

HIV-Related Research Studies With DHEA

DHEA Levels Decline in HIV(+) Individuals

An observational study published in the 1993 American Journal of Medical Science looked at the relationship of serum DHEA-S levels and CD4 cell counts in people with HIV. Blood tests were done in 98 HIV(+) adults. The authors found that DHEA-S levels declined in parallel with CD4 cell counts. They did not see a decline in serum cortisol levels. The authors concluded that when the study participants were analyzed by clinical subgroups, those with the lower DHEA-S levels were more commonly found to have advanced disease. These data show a positive relationship between the immune status of people with HIV-related illness and DHEA-S levels, leading to the hypothesis that the presence of a deficiency in the hormone DHEA may contribute to declining immune status. (American Journal of Medical Science 1993)

Another study published in the Journal of AIDS showed that DHEA levels declined as HIV(+) individuals became more symptomatic. The authors concluded that declines in several steroid hormone concentrations during the development of HIV infection, including DHEA and testosterone, may have negative effects on immune responsiveness in patients, and that DHEA may form part of a complex network of immunomodulatory factors. (Journal of Acquired Immune Deficiency Syndrome 1992)

Low DHEA Levels as a Predictor of HIV Progression

A cohort study was performed in 1992 at the University of Amsterdam The Netherlands, Department of Infectious Diseases. It investigated serum DHEA levels in 41 patients with asymptomatic HIV disease who progressed to AIDS within five years after entering the study. These were compared to forty-one HIV(+) individuals who remained asymptomatic during the five year period and 41 HIV-negative controls. Upon entering the study, DHEA levels among the HIV-negative controls were higher than in either of the HIV-positive groups. DHEA levels in the progressors were consistently found to be lower than in the non-progressors. The authors concluded that low DHEA levels were an independent risk factor for HIV disease progression. (Journal of Infectious Diseases 1992)

Dr. Mark Jacobson and colleagues at San Francisco General Hospital looked at blood samples taken from HIV(+) men followed prospectively since 1984 in the San Francisco Men's Health Study. Among 108 HIV(+) men at study entry who had CD4 counts between 200 and 499 cells/mm³, serum DHEA levels below the normal range (less than 180 ng/dl) were predictive of disease progression after controlling for hematocrit levels, age, and CD4 counts. This was the first large prospective cohort study in which an endocrinologic variable was shown to be independently predictive of HIV disease progression. These observations suggest that HIV(+) patients who maintain a normal DHEA level possess a survival advantage when compared to those with lower DHEA levels. (Journal of Infectious Diseases 1991)

Another study presented at the 2nd International Conference on Nutrition and HIV in Cannes, France looked at the correlation between low DHEA and DHEA-sulfate levels, and the occurrence of weight loss and loss of body cell mass in 38 HIV(+) men. The results of this study showed a highly significant correlation between low DHEA and DHEA-sulfate levels and the occurrence of HIV-associated malnutrition. The authors suggest that supplementation of DHEA might help improve the quality of life and survival rates of HIV(+) individuals. (International Conference on Nutrition and HIV 1997, Oral presentation 05)

DHEA's Effect on Viral Activity

A study of DHEA's effect on HIV replication in cell cultures, showed a dose dependent inhibition of HIV's cytopathic effect, as measured by reverse transcriptase activity. At very low concentrations, DHEA reduced AZT-resistant HIV replication by over 50 percent. This study provides evidence that DHEA can independently inhibit the replication of AZT-resistant, as well as wild type HIV. Combined with its immunoregulatory properties, the authors suggest that the use of DHEA may have a much broader spectrum of activity than originally anticipated. (Biochemical and Biophysical Research Communications, June 1994)

A 1992 study at the Temple University Department of Microbiology and Immunology revealed that the exposure of human lymphocytes to DHEA resulted in down regulation of HIV replication as measured by syncytia formation, release of p24 antigen, and reverse transcriptase activity. DHEA also reduced syncytia formation in HIV(+) lymphoblasts. Their conclusion was that DHEA, previously shown to have anti-proliferative effects, appears

to also directly suppress HIV replication. DHEA could therefore become an alternative and/or adjunctive treatment for HIV infection. (AIDS Res Hum for Retroviruses 1992)

DHEA'S Effect on CD4 Counts

An abstract presented by the Houston Immunology Institute at the 1994 International Conference on AIDS in Yokohama, Japan evaluated the use of DHEA supplementation, in addition to standard antiviral and prophylactic OI therapy. Twelve patients received an average DHEA dose of 75 mg per day. CD4 and CD8 counts were obtained at baseline and at monthly intervals. Baseline values were CD4<50: 2 patients, CD4 50-100: 6 patients, and CD4 101-200: 4 patients.

