

Effects of In Vitro Cannabinoids on T-Cell Responses of HIV Infected Patients

R. Schrier, P. Soto, C. Hamlat, D. Durand, K. Ceci, and R. Ellis,
Depts of Pathology and Neurosciences,
Univ. of California, San Diego, CA 92103

10th Society on Neuroimmune Pharmacology Conference
Poster FP -19 Presented on Friday, March 26, 2004

Cannabis and its derivatives, delta-9 tetrahydrocannabinol (THC), have potential use in HIV infected patients for treating pain and adverse side effects of antiretroviral therapy. To investigate effects of THC on the fragile immune response of HIV infected patients, we assayed T-cell lymphoproliferation (LP) and cytokine expression to antigens (HIV, CMV, MTB, Candida and Toxoplasma) and mitogen (PHA). Cells from HIV infected patients were cultured with 3 doses THC (.1, 1, 10 microg/ml physiologic to supra-physiologic) and antigens for 6 days. LP was measured by tritiated thymidine uptake. Cytokines interferon gamma, IL-10, and IL-12 were assayed by ELISA.

Of 15 patients tested, 5 showed at least 50% reduction of the positive (Stimulation Index > 3) LP responses at 10 microg/ml for pathogen antigens overall. Repeat testing confirmed individual donor sensitivity to THC. The effect of THC also varied with antigen since positive responses to HIV (SI > 3 in 13/15 patients) were decreased by at least 50% at 10 microg/ml in 11/13 (85%) patients. PHA LP responses were least affected by THC. With respect to effects of THC on cytokine expression, the interferon gamma levels generally paralleled the LP responses, but no strong effects on IL-12 or IL-10 levels were observed for the antigens. In PHA cultures, there was a THC dose dependant reversal of IL-10 and IL-12. IL-12 levels fell by at least 60 pg/ml and IL-10 levels increased by at least 60 pg/ml with increasing doses of THC.