

Cutting the cord: an international conference

Sixty delegates from the USA, Australia, Sweden, France, Ireland and the UK gathered at the University of Birmingham on 19 April 2013 to attend the first conference to address the topic of transitional care at birth, organised by Dr David Hutchon. The conference explored in detail our current understanding of physiological transition at birth. Textbook teaching of transition at birth is strongly influenced by the intervention of a cord clamp and Dr Hutchon illustrated how this affected our understanding of many so-called 'normal' ranges.

Dr Tonse Raju, from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (USA) presented the latest results of animal studies published from Melbourne, Australia. He explained how early or immediate cord clamping (ICC – less than 10 seconds after birth), before established respiration, causes a 50% fall in right ventricular output together with marked bradycardia, which only recovers slowly after ventilation onset. Delaying cord clamping (DCC – greater than 30 seconds of birth) until ventilation is established assures a smoother adaption of transitional circulation. Professor Susan Niermeyer from Colorado presented the latest International Liaison Committee on Resuscitation (ILCOR) neonatal resuscitation recommendations. She proposed that ICC might lead to the baby needing resuscitation. She explained that there is a critical level of blood pressure for perfusion to fill the pulmonary vascular tree during transition.

Many believe that ICC is required for effective measurement of cord blood gases but Dr Nana Wiberg presented her experience in sampling cord blood gases directly from the intact umbilical cord, allowing cord clamping to be delayed. Dr Ola Andersson presented the results of the Swedish randomised controlled trial comparing ICC and waiting for 180 seconds. This study confirmed that DCC is just as important in high resource countries as it is in low resource settings, as seen in previous studies.

Professor Judith Mercer presented the



From left, Professor Susan Niermeyer, Dr Nana Wiberg and Professor Judith Mercer.

latest Cochrane review of DCC in preterm babies. There was no evidence that DCC was a risk for hypothermia. There was no significant increase in babies requiring treatment for hyperbilirubinaemia. She pointed out that bilirubin is known to have significant antioxidant properties and that a slightly higher level of bilirubin may in fact be an advantage. Babies with DCC had fewer intraventricular haemorrhages (IVH) of all grades. She also reported increased superior vena cava blood flow after DCC, indicating an increased cerebral blood flow over the first five days of life. She presented a hypothesis about the cause of death in a small number of neonates where there had been documented evidence of a fetal heart rate before birth, but asystole at birth and failed resuscitation. She proposed that as the body of the infant is squeezed tightly in the birth canal, blood is sequestered into the placenta. Before delivery the birth canal pressure acts like an anti-shock garment maintaining the circulation, but at birth the pressure is suddenly released, which may cause hypovolaemic shock and asystole.

Dr Carl Backes presented the data of a small randomised controlled trial of ICC vs DCC carried out at the Nationwide Children's Hospital, Ohio. Notably DCC was also associated with a significantly higher mean blood pressure over the first 24 hours of life, and a four-fold reduction in use of blood pressure support. IVH or death was also reduced after DCC.

Dr John Monaghan presented data from the National Maternity Hospital in Dublin, which has a record of every case of neonatal encephalopathy over the past 30 years. He looked at the relationship between neonatal encephalopathy, which is a precursor to cerebral palsy in 25% of



Dr Tonse Raju's presentation.

Images provided by Chris Masterton.

cases, and intrapartum events and care. Using the American Congress of Obstetricians and Gynecologists (ACOG) criteria for cerebral palsy to be attributed to intrapartum events, he showed that there was in fact a very poor correlation between neonatal encephalopathy and intrapartum events. In more than 70% of babies the cord pH was above 7.0. Of babies that had a pH over 7.2, a large number were delivered by emergency caesarean section or assisted vaginal delivery. These are the most likely to have had ICC, which may be the underlying insult. He finished by showing preliminary data for the normal heart rate and oxygen saturation at birth in babies with DCC, which when compared with the 'Dawson charts' (reference ranges for pulse oxygen saturation values in the first 10 minutes after birth for preterm and term infants), showed no bradycardia or hypoxia.

Mrs Margaret Thomas from Liverpool Women's Hospital presented initial evaluation of the LifeStart trolley, which has been designed to facilitate DCC. A total of 48 babies had been managed on the trolley, including seven babies less than 33 weeks' gestation and three babies less than 1kg in weight. Temperature maintenance and airway management were both good, with mask ventilation in 16 babies and intubation in six babies achieved. She also reported positive parental and midwifery feedback with improved communication between the clinicians and the parents. In very preterm babies the short cord makes getting the trolley close to the perineum essential.

The meeting ended with dinner at a local restaurant. All participants felt the conference was a big success and are looking forward to a follow-up event in 2014.

By David Hutchon

Retired Consultant Obstetrician,
Darlington Memorial Hospital