S-8-4

A NEWLY DESIGNED COLUMN TO TREAT AUTOIMMUNE NEUROLOGIC DISEASES BY SELECTIVE REMOVAL OF CD4+ T CELLS

H. Matsuo, K. Ichinose, I. Ohtsuru, H. Onodera#, J. Suemitsu#, M. Yoshida#, N. Yamawaki# and N. Shibuya

Kawatana National Hospital, Kawatana, Higashisonogi-gun, Nagasaki 859-36, Japan
Research and development laboratory, Asahi Medical Co. Ltd.,Oita 870-03, Japan

Experimental allergic encephalomyelitis (EAE) is the major animal model of human multiple sclerosis (MS). The pathogenesis of both EAE and MS directly involves the helper T cells. To remove CD4+ T cells selectively from the circulation, we designed a column in which anti-CD4 monoclonal antibody was immobilized on the surface of activated substance. More than 90% of CD4+ T cells, including pathogenic T cells, were selectively removed from whole blood with the direct perfusion through the column, resulting in abolishing the T cell response to antigen. We are studying the effects of the column on the course of EAE. This new strategy should be useful in the treatment of MS and other CD4+T cell-dependent autoimmune disorders.

S-8-5

PLASMA EXCHANGES (PE) IN RASMUSSEN ENCEPHALITIS (RE)

J.B. Palcoux, H. Carla, M. Tardieu*, C. Carpentier, G. Sebire*, Y. Loriette, M. Meyer, G. Malpuech

Department of paediatrics, Hôtel-Dieu, CLERMONT-FERRAND, FRANCE - * Department of paediatric neurology, CHU Bicêtre, LE KREMLIN BICETRE, FRANCE

RE is a rare and fatal neurologic disease of childhood. Patients present with continuous partial epileptic seizures and deteriorate progressively. CT and MR scans show localized atrophic lesions. The cause of this disease remains unknown. Formerly, hemispherectomy was the only treatment to control seizures. Recently herpes viruses have been implicated because they were found in brain tissue of some patients. Autoantibodies to glutamate receptor Glu R 3 have been detected in sera of rabbits and humans with RE, and therapeutic attempts by PE have been encouraging.

We have observed a 4-year-old girl who presented with prolonged generalized and localized seizures. CT scan was normal. Initial treatment was IV diazepam, valproate and phenobarbital. But seizures went on with eyelid and left arm pulses. The EEG showed continuous epileptic activity. The MR scan showed an abnormal area (looking like liquid) in the right fronto-temporal region. Antibodies against viruses were absent in serum and CSF. Interferon, lactate and pyruvate were normal. The child developped progressive hypotonia, ataxia and speech difficulties.RE was diagnosed and IV bolus of methylprednisolone and drips of immunoglobulins were carried out. There was a transient improvement. Eventually, we have performed PE of 1.5 to 2 plasma volumes, by cytocentrifugation (COBE SPECTRA) and with 4 % albumin as substitution liquid. The child underwent 5 consecutive PE, monthly. After every series there was a clinical improvement : less frequent crises and diminution of ataxia, but epileptic activity persisted on EEG. The effect of every series lasted for about two weeks. Recently PE once weekly were started.

S-8-6

PLASMAPHERESIS (PH) IN TREATMENT OF ADRENOLEUCODYSTROPHY (ALD)

R.Bambauer, R.Schiel, R.Latza and J.Klinkmann

University of Saarland, Homburg, Germany

ALD is a rare disorder of the very-long-chain fatty acid (VLCFA) metabolism. Most forms show an extreme variability in the level of expression. Symptoms of ALD are neuronal lesions, often accompanied by skin disorders. Mostly the diagnosis is confirmed by increased serum levels of VLCFA. Up to the present no sure therapeutic strategies are established. Efforts were reported by dietary regimens with VLCFA restriction. In the present trial we reported about a 55 year old caucasian male, suffering from progressive ALD with neuronal lesions. Altough maximum dietary therapy over a period of 60 months, the course of neuronal disorders was progressive. As a result, PH therapy, effective in a large number of autoimmune diseases, was applied 1990-1994. For more selective adsorption of lipoproteins and VLCFA, since 1994 the dextran-sulfate adsorption method was used. In both systems treatment sessions lasted 2,1±1,4 (1-4) hours and were repeated once a week up to every two weeks. Perfusion volume was 2,9±1,8 (2-4) L. After a treatment period of 64 months, the patient experienced a significant improvement in performance and general well-being. No further progression of neuronal disorders must be documented. These andectodal data suggest a very benefical effect of plasmapheresis therapy in treatment of progressive ALD.

S-9-1

PHOTOPHERESIS: CLINICAL AND MECHANISTIC STUDIES

Richard L. Edelson, M.D., Yale University School of Medicine

Photopheresis, a technique by which expanded clones of pathogenic T cells are exposed *ex vivo* to photoactivated 8-methoxypsoralen and then returned intravenously to the afflicted patient, is now in use in more than 100 centers worldwide. It has been approved as a standard therapy for advanced cutaneous T cell lymphoma (CTCL) for the past seven years, and promising results have been reported in clinical trials in scleroderma, graft-versus-host disease, rheumatoid arthritis, lupus erythematosus, AIDS, pemphigus and heart transplant rejection.

These clinical trials will be discussed in the context of recent information about the mechanism of action. Specifically, new information suggests that the treatment may substantially increase the amount of "empty" class I major histocompatibility molecules at the irradiated cell surface, while simultaneously releasing clone specific peptides into the medium. Data will be presented raising the possibility that these two effects, combined with exposure of the cells to subphysiologic temperature, may combine to make previously "invisible" surface antigens antigenic on reinfusion of the treated cells. The implications of these findings will be placed in the perspective of the clinical efficacy of the treatment.