**Hot Topics in Cerebral Palsy Research Forum 2018**

**Monday 5th November 2018**

Cerebral Palsy Alliance, Allambie Heights, NSW

Draft Program

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| 9:00-9:05 | Introduction | Prof. Nadia Badawi |
| 9:05-9:10 | Vision of the CRE | Prof. Ros Boyd |
| **Engagement and Health Policy** – Chair - Lead for the theme, Prof. Jenny Ziviani | |
| 9:10-9:20 | Importance of Engagement in research and the CRE | Prof. Catherine Elliott, Prof. Jenny Ziviani |
| 9:20-9:30 | Parent view on early detection I Hiam Sakakini *(TBA)* |
| **Early Detection and Neuroimaging** - Chair - Lead for the theme, Prof. Stephen Rose | |
| 9:30-10:30  10:30-10:45 | Keynote | Prof. Steve Miller  Neuroimaging; Prediction and 7-year outcomes study; Pain in Infants  *Q and A time with Prof. Steve Miller* |
| 10:45-11:00 | Prediction of CP cCUS v MRI and when to use what | A/Prof. Rod Hunt |
| 11:00 – 11:20 | Coffee |
| 11:20 – 11:35 | Automated reading of early MRIs I Dr Kerstin Pannek, Dr Alex Pagnozzi |
| 11:35 – 11:50 | Automated reading of MRI’s for Cerebral PalsyI Dr Kerstin Pannek, Dr Alex Pagnozzi |
| **Clinical Trials** - Chair - Lead for the theme, Prof. Ros Boyd | |
| 11:50 – 12:20 | Clinical trials currently recruiting through the AusCP-CTN  Study Updates from: GAME (Dr Cathy Morgan), REACH (Prof. Ros Boyd), VISIBLE (Prof. Andrea Guzzetta) |
| 12:20-12:30 | Parenting Interventions PACT | Dr Koa Whittingham |
| 12:30 –12:40 | AMNION: Stem cell clinical trial | Prof. Iona Novak, Prof. Rod Hunt |
| 12:40-12:50 | *Q and A time with Theme Presenters* |
| 12:50- 1:40 | Lunch |
| **Pre-clinical and Neuroprotection** - Chair - Lead for the theme, Prof. Euan Wallace | |
| 1:40 – 1:50 | Implications of Genomics in Cerebral Palsy: towards the era of Personalised medicine | A/Prof. Michael Fahey |
| 1:50 – 2:00 | CP phenotyping for multiple aetiologies and mechanisms. Preparing for the future of individualized therapies | Prof. Russell Dale |
| 2:00 – 2:10 | Prevalence, Genomics and Surgical candidacy for Epilepsy in CP | Dr Kavitha Kothur |
| 2:10 – 2:20 | Genomics of dystonia and Candidacy for DBS | Dr Shekeeb Mohammad |
| 2:20 – 2:40 | Genomics – ICPGC | Yana Wilson |
| 2:40 – 2:50 | IUGR Melatonin | A/Prof. Michael Fahey |
| 2:50 – 3:00 | Creatine | Dr Stacey Ellery |
| 3:00 – 3:15 | *Q and A time with Theme Presenters* |
| 3:10 – 3:30 | Afternoon Tea |
| **Knowledge Translation and Implementation** – Chair - Lead for the theme, Prof. Iona Novak | |
| 3:30 – 3:40 | Infant Clinic | Dr Esther Tantsis |
| 3:40 – 3:50 | ACPR Rates and Mortality | Dr Sarah McIntyre |
| 3:50- 4:00 | ACPR SES | Dr Sue Woolfenden |
| 4:00 – 4:10 | ACPR Prevention CMV Knowledge Translation | Dr Hayley Smithers-Sheedy |
| 4:10 – 4:25 | *Q and A time with Theme Presenters* |
| 4:25 – 4:30 | Closing address | Prof. Ros Boyd |

