Summary of ESPR Conference, October 2016

The EAPS conference was incredibly diverse, with topics across Paediatrics and Neonatology. I thoroughly enjoyed and learnt a lot. I include below some of the key talks which I found particularly interesting.

1. Global vaccines: WHO Plenary session was focused on progress in achieving vaccine goals by the WHO

We are off track across many European countries in: Polio transmission, Maternal and neonatal tetanus, Measles/Rubella

Top 10 countries in European Regions with measles cases 2015

Top 4 countries: Kyrgystan, Bosnia and Herzegovina, Germany , Kazakhstan accounted for 88% cases

Russian Federation, Georgia, France, Serbia, Turkey , Austria

11 countries reported zero cases

Preventing drug resistance: Major efforts underway to develop vaccines against organisms which are becoming increasingly resistance to antibiotic treatment: Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumonia, Acinetobacter, Pseudomonas aeruginosa, Enterobacter

2. Preterm births outcomes at 6.5 years EXPRESS study- Karolinska Institute

Highest in Southeastern Asia and Sub-Saharan Africa

Countries with the highest numbers of preterm births are: India, China, Nigeria, Pakistan, Indonesia, United States, Bangladesh, Philippines, Democratic Republic of Congo, and Brazil

11 countries with lowest rates of preterm births: Belarus, Ecuador, Latvia, Finland, Croatia, Samoa, Lithuania, Estonia, Antigua, Japan, Sweden

9 million European children and teenagers born preterm are growing up.

Express Swedish Study

Follow up of infants born alive at <27 weeks GA, 2004-2007.

Assessed 6.5 years 441/486 (91%)

Published in JAMA PAEDIATRICS

No/ mild disability 67 (95% CI 63-72%) ; at 2.5 years = 73%

Moderate 21% (17-25%); at 2.5 years =16%

Severe 12% (9-15%); at 2.5 years =11%

3. Bronchopulmonary dysplasia (BPD)

New vs old BPD

Classification (Jobe & Bancalari – need for oxygen at 28 days, resp support at 36 weeks)

Mild FiO_2 0.21

Moderate FiO_2 0.22-0.29

Severe FiO_2 ≥0.30

Northway et al, NEJM 1999 BPD longitudinal outcome early data

18 year follow up of pre-surfactant cohort n=25 1964-73 24% free of airway symptoms, 44% reversible airway obstruction, 24% fixed airway obstruction 8% positive metacholine challenge

EPICURE study – respiratory health at 11 year mean GA 24.9 (+/-0.7), mean 747 (+/-98g)

Wheeze last year 47% Asthma 55%

Take home messages:

-Preterm birth per se is associated with below normal pulmonary function throughout life,

-BPD further reduces pulmonary function

-Sequential pulmonary function testing and imaging will guide clinician of disease progression.

4. An interesting study presented from Dublin

Asking the question Q- In infants less than 1500 (Population), does peripherally inserted central catheter (PICC) removal and parenteral nutrition discontinuation at 100ml/kg/day (Intervention) compared to 140ml/kg/day enteral feed volume (Comparison) have a significant effect (2 days) on time to regain birth-weight (Outcome)

Results supported PICC removal and PN discontinuation at 140ml/kg/day of enteral feeds, particularly in extremely low birth weight infants

5. NEC and nutrition study by NeoImmune team

NeonutriNet database

Observational cohort study in 13 NICUS around the world. South china (5 units) Taiwan, Australia, New Zealand, Nigeria, Denmark, Netherlands, USA

Marked differences in availability of human milk: Majority of infants South China units were exclusively fed with infant formula (day 1-28)

Donor milk available at 3 NICUS (Perth Copenhagen and Amsterdam)

They found that Time to achieve 120ml/kg/day was not associated with:

- Day of introduction of enteral feeding (p=0.26)
- -weight z scores at day 28 (p=0.57)
- -NEC incidence (0=0.45)
- - Mortality (1-18%) (p=0.18)

- Linear regression adjusted for GA, birth weight and % of infants exclusively fed human milk

Take home message: There are marked differences in feeding regimens in very low birth weight babies in NICUS around the world

Wide variance in incidence of morbidities among sites – no association with feeding protocols

Large, international multicentre trials are needed to compare effects of different feeding strategies on important neonatal and long-term outcomes.

6. Professor Marlowe spoke about eNewborn

Aims to develop standards, benchmarking , quality improvement

www.newborn-health-standards.org

But needs engagement across EU< consensus, different systems, different priorities

7. Delayed cord clamping

Rabe et al Cochrane database systematic reviews 2012 issue 8

15RCT, maximum delay in cord clamping time 120s, 738 preterm infants, 24-26 weeks.

1RCT on milking of cord, 2 RCT report blood volume measurement

NEC (5 studies) favours placental transfusion – 40% reduction in NEC

8. Hypotension management

Single blood pressure values are meaningless

Interpret blood pressure with markers of perfusion –cardiac output/ lactate/ co/

Keep CVP low

Fluids are not always the optimal treatment,

It is personalised medicine

Need sufficient BP to perfuse coronaries, minimal heart work that still maintains adequate organ perfusion, minimal catecholamines to limit cardiac damage, need to promote diastolic relaxation

Inotrope/chronotrope/vasoconstrictor/ vasodilator/lusitrope (milrinone)

New contenders: sildenafil, levosimendan

Agents modulating ischaemia/ reperfusion

Metabolism: Diastolic relaxation is poor in the neonate

Increases by70% in the first month

Fetal energy substrate is glycolysis (glucose)

Neonatal substrate = carbohydrate +SCFA

Adults LCFA , SCFA

Calcium in the neonatal heart: there needs to be adequate calcium ; poor calcium = poor diastolic relaxation.

Catecholamines may make numbers better, but at what expense?

Adrenaline =alpha+beta

Noradrenaline = alpha 1

Dopamine = dop…alpha/beta 1

Dobtamine = beta 1, beta 1, alpha +/-

Choice of inotropes: THINK cause, personalise to patient.

9. Needle Aspiration or chest drain insertion for pneumothorax in newborns : the NORD trial

ISRCTN65161530

Colm O'Donnell presented ongoing trial asking whether newborns with respiratory distress with a pneumothorax can be drained by needls aspiration vs chest drain.

Randomise within 6 hours of diagnosis

10. Learnt about the increasing use of U/S to rapidly diagnose pneumothorax compared to Xray.

Use of pleural ultrasonography versus chest radiography for diagnosis of pneumothorax: review of literature and meta-analysis Critical care

Lung ultrasound sensitivity 100% (87-100), specificity 100% (79-100)

Look for absence of lung sliding and stratosphere sign

Chest Electrical Impedence Tomography and Segmentography:

Quick, continuous monitoring, zero radiation exposure, but costly, not widely available

TREND study group

11. Group from Copenhagen presented type of foritifers and intestinal structure and function, and concluded that the type of fortifiers change protein metabolism – may impair intestinal health. Potential risks of hydrolysed protein in conventional fortifiers need more investigation ***