



RESEARCH SHOWS ORAL AND TOPICAL AGENTS HOLD PROMISE IN PREVENTING UV-INDUCED SKIN CANCER

CHICAGO (August 5, 2010) – In most cases, [non-melanoma skin cancers](#) are caused by overexposure to ultraviolet radiation – the invisible rays from the sun that can burn the skin. To reduce the risk of [skin cancer](#), dermatologists encourage the public to [Be Sun Smart®](#), including limiting sun exposure and using broad-spectrum sunscreens. Despite these efforts, the incidence of non-melanoma skin cancer continues to rise. Now, several agents – including medicines, foods and vitamins – are being investigated for their chemopreventive properties, or ability to prevent skin cancer.

At the American Academy of Dermatology's Summer Academy Meeting 2010 in Chicago, [dermatologist](#) Craig A. Elmets, MD, FAAD, professor and chair, department of dermatology and director of the Skin Diseases Research Center, University of Alabama at Birmingham, discussed promising new research on the use of medicine and diet to prevent UV-induced skin cancer in the future.

“Based on the research conducted thus far, it appears that several different agents have the potential to be effective in providing enhanced sun protection and preventing non-melanoma skin cancers,” said Dr. Elmets. “While the way these agents work are different, we have seen encouraging results with both oral and topical agents, including non-steroidal anti-inflammatory drugs (NSAIDs), eflornithine and certain natural antioxidants.”

Medications Being Investigated as Future Chemopreventive Agents

NSAIDs are a class of drugs that block cyclooxygenase enzymes (COX-1 and COX-2), which produce prostaglandins that promote inflammation, pain, and fever. When these enzyme messengers that are responsible for reducing prostaglandins throughout the body are blocked, ongoing inflammation, pain, and fever are reduced. One such NSAID approved by the Food & Drug Administration (FDA) and used primarily to treat inflammation associated with arthritis is celecoxib. Dr. Elmets explained that this oral medication has been shown to be an effective chemopreventive agent in patients with a syndrome known as basal cell nevus syndrome. Caused by a genetic defect, basal cell nevus syndrome triggers patients to develop [basal cell carcinomas](#) at a very young age.

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“In patients with basal cell carcinomas, investigators have found that the COX-2 enzyme is elevated in non-melanoma skin cancers. Because celecoxib inhibits this enzyme, clinical studies have demonstrated that taking celecoxib seems to decrease the number of new basal cell carcinomas in basal cell nevus syndrome,” noted Dr. Elmets. “This is very encouraging, particularly if this can eventually be applied to basal cell skin cancer in the general population.”

According to Dr. Elmets, eflornithine is another drug that has been shown to have beneficial effects in preventing basal cell carcinoma. FDA-approved as a topical treatment for excessive hair growth and as an injectable formulation to treat sleeping sickness, eflornithine inhibits the enzyme known as ornithine decarboxylase that is found to be elevated in skin cancers.

“Although celecoxib and eflornithine work by different mechanisms, initial studies show that they both prevent basal cell carcinomas by at least 30 percent,” said Dr. Elmets. “Based on these initial findings, these two drugs are considered very promising as chemopreventive agents and require additional clinical study.”

Natural Antioxidants in Preventing Skin Cancer

In addition, numerous natural [antioxidants](#) are being evaluated for their chemopreventive properties. Antioxidants are substances that destroy free radicals – harmful compounds in the body that damage DNA and even cause cell death. Free radicals are believed to contribute to aging as well as the development of a number of health problems, including skin cancer.

Animal studies and emerging clinical studies suggest that the abundance of antioxidant polyphenols in green tea and grape seed extract may play an important role in helping to prevent the onset and growth of skin tumors. Similarly, the pomegranate fruit also is thought to be effective in promoting skin health since it has very high levels of antioxidants called flavonoids that have been shown to counteract various cancer-causing free radicals.

“It remains unclear precisely how these natural antioxidants work, but they all are considered powerful when used externally,” said Dr. Elmets. “These substances also have an anti-inflammatory effect, which is known to be chemopreventive. However, it is important to remember that the FDA has not approved the use of these natural antioxidants as chemopreventive agents, and controlled studies need to be conducted in humans to determine whether they may help prevent skin cancer. At present, the evidence to support these benefits is largely based on animal studies.”

“As dermatologists, we will always recommend [sunscreens](#) and sun-smart behaviors, like seeking shade, wearing hats and limiting sun exposure. These lifestyle strategies are vital to preventing [skin cancer](#) and should not be replaced,” added Dr. Elmets. “However, I could envision in the future that we also may recommend a cocktail of chemopreventive agents to provide patients enhanced protection against UV-induced skin cancers. Our hope is that further human studies will help us better understand how to effectively incorporate these new agents into practice and thereby turn the tide on the escalating rate of skin cancer in this country.”

For more information about skin cancer, please visit the SkinCancerNet section of www.SkinCarePhysicians.com, a Web site developed by dermatologists that provides patients with up-to-date information on the treatment and management of disorders of the skin, hair and nails.

Headquartered in Schaumburg, Ill., the American Academy of Dermatology (Academy), founded in 1938, is the largest, most influential, and most representative of all dermatologic associations. With a membership of more than 16,000 physicians worldwide, the Academy is committed to: advancing the diagnosis and medical, surgical and cosmetic treatment of the skin, hair and nails; advocating high standards in clinical practice, education, and research in dermatology; and supporting and enhancing patient care for a lifetime of healthier skin, hair and nails. For more information, contact the Academy at 1-888-462-DERM (3376) or www.aad.org.

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