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In vitro PHA-induced multiplication of lymphocytes.

A simple microtechnique for measuring the response of lymphocytes to PHA has been elaborated; only 0.2 ml of whole blood is used and after 3 days the numbers of lymphocytes in cultures with and without PHA are compared. In healthy children and adults PHA induced increments in the number of cells by a mean factor ± 1 SD: 1.90 ± 0.38. The method has a higher degree of precision and sensitivity than the estimation of blastoid transformation of the lymphocytes, and has proved useful to detect cellular immune deficiencies in children. The results obtained with blood from infants in the newborn period did not differ from those of older children and adults. A vivid lymphocyte response was seen even in infants born after 30 weeks gestation. This aspect of cellular immune mechanisms, therefore, seems to have reached a high degree of maturity in late fetal life.

155 M.XANTHOU*, E.MANDYLA-SFAGOU*, A.AGATHOPOULOS*, H.BAKOULA-TZOUMAKA*, C.ECONOMOU-MAVROU* and N.MATSANIOTIS. (Intr. by Prof.Matsaniotis). 1st Department of Pediatrics of Athens University, Athens 608, Greece. Mitotic response to phytohaemagglutinin (PHA) of lymphocytes during the neonatal period.

Lymphocyte function measured by the assay of mitotic response to PHA was studied in the blood of 46 fullterm and 51 premature neonates. The lymphocyte cultures were incubated for 72 hours at 37°C and DNA synthesis was estimated by incorporation of [^{125}J] 5-iodo-deoxyuridine. DNA synthesis in unstimulated cultures from premature or fullterm newborns was significantly greater than in adult controls ($p < 0.001$). With the maximal PHA stimulation dose the mitotic response of neonates both fullterm and prematures during the first 4 days of life was significantly lower than in adults ($p < 0.001$). However it rose to adult levels after the 4th day. In the presence of the submaximal PHA dose the mitotic response was similar in adults and neonates in the first days of life and later. These findings indicate decreased mitogenic capacity of the lymphocytes during the first days of life suggesting either functional immaturity or the presence of an inhibitory factor in the newborn's plasma.

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Some immunological indices in juvenile rheumatoid arthritis.

In a group of 89 patients suffering from JRA a complete immunological examination /specific cellular and humoral immunity, non-specific immunity/ as well as an evaluation of activation of lymphocyte nucleoli and tissue antigens was performed. The results were correlated with the data of the clinical course and the values of rheumatological laboratory examinations. The presence of antigen HL-A 27 in our material amounts to 28,1% /a normal occurence 8%/, haplotyp HL-A 1-8 was found in 13,5% /normal occurrence in population - 5.4%/. In addition, the values of cellular immunity were found under the range of normal values in 30.3%. These values correlated with the simultaneous decrease of IgM; no correlation was found in the cases with corticotherapy. A statistical evaluation shows that within the scope of a wide diagnosis of JRA there exist several subgroups, the distinction of which can be significant especially from the point of view of the prognosis and treatment. The evaluation of the presence of particular tissue antigens in dependence upon the changed parameters of immunological reactivity indicates the existence of the immunogenetical predisposition for the origination of JRA.

157 N. MERİÇ* and A.İ. BERKEL Sami Ulus Children's Hospital and Hacettepe Univ. Institute of Child Health, Ankara, Turkey
Cellular immunity in children with acute rheumatic fever (ARF) and rheumatismal carditis (RC)

Cellular immunity was investigated in 74 children with ARF grouped as with or without active carditis (AC) or inactive disease with valvular lesions (VL) and 26 healthy controls of the same age (4-17 yrs). Absolute lymphocyte counts were not significantly different from the controls. Skin test responses to PPD, candida and SKSD antigens, in vitro lymphocyte response (IVLR) (measured by the incorporation of H_3Tdr into DNA) to phytohemagglutinin (PHA) was significantly decreased in patients with AC. IVLR to candida was similar in all groups. But SKSD response in the group of VL was higher ($p<0.05$) in comparison to the active disease group. Blastic transformation response to cardiac tissue antigens was present in 25% of the patients with AC, in 15% of the group without carditis, in 46% of the patients with VL and none of the controls. The plasma from patients with active disease caused a 50% or more inhibition in the blastic transformation response of the normal lymphocytes to PHA. These findings suggest that cellular immunity may play an important role in the pathogenesis of ARF and of RC.

158 L.MASSIMO, M.PASINO*, C. ROSANDA*, G.P.TONINI*, A.ASTALDI* T and B cell markers in acute lymphoblastic leukemia (ALL). Department of Pediatric Hematology and Oncology Institute "G. Gaslini", Genoa, Italy.

Peripheral blood (PB) lymphocytes from 43 children with ALL and cerebrospinal fluid (CF) cells from 6 of them with meningeal involvement were evaluated several times during the course of the disease for lymphocyte markers. The tests performed were PHA-responsiveness (PHAr) in cell culture, E-rosette formation as T-cell marker and presence of membrane immunoglobulins (mIg) as B-cell marker. It appeared that: a) PB PHAr was moderately decreased in remission and strongly reduced at the onset and in relapse; b) no PHAr was observed in CF cells; c) percentage of T-cells in PB was normal in remission and low at the onset and in relapse; d) percentage of T-cells in CF was consistently lower than in PB; e) percentage of B-cells in PB was normal in remission while at the onset in 15/25 children (60%) was very low (in average 5.4%) and in 10/25 (40%) was higher (in average 18.7%); f) virtually no B-cells was ever found in CF. It could be inferred from our data that a high number of "null" cells, devoided of T- and B-cell markers, is found in PB both at the onset and in relapse and that CF lymphocytes are "null" cells of leukemic origin. In our study higher percentages of mIg bearing cells predicted a worse prognosis in children treated with a standard not very aggressive protocol. In conclusion lymphocyte markers should be always kept into account in the choise of differentiated schedule treatment, since they may help to provide a functional classification and a better knowledge of pathogenesis and prognosis.

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Reactions and efficacy of measles vaccination after exposure.

A detailed study on measles vaccination reactions were carried out in Turku city in early 1975 when measles vaccinations were started in Finland. An extensive measles epidemic broke out in Turku in late 1975 and the results of the previous study then permitted a comparative evaluation to be made of the efficacy and reactions of measles vaccine in children vaccinated after exposure. In a preliminary series 8 children exposured to measles were vaccinated during the incubation period i.e. 1-14 days after exposure. None of the vaccinees developed a typical measles. Encouraged by these results a further group of 82 children were vaccinated after an established exposure to measles by other children in day-care centers. Detailed informations have been obtained from 74 children (90%). In four of the vaccinees the reactions were comparable to the natural measles, in 32 vaccinees comparable to normal vaccination reactions, and in 38 vaccinees no reactions were observed. The vaccination reactions in 442 children vaccinated before the epidemic were: fever in 44%; cough and coryza in 43%; irritability in 30%; rash in 19%; conjunctivitis in 15%; loose stools in 12%; womiting in 9%; otitis media in 2%; total vaccination reaction in 56%.

The results obtained suggest that measles vaccination after exposure but before the appearance of prodromal symptoms decreases usually the severity of natural measles or prevents completely the clinical signs.