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1. Alpha-lipoic acid plus vitamin E and neurons

Alpha-lipoic acid plus vitamin E has shown beneficial effects on neurons in rat brains exposed to cerebral ischemia-reperfusion. (Ischemia is a decrease in oxygen supply due to reduced blood flow. Reperfusion is the restoration of blood flow.) During cerebral ischemia-reperfusion, the production of free radicals increases, contributing to the death of neurons. A network of fibrous tissue develops around the area of a degenerative neuronal lesion. The antioxidant combination of alpha-lipoic acid plus vitamin E has shown synergistic effects on lipid peroxidation by oxygen free radicals. In the study, the administration of the antioxidants as a prophylactic measure prior to artificially-caused tissue death resulted in the neurons completely recovering. The antioxidants also reduced the higher level of brain cell reactivity surrounding the neurons. This would include mechanical and physical support, electrical insulation between neurons, and removal of waste products. Thus, the mixture of alpha lipoic acid plus vitamin E may be beneficial for brain cells, especially when undergoing treatment of cerebral ischemia.

NEUROSCIENCE LETTERS, 2002, Vol 321, Iss 1-2, pp 100-104

2. Curcumin and chromosomal mutations

Supplementation with curcumin has been shown to affect the mutations of chromosomes in dividing cells. A study investigated the ability of curcumin to combat the formation of mutagens (substances that induce genetic mutation), coming from such sources as UV light, x-rays and various chemicals. A mutagen was given to rats, after which curcumin was administered for one week. The bone marrow tissue was analyzed for damage to the chromosomes. In animals not given the curcumin, there was a significant deviancy in the integrity of chromosomes. However, in animals supplemented with curcumin, there was no significant induction in chromosomal damage. Curcumin was able to reduce the deviant cells and showed protection against cell toxicity. Thus, curcumin demonstrated a positive effect against potential damage to the DNA, protecting against the mutations of chromosomes, which may ultimately reduce the risk of developing cancer.

MUTATION RESEARCH-GENETIC TOXICOLOGY AND ENVIRONMENTAL MUTAGENESIS, 2002, Vol 515, Iss 1-2, pp 197-202

3. Piracetam and learning impairment

Piracetam has been shown to improve cognition in elderly people suffering from dementia or cognitive impairment. A review was conducted of 19 double-blind, placebo controlled studies with piracetam. The results in all these studies showed a clinical global impression of change, which indicated a measure of clinically meaningful improvement. The analysis demonstrated a significant difference between those individuals treated with piracetam and those given a placebo. According to this review, the use of piracetam may help improve cognitive impairment.

DEMENTIA AND GERIATRIC COGNITIVE DISORDERS, 2002, Vol 13, Iss 4, pp 217-224

4. Aloe vera and wound healing

Aloe vera can improve the growth of damaged blood vessels in the brain. A study examined the effect of the main component of aloe (beta-sitosterol) upon damaged blood vessels of gerbils. The results showed that it enhanced the formation of new vessels in the brains damaged by ischemia/reperfusion in a dose-dependent fashion. Beta-Sitosterol also enhanced the expressions of proteins related to angiogenesis (development of blood vessels). Administered at 500 mug/kg/day for a period of 19 days, it significantly improved the motion recovery of the animals. The results suggest that aloe vera can enhance the condition of damaged blood vessels in the brain and may thus improve brain function.

PLANTA MEDICA, 2002, Vol 68, Iss 4, pp 330-335

5. Conjugated fatty acids and breast cancer

Perilla oil and safflower oil have shown the ability to inhibit breast cancer tumors. A study examined the chemopreventive effects of conjugated fatty acids from safflower oil (SO), which contains large amounts of conjugated linoleic acid, and from perilla oil (PO), high in conjugated linolenic acid. Rats were given a carcinogen over an eight week period. Diets containing SO or PO were administered during or after the carcinogen for 40 weeks. The results showed that over a six-month period there was a retardation of the emergence of breast tumors in the animals that received SO or PO together with the carcinogen. The groups given SO or PO after the carcinogen demonstrated a significant decrease in the final incidences of breast cancer. In a second experiment, when females were given the carcinogen together with SO or PO for four weeks, there was a suppression of the formation of DNA adducts, caused by the carcinogen in the breast, colon and pancreas. (DNA adducts are compounds formed between cancer-causing substances and DNA, which activate the DNA repair process, and unless repaired prior to DNA replication, may lead to abnormal chromosome rearrangements, and ultimately, cancer.) Thus, perilla oil and safflower oil suppress the growth and proliferation of breast cancer cells as well as the formation of DNA adducts in the colon and pancreas.

CANCER LETTERS, 2002, Vol 178, Iss 2, pp 131-139

6. Lung cancer and green tea

A study examined the growth inhibition of human lung cancer using green tea polyphenols. For accuracy, they used a biomarker which is highly expressed in the very early stages of human lung cancer. As a control, the potency of green tea polyphenols to inhibit cancer was compared with that of genistein. Both green tea and genistein dose-dependently inhibited the growth of lung cancer cells in culture and increased the cell growth phase associated with the induction of apoptosis (programmed cell death). There was a significant inhibition of the expression levels of the cancer cell biomarkers and of the activity which promotes the protein for cancer gene expression. Thus, researchers concluded that together with steadily accumulating evidence from clinical trials, green tea extract shows that it would be an efficient means of lung cancer prevention.

