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BRONCHOALVEOLAR LAVAGE (BAL) IN ACUTE INTERSTITIAL PNEUMONITIS OF CHILDREN WITH AIDS. J de BLIC, M LE BOURGEOIS, C DANIEL, S BLANCHE, P SCHEINMANN. Hôpital des Enfants Malades, Paris, France.

Acute interstitial pneumonitis (IP) is a common respiratory complication in children with AIDS, but unlike in adults, BAL is seldom used. Since 1984 we performed 14 BAL in 10 children with AIDS and 4 with ARC (aged 3 months to sixteen years). Except in one child, BAL were performed under local anaesthesia during a flexible bronchoscopy, 10 ± 6 days after recognition of IP. One or more infectious agent were found in 9 cases (64 %): Pneumocystis carinii (PC) (7, associated with Legionella pneumophila and Para influenzae 3 virus in one case), Respiratory syncytial virus (1), Cytomegalovirus (1). PC was still present in BAL in 4 children who had been receiving curative doses of cotrimoxazole for 3 days. Cytological examination showed 397 ± 246 × 10³ cells/ml, 70 ± 27 % macrophages, 22 ± 18% lymphocytes and 8 ± 10 % neutrophils. PC was associated with lymphocytosis, neutrophilia and clumps of cellular debris. All children (5) with sterile BAL cured completely while 1/7 child with PC died. BAL is well tolerated and safe. It should be the first procedure performed in the assessment of opportunistic infection in children with AIDS, and should avoid systematic open lung biopsy.

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PLATELET ASSOCIATED PROTEINS AFTER RUBELLA RE-VACCINATION J. Forster, P. Zinn University Children's Hospital, D-7800 Freiburg, FRG

Rubella revaccination (RA 27/3-Behringwerke, FRG) was given to 20 women (mean age 20 y) in order to study the effect of recurrent infection on the platelet associated (PA-) IgG, IgM, and C₃. An antiglobulin consumption assay in a micro-ELISA technique was used at day 0, 5, 10, 20, and 30. We observed neither thrombocytopenia nor adverse reactions on the vaccination. The rubella Ab titer rose from 1:24 to 1:28 (HHT, geometric mean).

The starting/highest levels (mean ± SD) were: PAIgG 6.5±4.3/12.2±9.0 (day 20 p.v.), PAIgM 4.7±2.6/13.3±9.7 (day 10 p.v.), PAC₃ 2.0±.7/5.0±3.4 (day 20 p.v.). Using the paired t-test the differences were significant (p < 0.005).

The increase of platelet associated proteins did not reach levels found in acute IP, but those seen in acute paediatric infection. Some of these proteins may represent Rubella specific immune complexes which have been demonstrated by others in sera of revaccines at the appropriate times. In turn our data present another hint on a physiological role of the thrombocyte in removing immune complexes from the circulation.

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CHEMILUMINESCENCE IN THE DIAGNOSIS OF NEONATAL SEPTICAEMIA. Mitkowska Z.A., Pietrzyk J.J., Pryjma J., Róźański B.S. Medical Academy, Institute of Pediatrics, Cracow, Poland. The phenomenon of chemiluminescence /CL/ was used for the estimation of granulocytes

phagocytic activity. CL was measured in the whole blood of 30 septic neonates and 20 healthy ones after stimulation with 3 different doses of latex (20, 50, 200 µl). Peak CL height, time to peak and total light emission were measured within the period of 15 minutes. It was shown that CL pattern varied according to the pathogen. Peak height and time to peak in 20 infants with sepsis caused by Staphylococcus epidermidis were reduced in comparison to 20 healthy newborns (p < 0.01). In 2 cases of E.coli septicaemia the quenching of CL response was observed. Moreover, the discriminant analysis was applied to the results of CL in both groups. The most discriminant parameters among the infants with hyperleukocytosis appeared to be: time to peak for 50 µl (F=6.8), total light emission for the stimulation both with 50 µl (F=5.8) and 200 µl of latex (F=5.5). Based on the above results we concluded that CL may be used as a very quick micromethod in early diagnosis of neonatal septicaemia.

