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**ARE NEONATAL RED BLOOD CELLS PROTECTED AGAINST ENDOTOXIN?** J.M.B.Pöschl, M.Schnauffer, O.Linderkamp. Dept. Pediatrics, University of Heidelberg, Germany.

Lipopolysaccharide is the major component of endotoxin. Lipid A is primarily responsible for the endotoxin toxicity. **MATERIALS AND METHODS:** RBC from preterm and full-term neonates (day 5-7 of age), from cord of full-term neonates and adults were incubated with lipid A (50 µg/ml RBC) in vitro for 30 and 60 min. Lipid A binding to RBC was studied using a passive hemolysis test. Lipid A sensitized RBC were hemolysed with anti-lipid A and guinea pig complement. Hemolysis was expressed as hemoglobin concentration (extinction at 546 nm) in the supernatant.

**RESULTS:**

Incubation time of lipid A (min):	0	30	60
Hemolysis: Adult	0.046	0.262	0.636
Term neonates	0.025	0.136	0.464
Preterm neonates	0.045	0.069	0.245
Cord blood	0.031	0.051	0.049

**CONCLUSIONS:** These results indicate that lipid A is bound to RBC membranes in adults, term and preterm neonates after 30 and 60 min incubation. The hemolytic activity was stronger for adult RBC compared with term and preterm neonates. No hemolysis was detected after lipid A incubation of cord blood RBC. We speculate that cord and less pronounced neonatal RBC are protected against lipid A insertion into membranes.

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**CHRONIC GASTRITIS TREATMENT IN CHILDREN WITH SEMICONDUCTOR LASER**

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26 children (12 boys, 14 girls) with endoscopic and morphologic proved diagnosis chronic gastritis aged 4-15 years have been treated. Treatment was carried out by semiconductor AlGaAs laser (wavelength 890 nm, pulse power 4.0 w, pulse frequency 600 Hz, 64-128 sec per procedure). Irradiation was conducted out every day, 6-7 times epigastric area. Disappearance of pain syndrom observed after 2-4 seances, appetite improved in 87% children. It was obtained decrease of infiltration changes and reparation of mucosa defects in 73% and normalisation of gastrointestinal motility in 68% children after treatment. Using morphometric biopsies method in gastric mucosa was revealed decrease of cell infiltration density from 5492 +/- 371 until 4815 +/- 265 cell/mm<sup>2</sup>, alteration of plasmacytes and lymphocytes, increase of capillar quantity from 105 +/- 20 until 511 +/- 17 cell/mm<sup>2</sup> 3 days after lasertherapy. It was observed a reparation effect after 14 days of treatment in increasing fibroblasts number and surface epithelia from 3102 +/- 126 until 7248 +/- 315 cell/mm<sup>2</sup>. The main conclusion is that laserotherapy activates the microcirculation in gastric mucosa, decreases morphological signs of inflammation and significantly increases reparative processes.

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**HEALTH KNOWLEDGE, ATTITUDES AND BEHAVIOURS IN FAMILIES WITH PRE-SCHOOL AGE CHILDREN**

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**OBJECT:** To asses current practices of health promotion in families with pre-school age children: the parents and children's knowledge on healthy lifestyle, their attitude and behaviour, social values relating to good health, the content and nature of health education.

**METHOD:** Health knowledge, attitudes, behavioural indicators in families were estimated before and after one year health teaching course in experimental and control groups.

**RESULTS:** We questioned 6 year old children (N=442) and their parents (N=409). Health knowledge before education in families was quite good and relates to common education. More than 50% of the respondents knew the right answers. Health attitudes and health behaviours were very poor. After one year of health education only the health knowledge of fathers and mothers improved 10,4%. Health attitudes and health behaviours in families were without changes too.

**CONCLUSION:** Due to our survey, health knowledge does not relate to health attitudes and health behaviours.

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**YOGURT IN DIET OF LACTOSE INTOLERANT CHILDREN.** N.Radlović, V.Perišić, S.Milosavljević, Z.Vujnović, D.Ivković, J.Milicević, V.Lekić, O.Tosev, B.Marić. University Children's Hospital, Belgrade, Yugoslavia

