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EFFECT OF PASSIVE IMMUNITY ON THE HUMORAL IMMUNE RESPONSE TO INGESTED MILK PROTEIN. Christian H.L. Rieger, Sumner C. Kraft and Richard M. Rothberg. University of Chicago, Department of Pediatrics, Chicago 60637.

Mucosal immunization to environmental antigens results in circulating and secretory antibodies (Ab). Newborns who are passively immunized are thought to have a suppressed active immune response to these antigens. One day before starting ingestion of 0.1% bovine serum albumin (BSA), rabbits were passively immunized with hyperimmune anti-BSA sera (exp. group). Passive, oral, and parenteral control groups also were studied. The 1/2-life of the passive Ab was 6-7 days. Suppression or enhancement of the immune response to parenteral BSA injections was observed following passive immunization. During the first 25 days, passively administered anti-BSA in the exp. group decreased with a 1/2-life of 6 days. After this, the Ab concentration increased, approximating that of the oral-only controls. The Ab affinity in the exp. group gradually decreased and by day 63 was less than that of the oral-only controls. Following i.v. challenge of both groups, an 8-fold increase in Ab concentration occurred, but a greater increase in Ab affinity in the exp. group resulted in both groups having comparable Ab affinities. Antibodies produced by active immunization, with or without prior passive immunity, cross-reacted with various albumins to the same degree. These animal studies show that passive immunity does not alter the specific humoral Ab responses of gut lymphoid tissues, and suggest that passively acquired maternal Ab does not suppress the mucosal immune responses of infants. (USPHS AI-07854)

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THE EFFECTS OF CROMOLYN SODIUM ON NEUTROPHIL CHEMOTAXIS Robinson, Lawrence D., Wooten, Saundra K., Nichols, Anthony; (Spon by Michael E. Miller) Charles Drew Postgraduate Medical School, Los Angeles, California; Martin Luther King, Jr. General Hospital, Department of Pediatrics.

Cromolyn Sodium (CS) is an effective therapeutic agent in the prophylaxis of bronchial asthma. Although its specific mechanism of action has not been elucidated, CS has been shown to inhibit mediator release in the immediate hypersensitivity reaction.

The effects of CS upon the chemotactic response of human inflammatory cells have not been extensively investigated. We have demonstrated that CS is not chemotactic for either human neutrophils (HN) or eosinophils. Incubation of HN with CS for 30' (37°C) prior to chemotaxis did not affect the response of HN toward standard chemotactic factors: zymosan activated serum (ZAS), C5a or normal human serum (NHS) which was allowed to clot at 37°C for 1 hr. and then heat inactivated at 56° for 30'. Further chemotactic studies were performed utilizing untreated HN and incremental concentrations of CS added to each of the above standard chemotactants. Incremental conc. of CS (10^{-2}_M to 10^{-6}_M) added to ZAS or C5a did not affect the chemotactic response of HN, while after identical molar conc. of CS were added to HNS the chemotactic stimulus was diminished.

The role of the neutrophil in immediate hypersensitivity has become prominent with the identification of a neutrophil chemotactic factor (NCF). The data suggest that CS may inhibit serum-derived chemotactic activity, perhaps complement-independent factors, with resultant modification of the immediate hypersensitivity response.

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ISOLATION OF A HUMAN SERUM FACTOR AFFECTING UROPOD BEARING T LYMPHOCYTES. Frank C. Schmalstieg, Helen B. Rudloff, Donald R. Barnett, and Armond S. Goldman. Depts. Pediatrics and Human Biological Chemistry and Genetics, The University of Texas Medical Branch, Galveston, Texas.

We have shown that a high molecular weight factor present in plasma and serum reduced the number of human T lymphocytes exhibiting the motile configuration. In contrast, B lymphocyte morphology was not affected. The activity of this factor was abolished by pepsin or trypsin, and significantly diminished by phospholipase C. Neuraminidase, phospholipase A, phospholipase D or heparin induced serum lipase activity did not change the activity of the inhibitor. Antisera to human β-lipoprotein was capable of removing most of the inhibitory activity from normal human serum. Gel filtration of serum with sephadex G-200 and Bio-Gel A-5M suggested that the molecular weight of this factor was approximately 1-2 x 10^6 daltons. The inhibitory material was isolated from serum by the following procedures: 1)precipitation by heparin and magnesium chloride; 2)sequential flotation by ultracentrifugation; and 3)affinity chromatography on concanavalin A-sepharose 4B columns. The inhibitor appears to be a lipoprotein residing in the LDL_2 lipoprotein fraction (density 1.030-1.073 g/dl) that is not retained on concanavalin A-sepharose 4B columns. Our studies indicated that the lipoprotein which regulates T cell morphology is distinct from those which inhibit PHA stimulation of human lymphocytes and E-rosette formation.