INTERNATIONAL JOURNAL OF ONCOLOGY, 2002, Vol 20, Iss 6, pp 1233-1239

7. Vitamin E and the kidneys

Vitamin E protects antioxidant enzymes in the kidneys and reduces the damage to kidney tissue. In kidney failure, there is a weakening of kidney structure, and lesions develop along with fibrous tissue (a response to the lesions). There are also decreased activities and mRNA levels of antioxidant enzymes. (mRNA is a messenger molecule that specifies the amino acid sequence during protein synthesis.) A study investigated the effect of vitamin E supplementation on antioxidant enzyme activities in the kidneys of rats given a carcinogen. It was found that vitamin E supplementation of a normal diet weakened the scarring, lesions and degeneration of kidney tissue. In the kidney cortex, vitamin E completely prevented the reduction in enzyme activity of the endogenous antioxidants superoxide dismutase (SOD) and catalase (CAT), and partly for glutathione peroxidase (GPX). Thus, dietary supplementation of vitamin E protects the activities of antioxidant enzymes in the kidney cortex and basic structures during kidney disease.

NEPHRON, 2002, Vol 91, Iss 1, pp 129-133

8. Effect of genestein on the prostate gland

The consumption of soy in Asian countries is higher than in the U.S., and the incidence of prostate cancer is lower. Genistein, the main isoflavone in soy, has been shown to inhibit prostate tumor development in animals. A study investigated the effect of dietary genistein on the activity of the sex steroid cell receptor in the prostate gland, on circulating male hormones, and the potential for toxicity in the reproductive tract in rats. After exposure to genistein in the diet, the activity of the male and female steroid receptors of the prostate were reduced in a dose-dependent manner. After two weeks there was a reduction in mRNA expression of male and female steroid receptors. When the animals received 1000 mg genistein/kg diet, the female estrogen receptor protein levels were significantly reduced compared to control animals. There were no significant alterations to the male reproductive tract. Thus, a diet containing high levels of phytoestrogens lower activity of sex steroid receptors and may be responsible for the lower incidence of prostate cancer.

MOLECULAR AND CELLULAR ENDOCRINOLOGY, 2002, Vol 186, Iss 1, pp 89-99

9. Carotenoids protect against UVB radiation

Exposure of living organisms to UV light leads to photo oxidative reactions. Peroxyl radicals are involved in the propagation of lipid peroxidation. Carotenoids are dietary antioxidants that show photo protective effects in human skin, efficiently scavenging peroxyl radicals and inhibiting lipid peroxidation. A study examined the protective effects of the carotenoids, lycopene, beta-carotene and lutein on UVB-induced lipid peroxidation. Skin cells were exposed to UVB light for 20 min. Lycopene, beta-carotene and lutein were capable of decreasing UV-induced formation of free radical stress indicators (at one hour) to levels 40% to 50% lower than controls, which were free of carotenoids. The amount of carotenoids needed for optimal protection were 0.05, 0.40 and 0.30 nmol/mg protein for lycopene, beta-carotene and lutein, respectively. However, beyond the optimum levels, further increases of carotenoid levels in cells led to pro-oxidant (causing free radicals) effects.

PHOTOCHEMISTRY AND PHOTOBIOLOGY, 2002, Vol 75, Iss 5, pp 503-506

10. Oral contraceptives and the risk of ischemic stroke

Studies have shown an increased risk of blood clots in women taking third-generation oral contraceptives, (e.g., those containing the progestogens desogestrel or gestodene). A study looked at several types of oral contraceptives in 203 women with an ischemic stroke and 925 control women (age 18 to 49). Women with a first ischemic stroke were compared with control women without vascular diseases. All patients and control subjects filled in a questionnaire about the use of oral contraceptives and risk factors for ischemic stroke. The risk of stroke in women using any type of oral contraceptives vs. none was 2.3. Current users of first-generation oral contraceptives had an odds ratio of 1.7. Low-dose second-generation oral contraceptives increased the risk of stroke 2.4 times, and third-generation oral contraceptives increased the risk of stroke 2.0 times. The risk of stroke in women using third-generation oral contraceptives was not significantly different from that in women using second-generation oral contraceptives (odds ratio 1.0). Thus, third-generation oral contraceptives (containing desogestrel or gestodene) confer the same risk of first ischemic stroke as second-generation oral contraceptives (containing levonorgestrel).

STROKE, 2002, Vol 33, Iss 5, pp 1202-1208

11. Wheat grass and colitis

Wheat grass juice has been used for more than 30 years for gastrointestinal problems but was never clinically assessed in a controlled trial. In a one-month study, 23 individuals with ulcerative colitis (inflammation of the colon) received either 100 cc of wheat grass juice or a placebo. The results showed that the group given the wheat grass juice was associated with significant reductions in the overall disease activity and in the severity of rectal bleeding. There were no serious side effects. Wheat grass juice was demonstrated to be effective and safe for treating ulcerative colitis by itself or as an auxiliary treatment.

SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY, 2002, Vol 37, Iss 4, pp 444-449

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