

DNA Repair Capacity Identified Those at High Risk for Non-melanoma Skin Cancer

AACR

- Study conducted among Puerto Ricans.
- DNA repair capacity assessment may predict skin cancer risk even at an early age.
- Non-melanoma skin cancer risk could be lowered by increasing DNA repair capacity.

MIAMI — DNA repair capacity (DRC) measurements effectively identified individuals who were at high risk for non-melanoma skin cancer, and may be a useful method to evaluate the efficacy of preventive therapies, according to study results presented at the [Third AACR Conference on the Science of Cancer Health Disparities](#) [1].

“Our study showed that persons with low DRC have three times greater likelihood of having non-melanoma skin cancer as compared to those with high DRC,” said Manuel Bayona, M.D., Ph.D., professor of the Public Health Program at the Ponce School of Medicine, Puerto Rico.

DRC is a complex cellular mechanism involving more than 200 proteins that is used to repair damage to DNA within cells. Bayona explained that DNA damage can be caused by exposure to solar ultraviolet light and other types of radiation, dietary factors and aging. DRC has been linked to several types of cancer development.

The researchers conducted a case-controlled study among participants in Puerto Rico to determine whether a reduced DRC was a risk factor for non-melanoma skin cancer.

After comparing DRC levels in 477 newly-diagnosed, non-melanoma skin cancer cases and 365 controls without cancer, they found that low DRC levels were strongly associated with non-melanoma skin cancer.

Bayona and colleagues also studied key risk factors and their possible association with DRC as predictors for non-melanoma skin cancer:

- demographics (age, gender) and family history of non-melanoma skin cancer;
- skin, hair and eye color, and presence of freckles;
- occupational and recreational sun exposure;
- sunscreen use;
- cigarette smoking;
- vitamins, aspirin and calcium intake;
- DRC levels; and,
- dermatological information and other variables that could provide an estimate of

non-melanoma skin cancer risk.

These findings in Puerto Rico are consistent with previous studies conducted elsewhere, according to the researchers. Additionally, participants who did not use sunblock, did not take aspirin and/or did not take multivitamin supplements regularly had increased odds of non-melanoma skin cancer.

“Doctors could use DRC levels to monitor how non-melanoma skin cancer risk decreases in individuals taking cancer preventive therapies,” he said.

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