

Adolescent Medicine

IS-001 ADOLESCENT HEALTH: IMPLICATIONS FOR POLICY AND PROGRAMS

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Recent advances in adolescent health: implications for policies and programmes The health of adolescents is central to public health. Directing resources to health during the adolescent years is essential for building on investments made during the first decade of life, for ameliorating problems that may arise during these early years of childhood, for transitions to adulthood and for health in the future, for this generation and the next.

Significant progress has been made in understanding health and development during the second decade. This includes improved estimates of the health status of adolescents: mortality, disability adjusted life years lost and the initiation of health-related behaviours; clarity about the determinants that underlie adolescent health and disease; insights into the links between the developmental processes taking place during adolescence and health problems and health-related behaviours and conditions; and a much stronger evidence base for a range of interventions that can have a positive impact on adolescents' health.

The presentation will outline some of the major implications of this increased knowledge for policies and programmes, drawing particularly from the recent WHO publication "*Health for the World's Adolescents: a second chance in the second decade*". It will provide an overview of how recent advances confirm, correct and challenge existing policies and programmes, and outline some of the opportunities and challenges for ensuring that what is known influences what is done to improve and maintain the health of adolescents.

Brain

IS-002 INTRACRANIAL PRESSURE: THE PHYSICS APPLIED TO CLINICAL PRACTICE

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Intracranial pressure (ICP) is derived from cerebral blood and CSF circulatory dynamics, in pathology having also strong component related to volumetric changes in brain tissue or lesions. It can be affected in a course of many diseases of central nervous system. Monitoring of ICP requires an invasive transducer, although some attempts to measure it non-invasively have been made. Because of its dynamic nature, instant CSF pressure measurement using the height of a fluid column via lumbar puncture may be misleading. An averaging over 30 min with should be the minimum, with a period of overnight monitoring in conscious patients providing optimal standard. Computer-aided recording with on-line waveform analysis of ICP is very helpful.

Recent trial BestTRIP has been unfortunately badly designed and conducted, therefore it was unable to bring constructive message. Although there is no positive 'Class I' evidence, ICP monitoring is useful, if not essential, in head injury, poor grade subarachnoid haemorrhage, stroke, intracerebral haematoma, meningitis, acute liver failure, hydrocephalus, benign intracranial

hypertension, craniosynostosis, etc. Information which can be derived from ICP and its waveforms include cerebral perfusion pressure, regulation of cerebral blood flow and volume, CSF absorption capacity, brain compensatory reserve, content of vasogenic events. Some of these parameters allows prognosis of survival following head injury and optimisation of 'CPP-guided therapy'.

Bronchopulmonary Dysplasia

IS-003 EARLY INHALED CORTICOSTEROIDS FOR THE PREVENTION OF BRONCHOPULMONARY DYSPLASIA IN EXTREMELY PRETERM INFANTS: THE NEONATAL EUROPEAN STUDY OF INHALED STEROIDS (NEUROSIS)

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Background Survival of extremely low birth weight (ELBW) infants has improved in recent decades but bronchopulmonary dysplasia (BPD) remains a major problem. The effect of early inhalation of corticosteroids on survival without BPD in these infants is unclear.

Objective To determine the effect of early use of inhaled budesonide in infants with gestational ages of 23 0/7–27 6/7 weeks requiring any form of positive pressure support on survival without BPD at 36 weeks' gestational age.

Methods Randomised controlled trial. Budesonide or placebo were continued until infants were either off supplementary oxygen and positive pressure support or had reached a gestational age of 32 0/7 weeks regardless of their ventilator status. The primary outcome was death before 36 weeks of gestational age or survival with BPD, defined according to the physiological definition.

Results We randomly assigned 863 infants during the first 12 h of life in 40 centres in 9 countries to inhaled budesonide or placebo. In 7 infants consent was withdrawn. Of the 437 infants assigned to inhaled budesonide, 175 died or survived with BPD

Abstract IS-003 Table 1

Primary Outcome	Placebo	Budesonide	Relative Risk (95% CI)	Relative Risk Adjusted for GA (95% CI)	P Value	Odds Ratio Adjusted for GA, birth weight, caffeine, mech. ventilation (95% CI)
Primary Outcome	194/419 (46.3)	175/437 (40.0)	0.86 (0.74-1.01)	0.86 (0.75-1.00)	0.053	0.71 (0.53-0.97)
Components of primary outcome						
Death at <36 wk of gestational age	57/419 (13.6)	74/437 (16.9)	1.24 (0.91-1.71)	1.24 (0.91-1.69)	0.165	
Survival with BPD	138/363 (38.0)	101/363 (27.8)	0.73 (0.59-0.90)	0.74 (0.60-0.91)	0.004	

(40.0%), as compared with 194 of 419 infants assigned to placebo (46.3%). Further results are shown in the table.

