

Risk factors and individual probabilities of developing melanoma for whites

Eunyoung Cho, Bernard Rosner, Diane Feskanich, and Graham A. Colditz.

Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, MA

Incidence of cutaneous melanoma is rising rapidly in the U.S.; therefore, identifying risk factors for melanoma and integrating them into clinical and population risk estimation tools may help guide prevention efforts and identify participants for preventive interventions. We examined risk factors for melanoma in three prospective studies of women and men in the Nurses' Health Study (NHS), Nurses' Health Study II (NHS II), and Health Professionals Follow-up Study (HPFS). We followed 152,949 women and 25,206 men free of cancer at baseline for up to 14 years. A total of 535 incident cases of melanoma (252 for the NHS, 192 for the NHS II, and 91 for the HPFS) were included in the analysis. We combined the three studies to examine risk factors and built a risk model. Higher age, male sex, positive family history of melanoma, higher mole counts, history of sunburn, and light hair color were each associated with significantly elevated risk of melanoma. Participants at the highest decile of risk had a greater than fivefold increase in risk of melanoma compared with those in the lowest decile (observed relative risk=5.85; expected relative risk=7.61). The measure of discriminatory accuracy as summarized by an age- and sex-adjusted concordance statistic of 0.67 (95% CI 0.64-0.69) indicated that the model had reasonable ability to differentiate those who will develop melanoma and those who will remain free from the disease. In conclusion, we identified several risk factors for melanoma and developed statistical models with high performance and discriminatory accuracy that can be used to estimate individual risk of developing melanoma and identify high-risk populations for screening and other prevention research.