Marathon Training Linked to Skin Cancer Risk

Exercise-induced immunosuppression and increased photosensitivity from sweat may each play a role.

BY MARY ANN MOON
Contributing Writer

White marathon runners are at significantly higher risk of developing malignant melanoma than are white people of the same age who don't spend 40 or more hours per week training or competing outdoors, reported Dr. Christina M. Ambros-Rudolph and her associates at the Medical University of Graz (Austria).

Compared with an age-, sex-, and race-matched control population, marathon runners were found to have significantly more atypical melanocytic nevi and solar lentigines. Their referral rate for removal of lesions suggestive of nonmelanoma skin cancer also was significantly higher than that of control subjects.

Both the number of lesions and the rate of referral for surgical excision increased as the number of hours spent training outdoors increased, the researchers said (Arch. Dermatol. 2006;142:1471-4).

Physicians should alert patients who are runners to "the crucial role of UV radiation in the development of malignant melanoma and nonmalignant skin cancers. In particular, they should be advised to reduce UV exposure during exercising by choosing training and competition schedules with low sun exposure, wearing adequate clothing, and regularly using water-resistant sunscreens," Dr. Ambros-Rudolph and her associates said.

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They became concerned about malignant melanoma incidence among runners when they observed eight cases of the disease in marathoners treated in their dermatology department over the past decade. The researchers are themselves "enthusiastic runners," and two are regular marathoners, they noted.

In all eight cases, melanomas developed in areas that were uncovered or only partially covered by clothing—the upper back, lower thigh, and calf—and all but one were associated with an atypical or congenital melanocytic nevus.

To study the issue, the investigators assessed 210 white marathon runners (166 men and 44 women) aged 19-71 years and 210 white age- and sex-matched control subjects for personal and family history of skin cancer, phenotypic markers, sunburn history, and training habits. All subjects underwent a total body skin examination.

Most runners reported that they trained and competed wearing shorts that left the legs uncovered and shirts that left the arms and upper back uncovered or only partially covered. Only about half said they regularly used sunscreen.

Control subjects showed higher sun sensitivity than did runners, with more cases of light eye color and of Fitzpatrick skin types I or II. Control subjects also had more melanocytic nevi. The runners, however, were found to have significantly more atypical nevi and solar lentigines, Dr. Ambros-Rudolph and her associates said.

Runners also were significantly more likely to be referred for surgical removal of suspicious lesions, including basal cell carcinomas, squamous cell carcinomas, and actinic keratoses.

The number of atypical nevi, solar lentigines, and suspicious lesions was highest in the runners who spent the most time training outdoors, they reported.

Exercise-induced immunosuppression commonly seen in endurance athletes may contribute to the higher risk of malignant melanoma in marathon runners, the researchers said.

In addition, professional athletes in other outdoor sports have been shown to receive over 30 times the daily limit of UV exposure recommended by the International Commission on Non-Ionizing Radiation Protection and the American Conference of Governmental Industrial Hygienists. Moreover, sweating during exercise has been shown to increase the photosensitivity of the skin, presumably via hydration of the horny layer and shifting in the stratum corneum UV absorption spectrum, Dr. Ambros-Rudolph and her associates noted. ■

Vitamin D Supplements Shown to Protect Against Melanoma Relapse

BY NANCY WALSH
New York Bureau

NOORDWIJK, NETHERLANDS — Vitamin D supplementation was protective against late relapse of melanoma, particularly among patients who carry certain polymorphisms of the vitamin D receptor, Dr. Julia Newton Bishop reported at a conference on melanoma sponsored by Imedex Inc.

"In recent years there has been considerable interest in vitamin D because of its diverse functions, including antiproliferative and antiangiogenic effects," Dr. Newton Bishop said.

The observation of the vitamin's effect on melanoma relapse emerged from a case-control study that included 143 patients who relapsed more than 3 years after surgical removal of their primary tumor, and 189 patients matched for age, sex, and Breslow thickness who did not relapse.

"Our hypothesis was that relapses and deaths within the first 3 years are likely to be related to the genetic and epigenetic effects of the tumor," she said. Later relapses, in contrast, may relate to environmental effects on persisting melanoma cells.

