11 IRON AND COPPER CONCENTRATIONS IN THE SERUM OF LEUKAEMIC CHILDREN.

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Serum iron levels /SIL/ and serum copper levels /SCL/ have been paralelly studied in 57 children with acute lymphoblastic leukaemia /ALL/. SIL and SCL were investigated by atomic absorption spectrophotometry. There were found the relationships between SIL, SCL and clinical stages of ALL and number of bone marrow blast cells. The highest mean levels were obtained in untreated children /SIL 169 ug%, SCL 261 ug%/ and in the full relapses with hyperleukocytosis and/or with extramedullary localization of ALL /SIL 163 ug%, SCL 254 ug%/. SIL and SCL were lower during treatment and in the cases with isolated organ localizations of ALL. The levels became normal when full remission was achieved /SIL 88 ug%, SCL 129 ug%/. These observations suggest that SIL and especially SCL are useful in the clinical evaluation of the stages of ALL. They can be used as both prognostic and therapeutic auxiliary test in the management of patients with ALL.

12 PHYSICAL PERFOMANCE CAPACITY IN CHILDREN WITH CYSTIC FIBROSIS

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Cystic Fibrosis belongs to those diseases which have important effects on the physical development of the patients. The present study was performed in order to investigate in which degree the physical performance capacity is affected by this chronic disease. In twenty children suffering from Cystic Fibrosis aged more than five years spiro-ergometric investigations on bicycle ergometer were accomplished. At rest, maximum steady-state and maximum load were examined: heart rate, oxygen uptake, carbondioxide output and oxygen pressure in arterialized capillary blood. Moreover we received the following parameters by calculations: oxygen pulse, respiratory quotient, oxygen uptake per kg body weight and "Physical Working Capacity" /W_{170}/. All indices of the physical performance capacity are compared as well with standard values in relation to age and height as with the clinical condition of the patient.

13 PREVENTION AND THERAPY OF GASTROINTESTINAL INFECTIONS IN INFANTS

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Gastrointestinal infections in infants caused by virulent strains have become a problem in most countries. Our study deals with the use of preventive colonization of the intestine and therapeutic effect of an orally administered antibody. In a nursery 17 infants were artificially colonized with a non-pathogenic E. coli strain o83 and the course of gastrointestinal infections was compared with a control group of 15 infants. Both groups acquired enteric infections but the course was milder in the colonized group than in controls. In 7 infants no antibiotics were needed. In controls 12 infants had to be treated with antibiotics, 1o of them even repeatedly. The oral administration of antibody against 3 enteropathogenic E. coli strains /o26,o55,o111/ caused in 13 out of 15 infants a total disappearence of the enteropathogens from the intestine without any other treatment. Enterotoxin producing E. coli strains have been tested -ligated intestinal loops.

14 EVALUATION OF THE VALUE OF THE ARTERIALIZED BLOOD OXYGEN TENSION IN ASTHMATIC CHILDREN ALONG WITH THE OTHER FUNCTIONAL VENTILATORY PARAMETERS.

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Arterialised oxygen tension has to be evaluated in the asthmatic children, along with the other functional ventilatory parameters. What are the physio-pathological mecanisms of the observed decreased O_2 partial pressure in the asthmatic children during the attacks, and even between the attacks while they appear clinically symptom-free. Partial pressure of O_2, in addition to ventilatory mechanical parameters, including measurement of trapped gas will be presented:

- in the growing healthy children
- in the symptom-free asthmatic children, whose functional parameters are within normal limits
- in the patients, during induced bronchospasms and during spontaneous attacks.

The presence of trapped gas and intrapulmonary veno-arterial shunts are suggested as one of the main physiologic feature of asthma.

15 THE FUNCTION OF THE ARTERIAL DUCT DURING THE FIRST MOVEMENT OF THE LIFE

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The decrease in pulmonary arterial pressure results in the pressure difference between the arteries connected with the arterial duct changing in the opposite direction to that in the fetal stage. The function of the lungs requires a fall in the pulmonary arterial pressure. The oxygen content of the blood decreases the resistance of the pulmonary circulation and closes the arterial duct. If the infant has respiratory difficulties during the adaptation period, and its oxygen supply is impeded, the resulting hypoxia causes an increase in the pulmonary resistance. At this stage the newly born infant strives to react by opening the arterial duct, and aortic blood which is rich in oxygen, enters the pulmonary vessels. In this way the newborn infant is prevented from getting into a vicious circle which would only aggravate the asphyctic condition. But after this, if however the pulmonary pressure is increasing the bloodflow in the duct may flow again from the pulmonary artery in to the aorta.

16 EFFECT OF COLD INDUCED THERMOGENESIS ON FREE FATTY ACID METABOLISM AND TRIGLYCERIDE SYNTHESIS OF BROWN ADIPOSE TISSUE IN THE NEWBORN RABBIT

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Parameters of serum free fatty acid /FFA/ metabolism: pool size half time disappearance rate, turnover time and absolute turnover rate and the influx of serum FFA into the glycerides of brown adipose tissue /BAT/ and the pathway of triglyceride /TG/ synthesis in BAT /alfa-glycerophosphate versus monoglyceride pathway/ were examined after intravenous injection of ^{14}C-1-palmitate in newborn rabbits /1/. In the thermoneutral environment of 35°C /T_a=35°C/ the turnover rate of serum FFA was 1o,2o µmol/min and its flux into the glycerides of BAT o,367 µmol/min. Cold exposure /T_a=2o°C/ caused a decrease to 5,84 umol/min and o,2o7 µmol/min respectively. Specific radioactivities showed uniform labelling of TG of BAT with the injected ^{14}C-FA in all three positions, indicating that both under basal conditions /T_a=35°C/ and under cold induced thermogenesis /T_a=2o°C/ triglyceride synthesis in BAT ran through the alfa -glycerophosphate pathway. /1/. Schenk, H., Heim, T., Mende, T., Varga, F., Goetze, E.:Europ.J.Biochem. 1975. /In press/.