

PRPP, and inorganic phosphate (P_i) levels are somewhat higher in mutant cells, and MB elevates PRPP. Addition of AN plus MB depletes P_i, PRPP and adenine nucleotides in normal cells, but in the mutant R5P and PRPP rise and nucleotides remain unaltered. We conclude that oxidative PS is not essential for R5P generation: hence G6PD-deficient cells have no defect in PRPP or nucleotide synthesis. They are also protected from the combined effect of AN and MB, which is based on P_i depletion in normal fibroblasts. P_i is the prime modulator of PRPP synthetase *in vivo*.

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The electrophoretic mobility of washed platelets as well as of platelets suspended in diluted plasma obtained from adults and newborns was practically the same. No significant difference could be observed in the pH-mobility relationship of the two types of platelets. These comparative studies indicate that the actual charge density, i.e. the number and sign of the charges groups at the fetal and adult platelet surface are essentially identical.

Significant difference between the two platelet population was found, however, in the mobility changes induced by ADP. On the basis of "cross over" experiments between the platelets and plasma of adults and newborns it seems likely that the different behaviour of fetal platelets arises from a dissimilarity between adult and fetal plasma. The adult plasma might have a factor which is not present in the fetal plasma. Preliminary results indicate that this factor is a plasma component with mol.wt. about 10 000.

80 M.OBLADEN* and I. KLATT* (Intr. by H. BICKEL). Universitäts-Kinderklinik, 69 Heidelberg, FRG. A Synthetic Surfactant Substitute.

A crystalline mixture of 90% Dipalmitoylphosphatidylcholine (DPPC) and 10% Dipalmitoylphosphatidylglycerol (DPPG) was analyzed for its suitability as a surfactant replacement using a specifically designed modified Wilhelmy balance. A suspension prepared by vigorous shaking in 0.9% NaCl at 20° and 37° did not adsorb to the air-water interface (γ_{max} 72.6 dyn/cm, γ_{min} 69.8 dyn/cm, S.I. 0.04). When prepared in multilayered liposomes after drying, the material was adsorbed to the surface, spread rapidly to a film, and was highly surface-active (γ_{max} 70.4 dyn/cm, γ_{min} 3.7 dyn/cm, S.I. 1.83). After solubilization with ultrasound, a clear solution resulted which was not surface-active (γ_{max} 72.2 dyn/cm, γ_{min} 56.1 dyn/cm, S.I. 0.39) due to the formation of stable vesicles unable to form a film at the surface. Compared to DPPC alone which adsorbs to the surface in more than 90 minutes at 37°C, the material investigated adsorbed to a surface-active film in less than 10 minutes. The minimal film concentration of DPPC-DPPG displaying maximal surface-tension lowering ability was 2.55 $\mu\text{g}/\text{cm}^2$ in the liposomal preparation. No local or general toxicity was found in rabbits after tracheal instillation of the surfactant substitute during mechanical ventilation. Autohistoradiography showed the 3-H-labeled material at the alveolar wall 30 minutes after instillation into the tracheal tube.

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Genetic analysis of HLA and spina bifida association. The HLA typing and routine segregation analysis of HLA haplotypes were performed in the group of 68 families with single and multiple cases of spina bifida /SB/. A significant associations of SB with HLA-B27 allele /Chi2=78.073 p<0.0145/ and HLA-A3, B27 haplotype /Chi2=7.371 p<0.01/ were found. The observed distribution of B27 among the affected children fits the distribution expected on the assumption that this antigen makes the zygote more susceptible to the abnormal neural tube development /Chi2=0.161 p>0.5/. The significant relative risk of SB development given B27 allele and HLA-A3, B27 haplotype was 3.4/p<0.0005/ and 4.6/p<0.0005/, respectively. The analysis of parental HLA phenotypes revealed significantly higher frequency of common HLA antigens shared by both members of the couples as compared to the expected values /Chi2=314.040 p<0.0005/. The couples which shared two or three HLA antigens yield the highest relative risk of SB for their children /RR=17.8 p<0.0005/. The results raise the possibility that HLA antigens may interact with other developmental factors during the ontogenesis. Non-random association of HLA antigen and HLA haplotype with SB, as well as the very high frequency of common HLA antigens among the parents of the affected children might be used in identification of risk families.

82

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Effects of continuous positive airway pressure breathing (CPAP) after pediatric open heart surgery.

