



Adenosine Triphosphate Improves Nutritional Status of Advanced NSCLC Patients

According to a study recently published in the *Journal of Clinical Oncology*, adenosine 5-triphosphate (ATP) appears to improve energy intake and reduce muscle wasting associated with advanced non-small cell lung cancer patients.

Approximately 75% of individuals with lung cancer have a type of cancer referred to as non-small cell lung cancer (NSCLC). Standard treatment options for NSCLC depend on the stage of cancer and may consist of surgery, chemotherapy, radiation and/or biologic therapy (treatment utilizing the immune system to fight cancer). Advanced NSCLC refers to cancer that has spread from its site of origin to distant areas in the body, often including vital organs.

In its advanced stages, NSCLC is very difficult to treat and often results in cachexia. Cancer-associated cachexia refers to extreme weight loss marked by malnutrition and emaciation. Cachexia has been linked with increased mortality and poor quality of life. Previous clinical trials using dietary counseling, enteral supplements (delivered directly into the intestine) and pharmacologic approaches have failed to reverse this process. While the drug Megace and certain corticosteroids have demonstrated some benefit, they appear limited to stimulating appetite and increasing fat mass, not necessarily reducing the loss of muscle mass. Two previous uncontrolled studies have suggested that ATP may inhibit weight loss. ATP is an organic compound produced within cells that provides energy for many metabolic reactions, particularly in muscles.

A previous clinical trial conducted by researchers in the Netherlands indicated that ATP appears to stabilize body weight, muscle strength and quality of life in advanced NSCLC patients. Recently, these researchers further extrapolated the effects of ATP on patients with advanced NSCLC using data from that study. Fifty-eight patients with advanced NSCLC were assigned to receive either ATP or no ATP (control group) at two to four week intervals. Every four weeks for 28 weeks, researchers collected data on fat mass, fat-free mass and arm muscle mass. At eight-week intervals, energy intake, body cell mass and resting energy expenditure were measured.

Researchers found that fat-free mass showed no significant change in ATP-treated patients, whereas the control group exhibited a significant drop after the first 16 weeks of the trial. Arm muscle mass, as measured in the mid-upper arm, increased 1.1% in patients receiving ATP, but decreased 1.8% in the control group. The body cell mass and food intake of the control group also decreased significantly, with an overall decline of 0.6% of body cell mass per kilogram of body weight and a 568 kilo Joules/day reduction in energy intake from food. In contrast, the ATP group experienced no change in body cell mass and a non-significant increase in energy intake. The appetite of the ATP group remained stable, but declined substantially in the control group. There was no difference in the resting energy expenditure between ATP and non-ATP patients.

This study's data appears to suggest that ATP may prevent weight loss, of muscle in particular, in patients with advanced NSCLC, possibly because patients on ATP maintain their energy intake and appetite. Further research is necessary to confirm this data and resolve questions about dosing schedules and potential side effects. Individuals with advanced NSCLC may wish to speak with their physician regarding the risks and benefits of participating in a clinical trial further evaluating ATP or other novel therapeutic approaches for supportive care. Two sources of information regarding ongoing information on clinical trials include comprehensive, easy-to-use listing services provided by the National Cancer Institute (www.cancer.gov) and www.eCancerTrials.com. eCancerTrials.com also provides personalized clinical trial searches on behalf of patients. (*Journal of Clinical Oncology*, Vol 20, Issue 2, pp 371-378, 2002)

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