Enhanced digestion of yogurt by lactose intolerant individuals is due to inherent beta-galactosidase (lactase) in the culture organisms that aids in the hydrolysis of ingested lactose. We studied yogurt intolerance in 80 children with lactose intolerance, aged 0.5-13 years ( $\bar{x}$ =4.25). Lactose tolerance was evaluated using relevant clinical and laboratory parameters. Small intestinal mucosa was morphologically examined in children with chronic diarrhea. Of 80 patients, 60 (80.00%) had secondary type lactose intolerance, followed by damaged mucosa of small intestine, associated with Rotavirus (23) and Salmonella (1) gastroenteritis, postinfective persistent diarrhea (16), infestation with Giardia lamblia (3) and Ascaris lumbricoides (1) and gluten sensitive enteropathy (20). In 16 (20.00%) it was the case of ontogenic or later onset lactose deficiency, clinically manifested by secondary irritable colon syndrome. In all cases diet treatment involved about 500 ml of yogurt daily, divided in 2-3 portions. None of the cases showed elements of intolerance to the fermented milk preparation. Our results makes yogurt as a well-tolerated source of milk for lactose-deficient children, confirming that it can be successfully applied in children aged over 6 months.

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**BRONCHOPULMONARY EFFECTS OF INHALED NITRIC OXIDE IN NEONATES WITH REFRACTORY HYPOXEMIA.** Yvon Riou, Laurent Storme, Régis Logier, Sylvaine Rousseau, Patrick Truffert, Jean P Dubos, Pierre Lequien. Service de Médecine Néonatale. Hôpital Calmette. CHU de Lille. France.

Bronchopulmonary effects of inhaled nitric oxide, NO are still controversial. A bronchodilator effect was demonstrated in animal studies, whereas preliminary clinical studies in asthmatic patients showed only a slight decrease in airway resistance after high concentration NO. After approval of the Human Ethics Committee of the hospital, we studied in five newborn infants with refractory hypoxemia, the impact of inhalation of NO, 40 ppm, on respiratory mechanics. Three were premature infants of 26 weeks gestational age with severe hyaline membrane disease, and two were term infants with congenital diaphragmatic hernia. In the five cases refractory hypoxemia failed to improve despite maximal mechanical ventilation and conventional drug therapy. Ventilatory parameters were measured at the airway opening by using a specially built-in automated device. Shortly after the start of inhalation of NO at FiO<sub>2</sub> 1, inspiratory resistances decreased by 51 ± 8 % and dynamic compliance increased by 34 ± 7.9. Consecutively, PaO<sub>2</sub> increased (+ 111 ± 45 %) and PaCO<sub>2</sub> decreased (- 16 ± 4 %) rapidly. After the first 30 min. NO inhalation, respiratory mechanics remained stable, while oxygenation further improved progressively.

From these constatations, it is postulated that, for some extent, increase of oxygenation and ventilation obtained with NO inhalation may be the consequence of peripheral bronchodilation. Beside the pulmonary vasodilatation, it may represent another mechanism to explain immediate oxygenation improvement.

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**RED BLOOD CELLS IN PRETERM AND TERM NEONATES SHOW DECREASED RESISTANCE TO PLASTIC DEFORMATION WHEN COMPARED TO ADULTS**

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The mechanical fragility of red blood cells (RBC) in term neonates is increased compared with adult RBC. We studied tether formation (i.e., small area membrane rupture) of single RBC from preterm infants, term neonates and adults using a new micropipette technique. Point attached RBC were aspirated at different negative pressures into a large micropipette with an internal diameter of about 7.8 µm. We measured (1) the critical pressure to start membrane tether formation, (2) the onset of tether formation, (3) the length of membrane tethers after 2, 5, 10, 15, 20, 25, 30 s and (4) the relaxation behavior of the membrane tethers after releasing the RBC. At a pressure of -3mm H<sub>2</sub>O, only RBC of preterm and term neonates formed tethers. RBC of preterm infants began to form tethers earlier (3.7s) than term neonates (8.2s). The tether elongation rate was also increased in preterm infants. At a pressure of -5mm H<sub>2</sub>O, we observed also tether formation in adult RBC. Tether formation at a pressure of -5 mm H<sub>2</sub>O began after 10.2 s in adults, 4.1 s in term neonates and 3.2 s in preterm infants. 10 s after the beginning of tether formation, the tether lengths were 22.15 ± 8.05 µm in preterm neonates, 11.8 ± 3.62 µm in term neonates, and 10.63 ± 4.97 µm in adults. The relaxation behavior of the tethers was similar in the three groups. Repeated tether formation of the same point attached RBC changed the pattern of tether formation. This indicates irreversible alterations of the cell membrane during tether formation. We conclude, that RBC in preterm infants show decreased mechanical resistance compared with full term neonates. Decreased resistance of neonatal RBC to tether formation may contribute to the shortened RBC life span, particularly in preterm infants.