

Emphasising the importance of haemodynamic assessment of neonates



Seventh Neonatal Cardiology and Haemodynamics (NeoCard) conference, Teesside, 11-12 October 2016

Haemodynamic assessment of a neonate has come a long way from once being just a measurement of heart rate and blood pressure. Over the last few years neonatologists have realised the importance of studying neonatal haemodynamics and are gaining expertise in echocardiographic assessment of the neonatal heart as a way of monitoring cardiovascular function.

NeoCard is an annual international neonatal haemodynamics conference organised by Professor Samir Gupta in Teesside in the north east of England. The organising committee includes a panel of paediatric cardiologists and neonatologists: Dr David Crossland, Dr Majd Abu-Harb, Dr Jonathan Wyllie and Professor Sunil Sinha.

Now in its seventh year, the meeting has grown in size and attracts delegates from all over the globe. The conference faculty comprises world-renowned experts who have each contributed original research towards the understanding of neonatal haemodynamics. The conference also invites abstracts for presentation and prizes are given for the best abstract (oral presentation) and best poster as part of the NICHe initiative (neonatologist with interest in cardiology and haemodynamics).

This year NeoCard focussed on the various aspects of neonatal perfusion assessment and its management. The conference began with a thought-provoking lecture from **Dr David Crossland**, Consultant Paediatric Cardiologist at Newcastle Upon Tyne Hospitals NHS Foundation Trust, who emphasised the importance of assessing cardiac function to manage perfusion and discussed the limitations of using diastolic function in newborn infants. Subsequent lectures and discussions dealt with other aspects of neonatal perfusion, including:

Dr Afif El-Khuffash, Consultant Neonatologist at Rotunda Hospital, Dublin, reviewed the objective modalities



Professors Win Tin and Michael Weindling.

used in clinical practice. This included the assessment of systolic function and the pros and cons of measuring cardiac output and its relation to fetal shunts. He alluded to the limitations of superior vena cava flow measurements and discussed other advanced modalities of systolic function measurements including tissue Doppler, strain rate and rotational mechanics.

Dr Anjum Gandhi, Chair of the Paediatricians with Expertise in Cardiology Special Interest Group (PECSIG), reiterated the importance of segmental sequential analysis as a prerequisite for performing any haemodynamic assessment.

Professor Gorm Greisen, Professor of Paediatrics at Rigshospitalet, Copenhagen, Denmark, discussed the effects of delayed cord clamping and packed cell transfusion and how it would affect microcirculation and perfusion.

Professor Win Tin, Consultant Neonatologist at James Cook University Hospital, Middlesbrough, stressed the importance of systematic clinical examination and other vital monitoring assessments to manage poor perfusion. He looked at the evidence behind rationalising

the use of fluid boluses and revisited the 1996 Northern Neonatal Nursing Initiative (NNNI) trial, which set out to determine whether infants benefited from early prophylactic volume expansion.

Professor Michael Weindling, Chair of Perinatal Medicine at the University of



Professor Samir Gupta.



From left, Drs Majd Abu-Harb, Afif El-Khuffash, Anjum Ghandi and David Crossland.

Liverpool, spoke on the use of newer non-invasive modalities for monitoring neonatal haemodynamic perfusion including the role of near infrared spectroscopy, which has been his area of research for over 30 years.

Professor Istvan Seri Division Chief of Neonatology and Director of the Neonatology Center of Excellence, Sidra, Qatar, is an expert on the use of inotropes in newborn infants and delivered the keynote lecture highlighting the changes in management of perfusion in newborn babies over the last three decades and the uncertainties and future direction of research.

Dr Neil Seller, Paediatric Cardiologist at Freeman Hospital, Newcastle, explained the role and importance of identifying common ECG abnormalities in neonates and how management should be directed to manage perfusion and haemodynamic-related problems with rhythm disorders.

Professor Eugene Dempsey, Consultant Neonatologist at Cork University Maternity Hospital and the Chief Investigator for the HIP trial, (a trial on the use of inotropes), discussed mechanisms of cardiac dysfunction in newborn infants with pulmonary hypertension. He also gave a state-of-the-art presentation on current and future research themes, the

gaps in knowledge in perfusion management and the use of inotropes.

Dr Emma Simpson, Paediatric Intensivist at Newcastle upon Tyne, reviewed neonatal cases referred for extracorporeal membrane oxygenation (ECMO). She provided an overview of when to refer patients for ECMO and how it can assist neonatal perfusion in cardiac and systemic disorders.

Dr Crossland kicked off the second day of the conference and reviewed inotrope use in neonates and those that work best. Professor Greisen then assessed non-invasive methods of haemodynamic assessment and perfusion.

There followed a debate on whether poor perfusion in neonates should be managed by targetting blood pressure. Dr El-Khuffash spoke for and Dr Seller against; both raised some stimulating arguments.

Day two drew to a close with a discussion around difficult cases and case scenarios, and how bedside echocardiogram assessment can change management and aid assessment of perfusion. Conference Director, **Professor Samir Gupta** spoke on neonatologist-performed echocardiography, the UK and European training modules, and why training and accreditation is important for neonato-

logists who want to perform bedside echocardiography. He also stressed the governance framework, standardising practice, and maintaining skills and reflection during annual appraisals along the lines of the expert consensus statement published in 2016.¹

The conference ended on a high with Professor Gupta thanking speakers and delegates while attendees complimented the organisers for two days of academic excellence. NeoCard 2017 will be held on 10-11 October and the theme will be patent ductus arteriosus. For further details visit www.neonatalcardiology.co.uk.

References

1. **Singh Y., Gupta S., Groves A.M. et al.** Expert consensus statement neonatologist-performed echocardiography (NoPE): training and accreditation in UK. *Eur J Pediatr* 2016;175:281-87.

Sajeev Job

Consultant Neonatologist
University Hospital of North Tees

Samir Gupta

Professor of Neonatal Medicine,
Durham University
Director, Research and Development
University Hospital of North Tees