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ASSOCIATION OF MYOSITIS, HYPERLIPIDEMIA AND IMMUNOREGULATORY DYSFUNCTION. Stanley A. Schwartz, Sudhir Gupta and Robert A. Good, Memorial Sloan-Kettering Cancer Center and Dept. of Pediatrics, Cornell University Medical College, New York

Lipoprotein complexes have been associated with depressed immunologic functions. An 18-month old male presented with a history of intermittent and recurrent fevers, hepatosplenomegaly, anemia and thrombocytopenia. The patient developed a progressive polymyositis associated with elevations in CPK and aldolase enzymes; muscle biopsy revealed infiltration and replacement of striated muscles with connective tissue and mononuclear cells. Analysis of serum demonstrated a hyperlipidemia consistent with a Type I phenotype. Although the patient demonstrated only minimal depression of serum Ig levels, the addition of his serum to cultures of healthy donor peripheral blood lymphocytes (PBL) stimulated with pokeweed mitogen resulted in significant suppression of Ig synthesis and secretion. This suppressor activity was also demonstrated when washed patient PBL were cocultured with normal donor cells in the absence of patient serum. Furthermore, suppressor activity correlated with increased levels of T cells bearing surface receptors for the Fc portion of IgG (Tγ cells). These results support a model which includes the role of lipoproteins in the modulation of the immune response.
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DECREASING T-LYMPHOCYTES BEFORE *ALL* RELAPSE AND in vitro STUDIES. Michael R. Sharpe*, Herschel P. Bentley, Jr., Raymond D.A. Peterson, Department of Pediatrics, University of South Alabama, Mobile, Alabama

T-lymphocytes were noted to decline for 2 acute lymphocytic leukemia (ALL) patients prior to relapse and incubation of these lymphocytes with thymosin(200ug/ml) and/or plasma increased the proportion of E-rosettes. To evaluate this induction of sheep erythrocyte(SRBC) receptors, we have studied the influence of thymosin and/or plasma on regeneration of SRBC receptors by trypsinized normal and leukemic lymphocytes.

Decreases in E-rosette forming lymphocytes were observed in two ALL patients preceeding relapse with values of 50% E-rosettes to 24% over three weeks and 58% to 9% over eight weeks. Incubation of lymphocytes from the second patient in fresh AB negative plasma for 18 hours at 37°C increased E-rosettes from 14% to 32%. After peripheral blood lymphoblasts appeared, incubation with thymosin gave values of 18% pre- and 41% post-incubation. Plasma incubation of lymphocytes from a Hodgkin's disease patient increased E-rosettes from 2% to 32%.

Eight normal subjects had E-rosettes of 60% ± 2.2 before and 6% ± 2.7 after trypsin treatment. Incubation of these lymphocytes in plasma with thymosin(61% ± 0.9) or plasma alone (68% ± 3.0) allowed complete regeneration. Thymosin alone and HBSS gave values of 46% ± 3.4 and 48% ± 4.9. Six ALL patients in remission had values of 60% ± 4.9 before and 9% ± 3.3 after trypsin treatment with regeneration >53% in all media. It is concluded that lymphocytes from ALL patients in remission after trypsinization, regenerate receptors for SRBC without thymosin or plasma factors.

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CHEMILUMINESCENCE RESPONSE OF NEONATAL LEUKOCYTES Ann O. Shigeoka, Craig D. Allred, Harry R. Hill, University of Utah College of Medicine, Dept. of Pediatrics and Pathology, Salt Lake City, Utah.

Neonatal PMN may have abnormal metabolic function leading to defects in intracellular microbicidal activity. We have studied leukocytes from 14 healthy term infants and 5 stressed premature (30-36 weeks gestation) infants in order to determine the presence of functional abnormalities associated with ingestion of opsonized zymosan or group B streptococci. PMN separated by dextran sedimentation with ammonium chloride induced erythrocyte lysis were washed twice and resuspended in PBS. Control cells were obtained from normal adult volunteers. Studies were performed using both a chemiluminescence (CL) and a ^3H labeled group B streptococcal uptake technique. Chemiluminescence from term neonatal PMN was comparable to adult controls in all instances when zymosan was used as the ingested particle. Two of the term infants tested, however, showed depressed CL in response to opsonized group B streptococci. In contrast, CL studies of the stressed neonatal PMN were abnormal in 3 of 5 instances using opsonized zymosan and all 5 instances with group B streptococci. No phagocytic defect was evident by radiolabeled group B streptococcal uptake and microscopic examination. Since chemiluminescence is produced when the microbicidal mechanism of the neutrophil is activated, the abnormal results suggest a metabolic abnormality is present in some term and most preterm neonatal PMN. The presence of this defect may contribute to the high mortality observed with infection in stressed, preterm infants.