. We are currently recruiting boys aged 5-13 years who can complete 75m in a six minute walk test. Boys are being recruited through the Neuromuscular clinic at RCH.

For more information contact Zoe Davidson: zoe.davidson@monash.edu

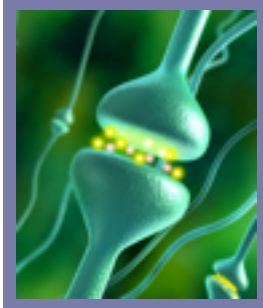
Other news:

1st Chinese conference on Translational Research in Duchenne muscular dystrophy



There are 650,000 children and adults in China who are affected by Duchenne muscular dystrophy. Prof Kathryn North from the Institute for Neuroscience and Muscle Research (INMR) joined clinicians, researchers and parent groups from China and around the world to attend China's first Duchenne muscular dystrophy conference. The conference provided an opportunity for Chinese patients, families and medical professionals to discuss and plan for a neuromuscular network, coordination of patient support groups and the establishment of registries.

Registries



The Australian Myotonic registry - launching May 2011.

The Australian SMA registry - launching soon in 2011.

TREAT-NMD Conference

Registration is NOW OPEN for the TREAT-NMD International Conference to be held in Geneva from 8th-11th November 2011. Visit the TREAT-NMD website to register.

TREAT-NMD Conference 2011

Progena

Clinical Trials

Duchenne muscular dystrophy - Exon Skipping

The results of two (2) exon skipping trials, targeting the same mutation but using different molecules, were presented at the American Academy of Neurology annual meeting in April.

The AVI BioPharma trial, using a drug called AVI-4658 (now called Eteplirsen), showed promising results in 19 children with mutations in the dystrophin gene at exon 51. The Phase 1b-2 trial demonstrated that participants tolerated the drug well and that dystrophin production was seen. Further trials will investigate the functional benefits using higher doses over a longer period. There are reports that AVI BioPharma are currently pursuing funding for further studies.

Prosensa and GlaxoSmithKline, using a drug called PRO051/GSK2402968, have also reported positive results from a Phase 1-2 trial. Following a 48 week trial, there was an increase in dystrophin production and an increase in distance participants could walk in 6 minutes. Sydney and Victoria are participating in a global trial to assess 2 different dosing regimes in ambulant subjects.

In an exciting development, Prof Steve Wilton and Prof Sue Fletcher, from the Australian Neuromuscular Research Institute (ANRI) in Western Australia, are in preparation to undertake an exon 51skipping trial using a novel molecule discovered in their laboratory. The trial will focus on non-ambulant boys aged 16 years.

Charcot-Marie-Tooth disease

There are no specific therapies for Charcot–Marie– Tooth (CMT) disease. Several trials have recently been undertaken after the finding that ascorbic acid is effective in an animal model of human CMT1A. A 2 year study completed recently, and a 1 year international study (including Australia - Prof Robert Ouvrier, A/Prof Joshua Burns, Dr Monique Ryan), have concluded that despite promising data from animal models, ascorbic acid (vitamin C) offers no benefit to CMT1A patients.

FKRP registry

A global registry for patients with fukutin related protein (FKRP) mutations has been established as part of the TREAT-NMD network. This mutation causes one form of limb girdle muscular dystrophy, LGMD21, and a form of congenital muscular dystrophy, MDC1C.

The registry collects information from patients all around the world, to allow them to participate in trials for potential new treatments.
A link to the TREAT-NMD registry is located on the ANN website or you can go directly to the registry website.

Excellent Training Opportunity!!

World Muscle Society 2012

The 2012 Annual Congress of the World Muscle Society is being held in Perth Western Australia

October 9th – 13th, 2012

This is an outstanding opportunity for everyone in Australia in the neuromuscular diseases community to listen to and meet many of the world's leading researchers in this field.

The Local Organising Committee would particularly like to draw the attention of the ANN members to the associated Training Course (8th and 9th October) which includes both clinical and pathology teaching by some of the best in the world.

The Training Course, held in conjunction with each Annual Congress, is limited to 40 places and is highly recommended for junior clinicians, pathologists and molecular geneticists.

To register your interest in attending the training course, visit the WMS website (details are also available at ann.org.au)

ANN Steering Committee

Clinical Care

Co-Chairs: Alastair Corbett (Adult) and Kristi Jones (Paediatrics)

Monique Ryan (Vic); Anita Cairns (Qld); David Mowat (NSW); Rakesh Patel (NZ); Paula Bray (NSW); Michelle Farrar (NSW)

Diagnostics

Chair: Nigel Laing

Nigel Clarke (NSW); Catriona McLean (Vic); Paul Kennedy (Vic); Tom Robertson (Qld); Peter Taylor (NSW); Michael Buckley (NSW); Mark Davis (WA); Leigh Waddell (NSW)

Clinical Trials

Co-Chairs: Andrew Kornberg and Monique Ryan

Kathryn North (NSW); Anita Cairns (Qld); Joshua Burns (NSW); Phillipa Lamont (WA)

Research

Chair: Kathryn North

Nigel Laing (WA); Nigel Clarke (NSW); Monique Ryan (Vic); Joshua Burns (NSW); Richard Roxburgh (NZ)

Advocacy

Chair: David Jack

Deb Robins (Qld); Andrew Kornberg (Vic); Nigel Laing (WA); Kathryn North (NSW); Hilary Rayner (NZ); Julie Cini (Vic); Varlli Beetham (Vic)