Conclusions The reduction of the primary outcome (death before 36 weeks or BPD) by inhaled budesonide in ELBW infants was of borderline statistical significance. Inhaled budesonide significantly reduced BPD, which is a component of our primary outcome and was a predefined secondary outcome.

Cardiac Failure in Congenital Diaphragmatic Hernia: Cause or Consequence?

IS-004 THE HEART BEYOND THE LUNG

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Congenital diaphragmatic hernia (CDH) is in many respects a disorder of the circulation. Pulmonary hypertension due to abnormal pulmonary vasculogenesis and function results in increased afterload on the right ventricle (RV), and via mechanisms of ventricular interdependence in turn leads to biventricular cardiac failure. Recent work suggests that RV function in CDH may be a central determinant of illness severity, and not simply a secondary “side-effect” of pulmonary hypertension. New echocardiographic imaging modalities have revealed insights into cardiac performance in CDH, including the importance of early diastolic dysfunction. Diastolic dysfunction appears to be related to clinical course including early outcomes in CDH. Improved understanding of the role of cardiac function in CDH may allow better early prognostication and inform therapeutic decisions including timing of surgery. New treatment paradigms incorporating early assessment and targeted therapy to optimise cardiac function may allow us to improve outcome in CDH.

Circulation/PDA

IS-005 PHYSIOLOGY OF PATENT DUCTUS ARTERIOSUS

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The ductus arteriosus (DA) does one thing with its life, it constricts after birth in response to rising pO₂, achieving functional closure often by 24 h. If it fails to constrict or close, it remains as a passive conduit with movement of blood determined by the relative pressure at each end. Constriction and closure in well preterm babies occurs in similar time frame to term babies but in the very immature or unwell preterm, this process can fail.

The early postnatal constriction of the preterm ductus predicts its subsequent behaviour with good constriction predicting closure and poor constriction predicting persisting patency. Because pulmonary pressures in preterm babies tend to be sub-systemic even early after birth, the dominant direction of shunting is left to right. In those where constriction fails, large movements of blood from the systemic to pulmonary circulation can occur. The haemodynamic impact of this can be much earlier than is widely appreciated with large PDA being a stronger predictor of low systemic blood flow early after birth than later and overload of the pulmonary circulation, apparent as pulmonary haemorrhage, within the first 24–36 hrs.

This pathophysiology suggests that early intervention will be needed to make a difference to DA related morbidity. The predictive properties of early DA constriction provides an opportunity to target early treatment. This has been tested in the pilot DETECT trial with a reduction in pulmonary haemorrhage. Larger RCTs that embrace the above physiology in their design are needed.

Enteral Nutrition

IS-006 OPTIMISING ENTERAL NUTRITION IN THE PREMATURE INFANT

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Both postnatal nutritional deficit and postnatal growth restriction represent major issues in preterm neonates and have been associated with adverse long-term outcome. Optimisation of enteral nutrition without increasing the risk of necrotizing enterocolitis (NEC) has thus become a priority in preterm neonates. Due to their immaturity premature infants are frequently started on parenteral nutrition and then switched with different times and methods to enteral nutrition. Most recent ESPGHAN recommendations for enteral nutrition suggest for an average preterm infant a pro kg daily supply of 110–135 kcal, 3.5–4 g proteins, and 4.8–6.6 g lipids, inclusive of medium chain triglycerides if added, and adequate amounts of linoleic and alpha-linolenic acids, arachidonic and docosahexaenoic acids. The use of human milk for preterm infants has increased over the past decade reflecting an improved awareness of the benefits of human milk. A number of breast milk components have been credited with anti-inflammatory properties reducing clinical morbidities such as NEC and sepsis in the preterm infant. However, as breastfeeding is quite difficult for premature infants, a comprehensive approach to standardising preterm infant nutrition is essential to optimise the collection, storage, fortification and delivery of human milk to preterm neonates. Many questions remain unresolved such as the definition of optimal postnatal growth velocity, the most effective way of transition from parenteral to enteral nutrition and the role of compounds such as probiotics and prebiotics. As a matter of facts, there is great heterogeneity in nutrition practices among neonatal units, with frequent discrepancies.

Joint AAP, EPA and EAP Session – Child Health Inequalities. Can we Make a Difference?

IS-007 EUROPEAN PAEDIATRIC ASSOCIATION

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Avoiding Unnecessary Variations and Diversities of Child Health Care Systems in Europe Paediatrics in Europe is characterised by the diversity, variety and heterogeneity of health care offered in