

Feedback from PAS, Vancouver, 2014

Please give details of the best lecture/learning from the meeting:

1. MRI brain injury pattern and childhood outcomes following hypothermia in Hypoxic ischemic encephalopathy

Presented by Seetha Shankaran, USA

Primary outcome measured was 6-7 year outcome of death or IQ<70 (Weshler)

MRI performed on 136 cases at 14 days

Results : Of the 50 infants with normal MRI 8% had the primary outcome. They also found that increasing severity of MRI injury associated with primary outcome. When there was any cerebral injury – 86% had IQ<70 and CP Sensitivity – 61% (for pri outcome)

Spec- 92

PPV – 92

NPV – 96%

MRI of the brain on D4 and D11 treated with hypothermia for Hypoxic ischemic encephalopathy

Aim was to find out if early MRI (D4) was as predictive as late MRI (D11)

The MRI sequences taken were T1,T2 and DWI

The prediction was the same in 37 of the 41 cases

Early scans show mild white matter, water shed, Basal ganglia and changes

Those with scans on d4 do not need a repeat on d11

Early scan are helpful in counselling

2. For me, this year the meeting lacked the breaking of the results of a major trial. The hottest topic seemed to be delayed cord clamping. Looking at this from a number of angles with a paradigm shifting animal physiological analysis suggesting the key positive effect maybe the maintenance of a low systemic vascular resistance until lung expansion increases preload. In this model there is a very rapid rise of after load leading to myocardial depression in the absence of pulmonary return. This potentially explains the preterm who cries immediately, reassuring us and then becomes bradycardic and apnoeic after the cord is cut and the baby placed on the resuscitaire. This model showed no effect of gravity suggesting that the baby could actually be raised or lowered and there are physiological methods to avoid over transfusion. This certainly encouraged me to look to employ delayed cord clamping for pre-terms and maybe terms requiring resuscitation. In my unit where we already delay cord clamping for term babies, probably the most notable development at the conference was in my opinion the launch of “The Every Baby” campaign. This aims to slash the 4.4 million children who die in the first month – refer to the new Lancet Neonatal Series which was published on May 20th 2014. In the words of the Presidential address at the Conference – become

a paediatrician and do what you can to improve the health and life of children in your care as well as around the world.

I attended a seminar on Advances in Kawasaki Disease which seriously proposed the cause being a windborne antigen or agent and also that it may be caused by excessive soya sauce consumption in the Japanese diet (1:85 Japanese children will get Kawasaki Disease before the age of 10). There was some very elegant total genomics sequencing and intriguing interactions of bacterial glycolipids with the innate immune system which may be teasing out which is obviously a complicated aetiology.

3. Best lecture was on 'Preterm Brain Imaging' as I work on the Newborn Imaging Centre.

I learnt how MRI images can predict visual function in school age children born preterm. Also, how alterations of brain NAA, CHO and CR are associated with cognition in extremely preterm adolescents.

Equally interesting, the fMRI study showing the effects of preterm birth and periventricular haemorrhage on working memory function in adult life.

There were also discussions on cortical surface area in relation to fetal growth and the implications of non-cystic white matter injury in preterms that I could relate to my work with preterm infants.

Please list 3 key points from the meeting to be shared with the neonatal community:

1) In babies who have who have undergone therapeutic hypothermia for HIE, if the baby has had an early MRI (D4) for clinical reasons there does not appear to be a need to repeat the MRI at 2 weeks of life as the D5 scans appears to be give similar information. Early scans can help in counselling.

2) PDA and paracetamol: Although there is limited data on the use of paracetamol, observational studies suggest that the PDA closure rate with the use of paracetamol is high (84%) and better when used as first line. More research is needed.

3) There is limited information on delayed cord clamping and neurodevelopmental outcomes in infants <28 weeks. A large retrospective study of 1012 babies studied delayed vs early cord clamping in infants <28 weeks gestation and found that DCC had an effect on death of ND outcome but reduced NEC (stage 2)

1) Discussions and recommendations on delaying cord clamping at birth, its effects on systemic and pulmonary haemodynamics in animal models and preterm neonates and how birth should be managed for optimal outcomes.

2) Timing of intervention in PDA, balancing risk-benefit profiles of targeted versus prophylactic interventions also medical treatment versus surgical ligation. I can share this latest research with my nursing colleagues and parents of babies with PDA .

3) Latest research on adjunct therapies to cooling in HIE e.g. melatonin, chromylin and bumetanide and xenon gas.