Sunscreen and Prevention of Skin Aging

The full report is titled "Sunscreen and Prevention of Skin Aging. A Randomized Trial." It is in the 4 June 2013 issue of *Annals of Internal Medicine* (volume 158, pages 781-790). The authors are M.C.B. Hughes, G.M. Williams, P. Baker, and A.C. Green.

What is the problem and what is known about it so far?

Changes in the appearance of the skin are known to be influenced by sun exposure and the effects of growing older. Although sunscreen has been shown to protect against skin cancer, whether it can protect against skin aging has not been established. Antioxidants, such as β-carotene, have also been suggested to protect against skin aging, but this has not been well-studied.

Why did the researchers do this particular study?

To find out whether daily sunscreen and β-carotene each protect against skin aging.

How was the study done?

Patients who were younger than 55 years were randomly assigned to a group asked to apply sun-protection factor 15+ sunscreen to their head, neck, arms, and hands each morning and after bathing, after spending more than a few hours in the sun, or after sweating heavily or to a group asked to use sunscreen at their discretion. Participants were also randomly assigned to receive daily β-carotene or placebo pills. Impressions were taken of the backs of participants' hands at the beginning of the study and 4.5 years later. The impressions were examined for microscopic changes of skin aging by assessors who did not know to which study groups the participants had been assigned.

What did the researchers find?

More participants assigned to daily sunscreen use reported applying sunscreen at least 3 to 4 days each week than did participants in the discretionary-use group. Those in the daily-use group were less likely to have increased skin aging after 4.5 years than were those in the discretionary-use group. No difference in aging was seen between persons who received β-carotene pills and those who received placebo pills.

What were the limitations of the study?

About one third of participants did not have impressions of their skin taken at both the beginning and end of the study; although this did not seem to affect the results, an effect on the findings cannot be conclusively ruled out. The study was too small to confidently conclude a true lack of effect of β-carotene, and a larger or longer study might show a modest benefit or some harm of β-carotene use on skin aging. How these results would apply to people older than 55 years is not certain.

What are the implications of the study?

Daily use of sunscreen seems to protect against skin aging.

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