CPAP is an advance in the treatment of pulmonary dysfunction after cardiac surgery. The effects of different levels of CPAP on lung functions were determined immediately after weaning from the respirator in 14 children. The following parameters were measured: - tidal volume (V_T), compliance (C_L), resistance (R_{TL}) and blood gases; the work of breathing (W_T) was calculated.

CPAP (cmH ₂ O)	0	5	10	15	0
	Mean initial value (\pm SEM)	Change from mean initial value (in percent)			
C _L (ml/cmH ₂ O)	21 \pm 4,9	+ 47	+ 57,6*	+ 86,2*	+ 84,3
V _T (ml)	122 \pm 20	+ 15*	+ 8,6	+ 25,8*	+ 7,9
PaO ₂ (kPa)	12,6 \pm 1	+ 19	+ 23*	+ 32,5*	+ 30,9
PaCO ₂ (kPa)	4,4 \pm 0,2	+ 1,8	- 7*	- 6,1*	- 12,3*

* Significant at the 5% level.

Simultaneous beneficial effects on C_L, R_{TL}, W_T and PaO₂ were obtained with increasing values of CPAP up to 15 cmH₂O, the prefixed maximum value in this study. No deleterious effects on hemodynamics were found.

83

P. SCHWARTZE* (intr. by L. Corbeel). Department of Pathophysiology, School of Medicine, Karl-Marx-University, Leipzig GDR. Does rotatory stimulation or handling influence the development of vestibular system?

Rabbits were used to test whether repeated vestibular stimulation or handling during the first 10 postnatal days accelerates the development of vestibulo-oculomotor reactions. The animal material was divided into two experimental groups, and each of these into three subgroups: stimulated rabbits, handled rabbits and controls. Meanwhile the handling procedure was the same, two different rotatory stimulation programs were used in the respective subgroups from the 1st to 12th postnatal day. At this day chronic electro-oculographic electrodes were implanted to all of the stimulated and handled animals and the controls. Nystagmic eye movements (NEM) were recorded daily during a standard rotation stimulus between the 12th and 20th day. No systematic differences were observed between number and latency of NEMs of stimulated, handled and control animals. Further, no correlation was found between the speed of body weight increase and of nystagmic parameters in the subgroups.

84

M. GARCIA-FUENTES*, A. RUBIO*, J.L. ARCE*, E. BUREO*, V. MADRIGAL* and M. LOPEZ-COLLADO* (Intr. by J. Rodríguez-Soriano). Dept. of Pediatrics, National Med. Center "M. de Valdecilla", School of Medicine, Santander, Spain. Alterations of the complement and coagulation systems in meningococcal infections.

Serum levels of complement components (C1q, C4, C3, C5, C9, C3PA and C11), platelets, prothrombin time (PT), fibrinogen concentration and fibrin degradation products were measured at admission in 93 children (mean age 3.1 \pm 2.0 y) with meningococcal infections, 86% type B. Results were compared with an age matched normal group. Patients were classified in three groups: 21 with meningitis without systemic manifestations; 39 with uncomplicated septicemia and 33 with septicemia and shock. C1q was decreased (p<.001) in the three groups; C3 was also low but only in the last two groups was significantly diminished (p<.005). Forty-seven patients, regardless of the groups, showed a prolonged PT and 7 out of these 47 showed a disseminated intra vascular coagulation. These 47 patients had lower levels of C1q (p<.02), C3 (p<.05), C5 (p<.05), C3PA (p<.005) when compared with the remaining patients with normal PT. Values of PT in all patients correlated well with the levels of C1q (p<.05), C4 (p<.01), C3 (p<.001), C5 (p<.001), C9 (p<.001) and C11 (p<.05). These results suggest that activation of the classical pathway of complement occurs in all patients with meningococcal infections, even in benign cases, and that such activation may be related to the alteration of the coagulation system.

85

F. LAURENTI*, R. BALDUCCI*, P. CRISPINO*, F. MALAGNINO*, and D. PALERMO* (Intr. by Bucci). Depts of Pediatrics and Hematology, CNR Centre for Respiratory Viruses, Univ. of Rome, Italy. Functional activity of packed polymorphonuclear leukocytes (PMN) obtained by leukofiltration.

We recently obtained a striking increase of the survival rate in very small pre-term infants with sepsis through daily transfusions of packed PMN (20ml/Kg equal to 0.5 x 10⁹ cells). In order to increase the availability of PMN concentrates and to reduce the risk of sensitization, it would be useful to transfuse repeatedly, in the same patient, PMN collected from the same donor. We, therefore, evaluated the rate of functional decay of packed PMN obtained by leukofiltration and