

GLUCOSE OXIDATION ON THE FIRST DAY OF LIFE IN VENTILATED VLBW INFANTS.

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Ventilated VLBW infants usually receive only glucose during the first day of life. These infants are prone to hypo- and hyperglycemia, and it is unknown if this is due to changes in glucose oxidation (Gluox) or non-oxidative disposal (NOD). We studied glucose turnover and oxidation in 7 ventilated VLBW infants (birthweight 1.25 ± 0.30 kg; gestational age 32 ± 2 weeks; postnatal age 17 ± 5 hrs) by a primed constant infusion of the stable isotope $U\text{-}^{13}\text{C}$ -glucose. The rate of appearance of glucose (Ra) was measured from the plasma ($m+6$) enrichment using GC-MS, glucose oxidation was measured as $^{13}\text{CO}_2$ excretion in breath. Results as mean \pm 1sd:

Results	gluc. int	Ra	Gluox	NOD
mg/kg.min	4.08 ± 0.13	6.32 ± 0.87	2.78 ± 0.96	3.54 ± 0.68

Conclusion: 1. Endogenous glucose production was still present in all infants (2.24 ± 0.84 mg/kg.d) 2. Glucose oxidation was less than glucose intake 3. Non-oxidative disposal accounts for more than 50% of total Rate of appearance of glucose.

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HYPOXIA PRECEDES DEATH IN SIDS. POSSIBLE TRIGGER MECHANISMS.

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Hypoxanthine (Hx) is formed from hypoxic degradation of AMP and is thus a marker of hypoxia. Results of Hx measurements in vitreous humor in 112 SIDS cases and in 21 infants and children suffering sudden violent death, were corrected according to the expected post-mortem Hx increase. The corrected median Hx level of the SIDS group was $232 \mu\text{mol/l}$, (range $0\text{-}668 \mu\text{mol/l}$), which is significantly higher than the control group; $0 \mu\text{mol/l}$, (range $0\text{-}91 \mu\text{mol/l}$), ($p < 0.01$). The finding confirms that death in SIDS is preceded by a period of hypoxia in most cases.

Increased numbers of IgM-cells in the tracheal wall, IgA-cells in the duodenal mucosa and IgA-, IgM- and IgG-cells in the salivary gland in SIDS-victims, suggest an overstimulation of the mucosal immune system in SIDS - perhaps caused by microbial factors. Such peripheral immune stimulation leads to release of cytokines which can induce immunostimulation in vital brain centres creating a vicious circle inducing hypoxia and death in infants at risk. Retrograde axonal transport might be a link to centres of the brain.

BILIARY TRACT DYNAMICS DURING THE FIRST DAY OF LIFE

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In order to evaluate the functional maturity of biliary tract at birth, repeated ultrasound scannings were carried out in 13 healthy newborn infants. All infants were nursed on breast from the age of 2 hours.

The gallbladder was full in all infants immediately after birth (longitudinal ellipsoid surface area 1.02 cm^2 (0.44) (mean(sd)). No response was found to the first nursing. In 3 infants out of 9 (33%) there was a full response (100% emptying) during the first day of life, while in 2 (22%) the response was partial (47-88% emptying from the initial volume). In the rest 4 (44%) the gallbladder remained full during the first day of life. One of the infants showed no response during the first 3 days of life.

The biliary tract dynamics is highly variable after birth, possibly reflecting functional immaturity.

EPIDEMIOLOGY

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RETROSPECTIVE AND PROSPECTIVE EPIDEMIOLOGY DATA OF INVASIVE HAEMOPHILUS INFLUENZAE TYPE B (HiB) INFECTIONS IN SWITZERLAND

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In Switzerland reporting of invasive HiB infections is mandatory for physicians (meningitis and septicemia) and laboratories (blood and CSF isolates) since Dec. 1987. We report on data of 529 prospectively collected cases from 1988 to 1990. Meningitis and epiglottitis were the 2 most frequent types of infections, representing 54% and 31% of all HiB diseases in the age group 0-15 years respectively. The annual incidence (0-4 years) of meningitis was $23/100,000$, 13 for epiglottitis and 42 for all HiB infections. The peak incidence rates were observed between 6-12 months for meningitis and between 24-36 months for epiglottitis. Under the age of 6 months no epiglottitis was reported, whereas 5.6% of the meningitis patients were younger than 6 months. 10% of all HiB infections occurred in children between 5 and 15 years. The case fatality rate was higher for meningitis (2.5%) than for epiglottitis (1.2%). The retrospective studies in the canton of Zürich documented slightly higher incidence and case fatality rates and very similar age distributions for the above mentioned infections. The results warrant an immunization programme, which will be surveyed by the actual reliable reporting system.

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Coronary Risk Factors in Schoolchildren: Preliminary Findings of the Northern Ireland Young Hearts Project

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Northern Ireland (NI) lies at the top of the world mortality league for Adult Coronary Heart Disease (CHD). We have evaluated coronary risk factor status in a random stratified sample of 1015 school children, comprising 251 12-year-old boys, 250 12-year-old girls, 252 15-year-old boys and 254 15-year-old girls. The protocol included a physical examination, fitness testing and dietary analysis. Blood samples were obtained from 1012 children for serum total cholesterol determination. The overall response rate was 76 % with a parental questionnaire return rate of 93 % in responders. The prevalence of obesity was 9.6 %, 10.4 %, 12.3 % and 29.5% in boys and girls, aged 12 years and 15 years respectively. The corresponding cholesterol levels were 4.6 mmol/l , 4.7 mmol/l , 4.2 mmol/l and 4.6 mmol/l . No significant relationship was identified between total cholesterol and family history of premature coronary heart disease. These results indicate a high prevalence of obesity particularly in 15-year-old girls and unfavourable cholesterol levels in all 4 age-sex groups.

PASSIVE SMOKING AND URINE COTININE LEVELS IN GREEK CHILDREN

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The high prevalence of cigarette smoking in Greece made worth an attempt to document passive smoking among children. A pre-coded questionnaire was completed by three paediatricians for 565 randomly selected attenders in a 24-hours walk-in outpatient clinic.

In all 565 children urine cotinine levels were measured by radioimmunoassay and standardised by the cotinine / creatinine ratio. It was found that: 1. Most Greek children (80%) are passive smokers as it was confirmed by the elevated urine cotinine/creatinine ratio ($53.4 \pm 74.3 \text{ ng/mg}$). 2. In 44% of the households mother was the source of indoor pollution by cigarette smoke, alone (11%) or along with father (33%). 3. From variant and regression analysis a statistically significant association was identified between urine cotinine levels in children and the following main factors by descending order of p values: number of smokers at home (positive), child's age (negative), number of cigarettes/day (positive), surface of household (negative), maternal education (negative).

In conclusion antismoking compaign has to be reinforced in Greece and paediatricians are urged to actively participate.