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Abstract

Body mass index, height and early-onset basal cell carcinoma in a case-control study

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Background

Basal cell carcinoma (BCC) is the most common malignancy in the US. Body mass index (BMI) and height have been associated with a variety of cancer types, yet the evidence regarding BCC is limited. Therefore, we evaluated BMI and height in relation to early-onset BCC and explored the potential role of ultraviolet (UV) radiation exposure as well as estrogen-related exposures in the BMI-BCC relationship.

Methods

BCC cases (n=377) diagnosed under age 40 were identified through a central dermatopathology facility in Connecticut. Control subjects (n=389) were randomly sampled from the same database and frequency matched to cases on age, gender, and biopsy site. Participants reported weight (usual adult and at age 18), adult height, sociodemographic, phenotypic, and medical characteristics, and prior UV exposures. We calculated multivariate odds ratios (ORs) and 95% confidence intervals (CIs) using unconditional logistic regression models.

Results

Adult BMI was inversely associated with early-onset BCC (obese vs. normal OR=0.43, 95% CI=0.26-0.71). A similar inverse association was present for BMI at age 18 (OR=0.54, 95% CI=0.34-0.85). Excluding UV exposures from the BMI models and including estrogen-related exposures among females only did not alter the association between BMI and BCC, indicating limited mediation or confounding. We did not observe an association between adult height and BCC (OR per cm=1.00, 95% CI=0.98-1.02).

Conclusion

We found a significant inverse association between BMI and early-onset BCC, but no association between height and BCC. This association was not explained by UV exposures in this population or estrogen-related exposures among only the females.