DERMATOMYOSITIS: MORPHOLOGICAL OBSERVATIONS AND THE INCIDENCE OF HL-A 8 ANTIGEN. Lauren M. Pachman, Elizabeth Potter, Charles Gonote, John Reins, Northwestern Univ. Med. Sch., Depts. Peds. and Med., Children's Mem. Hosp. and Olga Jonasson, Univ. Ill. Med. Ctr., Dept. Surg., Chicago.

Twelve children, 6M and 6F, aged 6-14 years, two with inactive disease, were studied. EKG abnormalities had been present in 5/12 and 6/12 had reflux of swallowed barium into the pyriform sinuses. In the active phase, muscle enzymes and electromyography were abnormal in all. Muscle biopsy demonstrated a round cell infiltrate (7/11) and focal sarcolemnal stain for IgG, IgA and IgM (rarely B_1C) in 3/3. Concurrent renal and skin biopsies were done in 4. Minimal deposition of IgG and B_1C was seen in the glomerular stalk in 3/4, while basement membrane deposition of IgG and IgE was found in 1/4. On electronmicroscopy, reticular tubular arrays (RTA) were seen in glomerular endothelial cells and in dermal and muscle capillaries. None were found in the inactive case. Skin biopsy displayed diffuse dermal stain for IgG in 4/6 active cases and none in the inactive ones (2). Increases in serum immunoglobulins were present in 5/12 and elevated nitroblue tetrazolium tests in 6/12. Tissue typing identified HL-A 8 in 7/10. This data indicates that immunological studies and the presence of RTA may reflect disease activity and that HL-A 8 occurs with unusual frequency in this disease. Supported by Grant 5-M01-RR00199 and PHS AM 14218-04.

QUANTITATION OF LYMPHOCYTE IMMUNOGLOBULIN BIOSYNTHESIS: Stephen H. Polmar and Patricia A. Chase (Intr. by Samuel Gross) Case Western Reserve Univ. Sch. of Med., Dept. of Ped., Cleveland, OH 44106.

Quantitation of peripheral blood lymphocyte immunoglobulin biosynthesis was evaluated as a method for detection of humoral immunodeficiency. Lymphocytes isolated from 3-15 cc of heparinized blood, using Ficoll-Hypaque gradients, were incubated in leucine free medium ($1x10^6$ cells/cc) with tritiated leucine for 48 and 72 hrs. Newly synthesized secreted IgG and total immunoglobulins were measured using specific anti-immunoglobulin antibodies coupled to insoluble bromacetylcellulose. Synthesis was readily detected in newborn infants as young as 28 wks gestation. The normal range (6 individuals) for total immunoglobulin synthesis and IgG synthesis was 1.3-5.5%, and 0.3-1.6%, respectively, of total secreted proteins. The lymphocytes of a patient with X-linked agammaglobulinemia synthesized no immunoglobulins. In a patient with non-X-linked agammaglobulinemia (with B-cells), total immunoglobulin and IgG synthesis was 0.20% and 0.13%, respectively. A patient with common variable hypogammaglobulinemia (normal IgM, low IgG, absent IgA) also showed depressed synthesis (total immunoglobulins 0.70%, IgG 0.40%). Quantitation of lymphocyte immunoglobulin biosynthesis appears to be a useful technique for the early diagnosis of humoral immunodeficiency and may be of potential value for the detection of immunodeficiency disease carriers.

VIROLOGIC STUDIES IN CHILDHOOD CONNECTIVE TISSUE DISEASES (CTD). P. Phillips, P. Parkman, Y. Hirshaut, R. Hargrave, M. Friedman, W. Lim, Cornell U. Med. Coll.,Hosp.Special Surgery, Dept Med & Ped.,New York, and FDA, Bur.Biol., Rockville,Md.

Evidence exists in man and animals that chronic virus infection causes immunologic disease. High virus antibody in a CTD, as found by others for rubella in juvenile rheumatoid arthritis (JRA), might causally implicate a virus. We compared virus antibodies in childhood CTD (88 JRA, 21 systemic lupus erythematosus (SLE), 21 other CTD) and 130 age, sex and race-matched controls with unrelated diseases. Sera were coded before measuring IgG, rubella, measles, parainfluenza type 1 (Para-1) and Epstein-Barr (EB) virus antibodies. Results and clinical data were computer-analyzed. Virus antibody incidence was similar in each CTD group vs controls, as were mean antibody titers except for high Para-1 ($\log_2$ 6.1 vs 5.6, $p<.005$) and EB (8.6 vs 7.7, $p<.005$) in JRA, and high measles (8.1 vs 6.1, $p<.005$) and Para-1 (6.2 vs 5.7, $p<.05$) in SLE. The EB and measles elevations were partially explained by significant correlations with IgG, which was higher in CTD, 15.8 mg/ml vs 11.9, $p<.001$. Lack of higher rubella in JRA was not explained by differing natural disease or immunization history. Factors not explaining the elevations were age, race, sex, disease duration and activity, type of JRA, corticosteroid treatment, ESR, latex fixation and ANA tests. Similar virus antibody elevations in adult CTD are also associated with hypergammaglobulinemia and do not necessarily implicate the viruses etiologically.