Study participants filled out a questionnaire on dietary habits, vitamin supplementation, and sun exposure history. Serum and DNA were obtained to test for two known functional vitamin D receptor (VDR) single nucleotide polymorphisms (SNPs), Cdx-2 and FOKl, and three noncoding SNPs, Apal, Bsml, and Taql, that have been shown to be associated with altered levels of VDR expression.

Data analysis revealed that there were no differences between cases and controls with regard to overall dietary practices or Fitzpatrick skin types.

Nor were there differences in time spent sunbathing or in the number of reported sunburn episodes either before or after diagnosis.

Although more relapsing patients reported using sunblock after the removal of their tumor than controls—91% vs. 85%—this difference was not statistically significant, said Dr. Newton Bishop of the Genetic Epidemiology Division, Cancer Research U.K., St. James's University Hospital, Leeds, England.

However, there were significant differences in vitamin D supplement use during the year prior to relapse, with 42% of controls and 28% of relapsing patients reporting that they took supplementary vitamin D. The odds ratio was 0.54 for relapse among those with a history of vitamin D supplement use, she said.

Serum vitamin D levels were significantly higher in those taking the supplement than in those who did not: a mean level of 54.3 nmol/L compared with 42.8 nmol/L. These measures confirmed patients' reports of taking the vitamin, she said.

VDR genotype results were available for 300 of the participants. None of the SNPs showed a significant association with relapse overall, but among patients who carried one or more copies of the variant Cdx-2 allele for increased VDR activity and expression, supplement use was associated with a highly significant reduced risk of relapse, with an odds ratio of 0.1.

Among patients who were homozygous for the wild-type variant of Taql associated with increased expression of VDR, there also was a significant reduction in risk of relapse, again with an odds ratio of 0.1.

"The observed protective effects of vitamin D intake and interaction with VDR genotype suggest that [this vitamin] is an important therapeutic candidate, which must be urgently evaluated further," she said. ■

Parkinson's Is Tied to 10-Fold Increase in Risk of Melanoma

BY JEFF EVANS
Senior Writer

CHICAGO — The results of prospective screening for skin lesions in patients who have Parkinson's disease have suggested that melanoma may occur at a significantly higher rate in these patients, Dr. John M. Bertoni reported at the annual meeting of the American Neurological Association.

Previous reports have suggested an association between melanoma and Parkinson's disease, but all have been retrospective. The use of levodopa has been associated with melanoma in case series, but no controlled study has been conducted, according to Dr. Bertoni, a neurologist at Creighton University, Omaha, Neb.

If the results are confirmed, Parkinson's disease patients should probably have a dermatologic evaluation, but there is no evidence to suggest how often that might be necessary, he said at his poster presentation during the meeting.

Of 2,106 patients with confirmed idiopathic Parkinson's disease who were screened prospectively for skin lesions by a dermatologist at 26 U.S. and 5 Canadian sites, 24 (1.1%) were newly diagnosed with melanoma, according to Dr. Bertoni. Another 3.4% of the patients had a history of prior melanoma.

In comparison with prevalence statistics available from the National Cancer Institute's Surveillance, Epidemiology, and End Results registry during 1997-2001, Parkinson's disease patients were 2.2 times as likely to have melanoma as were individuals in the general U.S. population.

Parkinson's disease patients had an age-adjusted relative risk for melanoma that was 10.6 times higher than that of individuals who participated in the voluntary, free skin cancer screening programs that were sponsored by the American Academy of Dermatology during 1985-1999, he said. After adjustment for gender alone, melanoma was 8.3 times more likely to occur in patients with Parkinson's disease than in AAD screening program participants.

In Dr. Bertoni's current study, melanoma was significantly associated with more severe Parkinson's disease, older age, and the presence of a greater number of risk factors for melanoma. Most patients (85%) were currently using or had used levodopa, but use of the drug, or any other dopaminergic agent, was not significantly associated with an increased incidence of melanoma.

There are no clear reasons for what might be driving an increased risk of melanoma in Parkinson's disease patients, Dr. Bertoni said. ■