Vitamin B3 derivative cuts risk of new skin cancers

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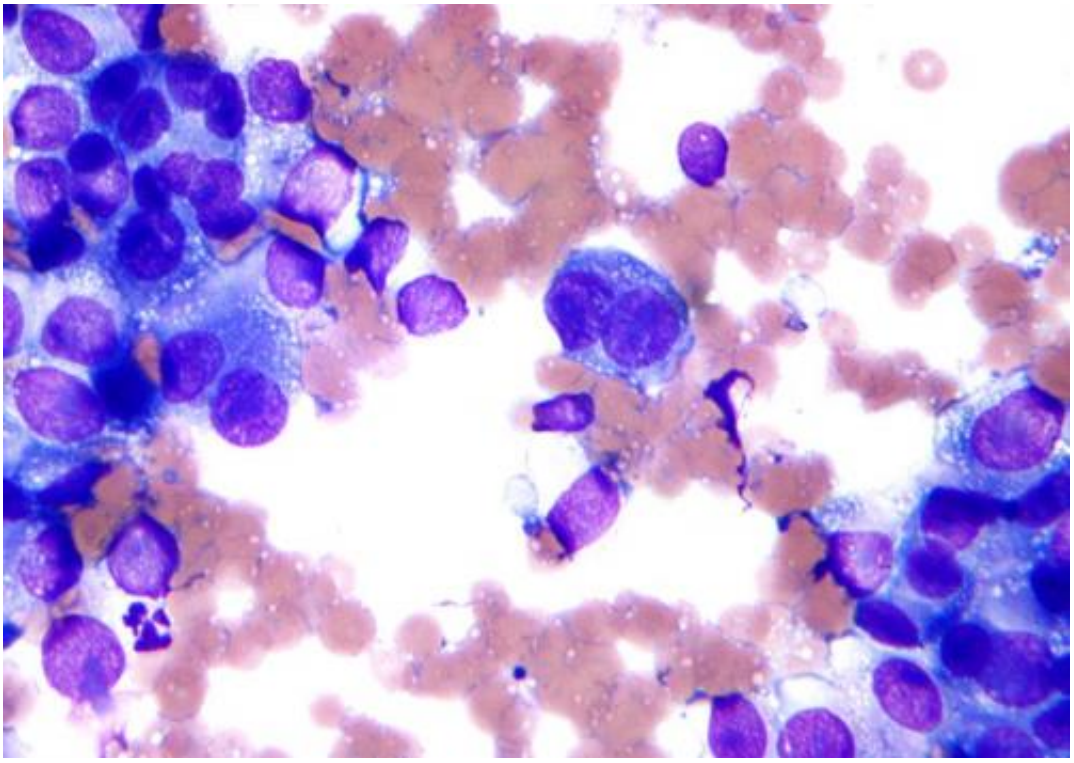

Micrograph of malignant melanoma. Cytology specimen. Field stain. Credit: Nephron/Wikipedia

A year of treatment with nicotinamide, a form of vitamin B3, significantly lowered the risk of common, non-melanoma skin cancer in high-risk patients, according to University of Sydney research published today in the *New England Journal of Medicine*.

All 386 participants in the study had a history of skin cancer, increasing their risk for additional skin cancers. Taken as a twice-daily pill for 12 months, nicotinamide reduced the incidence of new non-melanoma skin cancers by 23 per cent relative to placebo controls and cut the incidence of pre-cancerous sun spots by around 15 per cent.

Nicotinamide is safe, affordable, and available over the counter in most countries. The findings have the potential to decrease the health burden and economic cost of skin cancer - the most common form of cancer in fair-skinned populations worldwide.

"This is the first clear evidence that we can reduce skin cancers using a simple vitamin, together with sensible sun protection," said the study's senior author, Dr Diona Damian, a professor of dermatology at the University of Sydney and Royal Prince Alfred Hospital. "We hope that these findings can be immediately translated into clinical practice. However, people at high risk of skin cancer still need to practice sun safe behaviour, use sunscreens and have regular check-ups with their doctor," she emphasised.

The primary cause of non-melanoma skin cancer is sun exposure. Despite intensive sun protection campaigns, the incidence of skin cancer continues to increase worldwide. In Australia, non-melanoma skin cancers affect more than half of the population. It is four times as common as all other cancers combined, and costs the nation more than $500 million annually.

The most common types of non-melanoma skin cancer are basal cell carcinoma (BCC) and squamous cell carcinoma (SCC). SCCs can metastasise or spread to lymph nodes and internal organs. BCCs rarely spread but can cause huge cosmetic problems as they often occur on the face. Nicotinamide had comparable efficacy in preventing BCCs and SCCs.

Study details

In this study, 386 patients (average age 66 years) who had at least two non-melanoma skin cancers in the last five years - and were therefore considered to be at high risk - were randomly assigned to daily nicotinamide or placebo for 12 months. The study population reflected the mix of patients typically seen in a skin cancer clinic.

The rate of new non-melanoma skin cancer was 23 per cent lower in the nicotinamide group compared to the placebo group. The average number of actinic keratoses (pre-cancerous sun spots) in the nicotinamide group was consistently lower during treatment, ranging from an 11 per cent reduction at three months, to a 20 per cent at nine months.

The study was not designed to test whether nicotinamide would benefit people in the general population who have not had skin cancer, or whether it could be effective in reducing melanoma. Whilst the researchers hope to investigate these questions in the future, there is currently no evidence that nicotinamide should be used in these settings.

This study builds on a decade of evidence from preclinical and early clinical studies, which suggests nicotinamide enhances the repair of DNA in skin cells damaged by sunlight. Nicotinamide also appears to protect the skin's immune system from UV radiation by providing skin cells an extra energy boost when they are in repair-mode after sun exposure.

Nicotinamide was very well tolerated, with no difference in adverse events, blood results or blood pressure. Nicotinamide is a different form of vitamin B3 to nicotinic acid or niacin. Nicotinic acid commonly causes headaches, flushing and low blood pressure, but these side effects are not seen with nicotinamide.

Provided by University of Sydney