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Childhood sun exposure influences risk of multiple sclerosis in monozygotic twins

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Objective: To address the role of childhood sun exposure on the risk of multiple sclerosis (MS) after controlling for genetic susceptibility, we investigated the association between sun exposure and MS comparing disease-discordant monozygotic (MZ) twins.

Method: Twins with MS were sought by yearly newspaper advertisements throughout North America from 1980 to 1992. Diagnosis was verified by updated medical documentation through 2005. This analysis was restricted to 79 disease- and exposure-discordant monozygotic twin pairs who had ranked themselves before 1993 in relation to each of nine childhood sun exposure activities. A sun exposure index (SI) was defined as the sum of those exposures for which one twin ranked higher than his or her co-twin. The SI difference within each twin pair was calculated by subtracting the SI value of the affected twin from the SI value of the unaffected twin (range -9 to +9). The results were then analyzed using conditional logistic models.

Result: Each of the nine sun exposure-related activities during childhood seemed to convey a strong protection against MS within MZ twin pairs. Depending on the activity, the odds ratio (OR) ranged from

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0.25 to 0.57. For example, the risk of subsequent MS was substantially lower (OR 0.40, 95% CI 0.19 to 0.83) for the twin who spent more time sunbathing in comparison with the co-twin. For each unit increase in SI, the relative risk of MS decreased by 25%.

Conclusion: Early sun avoidance seems to precede the diagnosis of multiple sclerosis (MS). This protective effect is independent of genetic susceptibility to MS.

Supplemental data at www.neurology.org

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