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# Young Nonmelanoma Skin Cancer Survivors More Likely to Get Other Cancers Later

PHILADELPHIA — People who had nonmelanoma skin cancer (NMSC) were at increased risk for subsequently developing melanoma and 29 other cancer types, and this association was much higher for those under 25 years of age, according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

NMSC is the most common type of skin cancer. It is relatively easy to treat if detected early, and rarely spreads to other organs.

"Our study shows that NMSC susceptibility is an important indicator of susceptibility to malignant tumors and that the risk is especially high among people who develop NMSC at a young age," said Rodney Sinclair, M.B.B.S., M.D., director of dermatology at the Epworth Hospital and professor of medicine at the University of Melbourne in Australia. "The risk increases for a large group of seemingly unrelated cancers; however, the greatest risk relates to other cancers induced by sunlight, such as melanoma."

Compared with people who did not have NMSC, those who did were 1.36 times more likely to subsequently develop any cancer, including melanoma and salivary gland, bone, and upper gastrointestinal cancers. Survivors younger than 25 years of age, however, were 23 times more likely to develop any cancer other than NMSC. In particular, they were 94 and 93 times more likely to get melanoma and salivary gland cancer, respectively.

"Early detection of cancers through screening of asymptomatic people works best when screening can be targeted at those at greatest risk," said Sinclair. "Our study identifies people who receive a diagnosis of NMSC at a young age as being at increased risk for cancer and, therefore, as a group who could benefit from screening for internal malignancy."

Sinclair and colleagues hypothesized that people who develop skin cancers later in life do so as a result of accumulated sun exposure, while those who develop skin cancer at a younger age may do so as a result of an increased susceptibility to cancer in general. To investigate this, they stratified the risk ratios by age and discovered that young people with NMSC are more cancer-prone.

The researchers used data from the All England Record-linked Hospital and Mortality data set collected between 1999 and 2011, and constructed two cohorts: a cohort of 502,490 people with

a history of NMSC, and a cohort of 8,787,513 people who served as controls. They followed up with the participants electronically for five to six years, and 67,148 from the NMSC cohort and 863,441 from the control cohort subsequently developed cancers.

They found that for those who had NMSC, the relative risk for developing cancers of the bladder, brain, breast, colon, liver, lung, pancreas, prostate, and stomach remained consistently elevated for the entire period of the study, and the risk for cancers of the brain, colon, and prostate increased with time.

The researchers also found that those who had NMSC before 25 years of age were 53 times more likely to get bone cancer, 26 times more likely to get blood cancers, 20 times more likely to get brain cancer, and 14 times more likely to get any cancer excluding those of the skin.

The risk for developing any cancer subsequent to NMSC decreased with increasing age: 23 times higher risk for those under 25 years of age, 3.52 for those 25-44 years of age, 1.74 for those 45-59 years of age, and 1.32 for those older than 60 years. Thus, although the risk decreased with increasing age, it remained higher compared with individuals who never had NMSC.

This study was funded by the English National Institute for Health Research. Sinclair has no conflicts of interest to declare.

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