ACQUIRED AGAMMAGLOBULINEMIA IN 3 RELATED MALE CHILDREN FOLLOWING AN ILLNESS WITH CLINICAL AND LABORATORY FEATURES OF INFECTIOUS MONONUCLEOSIS. Provisor, A.J., Iacuone, J.J., Chilcote, R.R., Neiburger, R.G. and Baehner, R.L. Indiana Univ., Dept. of Ped., Indianapolis. (Intr. by Green, M.)

Three male children in 1 family (2 siblings and 1 maternal cousin) have presented with an illness characterized by cervical adenopathy, hepatosplenomegaly, fever and subsequent development of agammaglobulinemia in the 2 survivors. Both siblings presented at age 8 with positive heterophile titers. EBV titers were not obtained. The maternal cousin became ill at age 6 months; EBV antibodies were detected on 3 occasions but the heterophile titer was negative. Peripheral WBC rose to a level of 120,000/mm^3 with 90% lymphocytes, most being "atypical" in morphology. Evaluation of peripheral blood lymphocytes at the height of the illness showed 94% T-cells and 6% B-cells with normal lymphocyte transformation in response to phytohemagglutinin. Immunoglobulin analysis initially showed marked IgM elevation with normal IgA and decreased IgG. Subsequently serial analyses revealed absence of the 3 major immunoglobulins. Lymph node biopsies of the surviving sibling and cousin showed replacement of normal architecture by necrotic material. The association (x-linked) of acquired agammaglobulinemia following an illness with features of infectious mononucleosis has not been previously reported. Its pathogenesis may involve an abnormal T-cell response to EBV transformation of B-cells leading to B-cell dysfunction, lymph node necrosis, and agammaglobulinemia.

NEW HUMAN TISSUE CULTURE VACCINE AGAINST RABIES. Stanley A. Plotkin, Tadeusz Wiktor, Ashoke Nanavati, and Usha Shah, Wistar Inst.,Philadelphia, Pa., Haffkine Inst., Bombay, India and Aurangabad Univ., Aurangabad, India.

Nerve tissue rabies vaccines may produce neurologic sequelae, whereas duck embryo rabies vaccine has relatively poor antigenicity. To eliminate reactions while at the same time improving antibody responses, a vaccine has been prepared by concentration of rabies virus virions from supernatant fluids of WI-38 cell cultures, followed by inactivation with Beta-propiolactone or tributyl phosphate. Trials in animals showed protection against challenge. In man 1 dose given intramuscularly elicited antibodies in most subjects, and 3 doses produced responses in 100%. Vaccination with duck embryo vaccine on the same schedule resulted in titers ten to twentyfold lower. Excellent booster responses were observed in previously vaccinated individuals. Possible schedules for postexposure immunization have been worked out, based on administration of only 4 doses of vaccine. Preexposure vaccination will also be feasible with minimal reactions, since the vaccine contains no animal protein. (We thank the Wyeth Laboratories and the Institut Merieux for preparing the vaccine).

INCREASED INCIDENCE OF W27 IN JUVENILE RHEUMATOID ARTHRITIS. Gary S. Rachelefsky, Paul I. Terasaki, Roger M. Katz, and E. Richard Stiehm. University of California, Los Angeles, School of Medicine, The Center for the Health Sciences, Departments of Pediatrics and Surgery, Los Angeles.

The frequencies of 24 histocompatibility antigens (HL-A) were examined in 26 patients with juvenile rheumatoid arthritis (JRA). Specificity W27 was noted in 42 per cent (11 patients) compared to 6 per cent of 267 normal controls ($p < 0.0000$). The group with W27 had more males (6 out of 11 versus 3 of 15), an earlier age of onset (4.5 versus 8.4 years $p < .02$) and absence of rheumatoid factor and antinuclear antibody. Distribution by type of onset of disease did not differ between those with or without W27. No patient had evidence of sacro-iliac joint disease.

The presence of W27 in JRA suggests an environmental and/or genetic link between this disease, Reiter's disease and ankylosing spondylitis.

Follow-up of JRA patients with W27 could provide a clue to the etiology of a variety of rheumatic disorders and could help in the overall treatment and perhaps their prevention.