The patients were followed for 4 to 12 months with a mean duration of 8 months. The results showed that, although there were two deaths during the twelve month study period, nine of the surviving ten patients showed an increase in CD4 cell counts. Five of the nine patients (56%) had more than a 25% increase in CD4 cells. Eight patients (68%) experienced an increase in CD8 cell counts as well. Since increases in CD4 and CD8 cell counts may be clinically significant and are associated with long-term survival, this paper concluded that a randomized clinical trial of DHEA supplementation was warranted. (International Conference on AIDS 1994, Abstract #PB0322)

Most recently, Sanusi and colleagues at the Nassau County Medical Center in New York performed a prospective, randomized, double blind study to look at DHEA's effects on clinical laboratory markers in women with AIDS. Twenty-nine HIV(+) women were administered either DHEA 50 mg 1x/day or a placebo. All of the study participants were on a stable triple combination antiviral regimen during the duration of the study. Subjects receiving DHEA supplementation showed improvements in the following categories when compared to placebo: total weight, energy level, physical functioning, cognitive abilities, emotional well-being, and CD4 count (DHEA group (+) 111 cells/mm³ vs placebo group (-) 11 cells/mm³).

There was also a trend to a greater decrease in viral load in the DHEA group. The authors concluded that oral administration of DHEA for 6 months in HIV(+) women produced beneficial effects in CD4 count, weight,

and several other subjective health parameters without producing side effects. (12th World AIDS Conference Geneva, Abstract #42373)

DHEA's Effect on Mental Health

A double blind, placebo-controlled study randomized thirty-two patients to either DHEA 50 mg 1x/day or a matching placebo group for a period of 4 months. Clinical data, virologic, and immunologic markers, DHEA-S levels, and mental health/quality of life scales were recorded every month during follow up. DHEA-S levels rose in the treatment group. A significant improvement in mental health/quality of life scores was observed in the DHEA treated group when compared to the placebo group (p=0.01). No changes in CD4 counts were noted and no side effects of DHEA occurred. The authors concluded that administration of DHEA in advanced HIV(+) patients resulted in a beneficial effect on mental health and quality of life scores. (12th World AIDS Conference Geneva, Abstract #42326)

Side Effects of DHEA

A phase one dose escalation study was performed to evaluate the safety and pharmacokinetics of DHEA in people with symptomatic HIV disease and an absolute CD4 count between 250 and 600 cells/mm³. Thirty-one subjects were evaluated and monitored for safety and tolerance. DHEA was given orally 3x/day in doses ranging from 750 to 2250 mg/day for 16 weeks. This is an extremely high dosage range. The supplement was well tolerated and no dose-limiting side effects were noted. Although this study was not designed to specifically evaluate the immunologic effects of DHEA, no sustained increases in CD4 cell counts were noted during this brief study. (Journal of Acquired Immune Deficiency Syndrome, May 1993)

Common Sense and DHEA

There are no hormones that, in an effort by physicians to restore normal homeostatic balance to the body, are not supplemented if found to be below normal levels by a blood test. Insulin, estrogen, testosterone, growth hormone, cortisol, and thyroid hormone are all supplemented if their levels are found to be low. Just because we haven't fully documented all of the subtle beneficial effects of DHEA, or found that a deficiency of it causes an acute short-term problem, we assume that supplementation is not necessary. How arrogant and shortsighted we physicians can be!

Because the beneficial effects of DHEA are subtle, and it does not significantly improve CD4 cell counts or decrease HIV viral load by itself, studies to identify its benefit should look for a lessening of symptoms, a maintenance of healthful weight and muscle mass, well supported immune function, and an improvement in quality of life over the long term. They should also look for improved trends in disease progression and mortality as markers of its overall effect. These studies should utilize the dosage necessary to optimize blood levels, not pick an arbitrary dosage that assumes everyone's need for DHEA is the same.

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