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IMPAIRED β-ADRENERGIC FUNCTION IN LYMPHOCYTES OF CHILDREN WITH PERTUSSIS (P)

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There is indirect evidence from clinical studies in human as well as in animal studies that infection and vaccination with B. pertussis might affect the β-adrenoceptor/cyclic AMP system. In order to study whether this view works, the adrenergic system was investigated on lymphocytes in children within the paroxysmal stage of P, in children after vaccination (V.) with P-mono-vaccine, and in an age-matched control group.

Methods: β-adrenoceptor (β-R) density was estimated by means of binding studies using 125-J-cyanopindolol. In children with P β-R number of lymphocytes was 2-3 fold lower compared to controls and after V. High and low affinity states of the β-R, indicating the intrinsic activity, were obtained by Hofstee-plot-transformation of salbutamol displacement curves. Basal levels, as well as maximum cAMP accumulation after specific (isoprenaline = IPN) and unspecific (forskoline = FO) β-R stimulation, were determined using a protein binding assay.

Results: In children with P β-R number of lymphocytes was 2 to 3fold lower compared to controls. In addition, an increased number of low affinity state β-R indicated impaired function. Decreased cAMP levels in both, the vaccination children and those suffering from P were observed. However, the latter showed distinct reduction of IPN induced maximal cAMP accumulation.

It is concluded that P-infection, as well as V., strongly affects the adrenergic system.

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ELASTASE-α₁-PROTEINASE INHIBITOR IN NEONATAL SEPTICEMIA AND HYALINE MEMBRANE DISEASE.

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Elastase, a neutral protease stored in the azurophilic granules of neutrophils, is immediately released during the process of phagocytosis and rapidly bound and inactivated by α₁-proteinase inhibitor. This complex (E-α₁-PI) is of high stability and can be identified by an ELISA-assay. In our study 95 % of all infants with neonatal septicemia and/or meningitis had significantly increased plasma levels of E-α₁-PI at time of diagnosis (n=37). Only two patients with group B streptococcal septicemia (GBS) were missed initially, both of them displayed marked leukopenia and neutropenia at time of diagnosis. Nevertheless determination of E-α₁-PI was helpful in distinguishing patients with early onset streptococcal disease (n=13) from those with hyaline membrane disease (HMD; n=30). 85 % of the neonates with GBS had increased plasma concentrations of E-α₁-PI at age of diagnosis. In contrast all patients with HMD had E-α₁-PI levels within the normal range. After initiation of therapy normalization of E-α₁-PI levels was observed in all neonates who recovered from infection. These data suggest that E-α₁-PI is a sensitive and rapidly responsive indicator of neonatal septicemia. In addition E-α₁-PI may be helpful in monitoring the course of the disease.

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OCULAR (OBF) AND CEREBRAL (CBF) BLOOD FLOW RESPONSE TO VARIATION IN ARTERIAL pCO₂ LEVELS.

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The ocular and cerebral blood flow response to variations in arterial blood pCO₂ levels was studied with the microsphere method in 10 newborn piglets. Surgery was performed under nitrous oxide anesthesia. The animals were then given pancuronium and ventilated for 1h at normal blood gas values. Measurement of blood flow and cardiac output (CO) were done at 5 previously determined pCO₂ levels. Hypocarbica always preceded hypercarbica. Results were:

pCO ₂	2.5	3.0	4.0	4.5	8.0	9.5	10.0	12.0
OBF ml/100g/min	65 ± 9	49 ± 5*	60 ± 7	78 ± 10*	60 ± 7			
CBF ml/100g/min	48 ± 3*	62 ± 2*	71 ± 3	225 ± 25*	177 ± 13*			
CO ml/kg/min	326 ± 31	275 ± 29	374 ± 37	462 ± 50	331 ± 30			

* p < 0.05 from baseline

Mean ± SEM

The results show that in contrast to CBF, OBF is little affected by variations in arterial pCO₂ levels. These results differ from studies in spontaneously breathing piglets, and indicate that OBF may be regulated independently of CBF. Pancuronium and/or artificial ventilation may also influence upon this regulation.