New research shows the NSAID Celebrex may help prevent some non-melanoma skin cancers from developing in patients who have pre-cancerous actinic keratoses lesions and are at high risk for having the disease.

The researchers, led by UAB dermatologist and the study's lead author, Craig Elmets, M.D., evaluated the efficacy and safety of celecoxib as a chemo-preventive agent for actinic keratoses. The results were published online Nov. 30, 2010, in the *Journal of the National Cancer Institute*. It will appear in the print edition of the journal Dec. 15.

Cutaneous squamous cell carcinomas and basal cell carcinomas are the most common malignancies in the United States. More than 2 million people are diagnosed each year with non-melanoma skin cancer and instances of malignancies are increasing, especially in young people. The direct treatment of these has been estimated to exceed $1.4 billion annually.

Previous research data has suggested that cyclooxygenase 2 is involved in the development of non-melanoma skin cancers. In animal models, the cyclooxygenase 2 inhibitor celecoxib, better known by its brand name Celebrex, inhibits the development of ultraviolet-induced pre-malignant skin papillomas, which are thought to correspond to actinic keratoses, the pre-malignant precursor of non-melanoma skin cancers

Currently, celecoxib is used to relieve pain, tenderness, swelling and stiffness caused by osteoarthritis, rheumatoid arthritis and spinal arthritis. It also is can be used off-label to treat painful menstrual periods and pain from other causes and is used to reduce the number of

polyps in the colon and rectum in patients with familial adenomatous polyposis. Celecoxib is in a class of NSAIDs called COX-2 inhibitors.

The double-blind, placebo-controlled trial looked at 240 subjects ages 37 to 87 years with 10 to 40 actinic keratoses at eight U.S. academic medical centers during an 11-month period.

At nine months after randomization, there was no difference in the incidence of new actinic keratoses developed between the placebo group and those receiving celecoxib, which was the primary endpoint of the study. However, compared with the placebo, celecoxib when looked at duing the 11-month visit was highly effective in preventing nonmelanoma skin cancers from developing in subjects who had large numbers of actinic keratoses.

“While celecoxib was not effective in preventing new actinic keratoses the study raises the possibility that the drug is effective in preventing cancer from developing from the precancerous actinic keratoses lesions,” said Elmets, a Cancer Center senior scientist and co-leader of the Cancer Chemoprevention Program.

Future studies are planned to establish if other NSAIDs have the same properties as Celebrex as skin-cancer chemopreventive agents. Topical NSAIDs also are being investigated to determine if they can be used to prevent skin cancers.

The UAB Comprehensive Cancer Center is among the 40 cancer centers in the nation to meet the stringent criteria for the National Cancer Institute's comprehensive designation. The center is a leader in groundbreaking research, reducing cancer disparities and leading-edge patient care.

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