Finasteride and Dutasteride May Reduce Melanoma Risk

Malignant melanoma is an androgen-dependent tumor.[1] Androgen blockade enhances response to the melanoma vaccine.[2] In their study, Zhang et al reported that a history of teenage acne in women may be a novel risk factor for melanoma independent of other risk factors.[3]

Acne in women is related to androgens and can be treated with finasteride.[4] Both finasteride and dutasteride prevent the conversion of testosterone to its tissue-active form, dihydrotestosterone, by inhibiting the enzyme 5-alpha reductase.[5,6] Dutasteride inhibits both isoforms of the enzyme, whereas finasteride inhibits only one.

A personal history of prostate cancer increases the risk of melanoma.[7] An analysis of Surveillance, Epidemiology, and End Results multiple primary standardized incidence ratios indicates that in white men aged $\geq$60 years with a benign or malignant prostate tumor, the observed-to-expected risk of subsequent melanoma was 1.20 in 1984 through 1989, 1.22 ($P < .05$) in 1990 through 1994, 1.12 ($P < .05$) in 1995 through 1999, 1.06 in 2000 through 2004, 1.02 in 2005 through 2009, and 1.02 in 2010 and beyond.

The US Food and Drug Administration approved finasteride for sale in the United States in 1992 and dutasteride in 2001. Finasteride and dutasteride are widely prescribed for the treatment of benign prostatic hyperplasia. The use of these drugs may be associated with the decline in the risk of melanoma following prostate cancer that has been observed since 1984.

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REFERENCES

1. Rampen FH, Mulder JH. Malignant melanoma: an androgen-dependent tumour? *Lancet*. 1980;1(8168 pt 1):562-564.
2. Hsueh EC, Gupta RK, Lefor A, Reyzin G, Ye W, Morton DL. Androgen blockade enhances response to melanoma vaccine. *J Surg Res*. 2003;110:393-398.
3. Zhang M, Qureshi AA, Fortner RT, et al. Teenage acne and cancer risk in US women: a prospective cohort study. *Cancer*. 2015;121:1681-1687.
4. Kohler C, Tschumi K, Bodmer C, Schneiter M, Birkhaeuser M. Effect of finasteride 5 mg (Proscar) on acne and alopecia in female patients with normal serum levels of free testosterone. *Gynecol Endocrinol*. 2007;23:142-145.
5. Gormley GJ, Stoner E, Bruskewitz RC, et al. The effect of finasteride in men with benign prostatic hyperplasia. The Finasteride Study Group. *N Engl J Med*. 1992;327:1185-1191.
6. Roehrborn CG, Boyle P, Nickel JC, Hoefner K, Andriole G; ARIA3001 ARIA3002 and ARIA3003 Study Investigators. Efficacy and safety of a dual inhibitor of 5-alpha-reductase types 1 and 2 (dutasteride) in men with benign prostatic hyperplasia. *Urology*. 2002;60:434-441.
7. Li WQ, Qureshi AA, Ma J, et al. Personal history of prostate cancer and increased risk of incident melanoma in the United States. *J Clin Oncol*. 2013;31:4394-4399.

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