Presentation Summary

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| 11:00 – 11:20 | Coffee |
| 11:20 – 11:40 | Automated reading of early MRIs I Dr Kerstin Pannek, Dr Alex Pagnozzi  The assessment of brain structure and growth during the neonatal period shows great promise in the early prediction of neurodevelopmental outcomes. We are developing automated tools for quantitative radiological reporting of brain MRIs of children with cerebral palsy, and of newborns at risk of developing cerebral palsy. In this talk, I will present our currently available tools, and discuss their potential impact on early diagnosis and prognosis. |
| 11:40 – 12:00 | Panel discussion and Q and A early detection state of the art and science  *Led by Prof. Iona Novak with Profs. Steve Miller, Rod Hunt, Andrea Guzzetta, Dr Kerstin Pannek, Miles Seidel* |
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| 2:00 – 2:10 | CP phenotyping for multiple aetiologies and mechanisms. Preparing for the future of individualized therapies | Prof. Russell Dale |
| 2:10 – 2:30 | Genomics – ICPGC | Yana Wilson  The International Cerebral Palsy Genomics Consortium (ICPGC) is a global consortium that was establish in 2017, with the major goal of establishing a forum for collaboration among clinicians and researchers dedicated to unravelling the genomic basis of cerebral palsy. In support of this effort, the ICPGC is developing the CP Commons, a unified data repository that enables data sharing. This talk will give you a brief introduction to who we are, and what we are trying to achieve. |
| 2:30 – 2:40 | IUGR Melatonin | A/Prof. Michael Fahey |
| 2:40 – 2:50 | Creatine | Dr Stacey Ellery  Creatine is a dietary metabolite essential for brain development and energy metabolism. Its primary role is in maintaining cellular energy (ATP) homeostasis. Creatine is readily obtained from a diet containing fish and meat, and is also synthesised endogenously by the body. Studies suggest that the developing fetus is reliant on a maternal supply of creatine until late in gestation. We hypothesise that premature birth and the premature removal of a maternal source of creatine will led to cerebral creatine deficiency in preterm babies. This will jeopardise normal brain metabolism and development, predisposing the infant to neurological decline. We are now exploring this hypothesis with our Understanding Creatine for Neurological Health in Babies (UNICORN) observational study. The overall aim of this study is to establish circulating and cerebral creatine content, in association with brain morphology and neurological outcomes, for preterm infants. Results of this study may call for creatine supplementation as standard nutritional care of the preterm infant, in order reduce neurological damage in this vulnerable population.  Dietary creatine supplementation can also be used to increase the intracellular pool of creatine available for regeneration of ATP, and can prolong cellular energy homeostasis, even in oxygen-depleted environments. We are thus studying the use of maternal dietary creatine supplementation during pregnancy as a prophylactic treatment for perinatal ischemic-reperfusion injuries. In our spiny mouse model of intrapartum asphyxia, we have clearly shown creatine supplementation to be neuroprotective. Before proceeding to clinical trials in pregnant women, we are now investigating the capacity of maternal dietary creatine supplementation to prevent brain injury in a non-human primate model of intrapartum asphyxia. This study includes using clinically applicable measures such as MRI/MRS, as well as comprehensive behaviour and motor coordination assessments using scales that directly correlate to developmental milestones in the newborn human infant. The findings of this project may provide the basis for recommending the use of maternal dietary creatine during pregnancy. As such, we are also conducting a series of feasibility and tolerability studies of dietary creatine supplementation in pregnant women. These ‘first in pregnant women’ will inform any future RCT of creatine supplementation during pregnancy. |
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| 3:40 – 3:50 | ACPR Rates and Mortality | Dr Sarah McIntyre |
| 3:50- 4:00 | ACPR SES | Dr Sue Woolfenden  Aim. Internationally socioeconomic disadvantage has been associated with increased severity of cerebral palsy(CP) outcomes. We investigated the impact of disadvantage on motor and intellectual impairment and the presence of severe comorbidities in children with CP in Australia.  Method. Data from the Australian CP register were analysed. Socioeconomic disadvantage was assessed using maternal age, maternal country of birth and a measure of neighbourhood socioeconomic status (SES) at the time of the child’s birth. Descriptive bivariate analysis, trend analysis, risk ratios (RRs) and mediation analysis was undertaken to examine the impact of these measures of disadvantage on CP severity outcomes.  Results A socio-economic gradient for CP severity was seen with neighbourhood SES - with decreasing neighbourhood SES at birth there were increasing proportions of children who: were non-ambulant, had at least a moderate intellectual impairment; and/or a severe comorbidity in terms of functional blindness, deafness, epilepsy and/or non-verbal communication. Mothers younger than 20 years of age and/or who were of a minority ethnicity were more likely to have children with more severe CP outcomes, especially in term babies. Mediation analysis indicated that the impact of teen motherhood and maternal minority ethnicity on severity was not further modified by living in a low SES neighbourhood.  Interpretation In Australia, socioeconomic disadvantage at birth impacts adversely on motor and intellectual impairment and the presence of severe comorbidities at age 5 years in children with CP. Interventions to reduce these inequities in CP severity are required at the family and neighbourhood level. |
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