Title

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Abstract

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Background
Cutaneous beta-human papillomavirus (HPV) infection and telomere length have both been associated with cutaneous squamous cell carcinoma (SCC). We examined the interaction between telomere length and beta-HPV in association with SCC.

Methods
A subset of SCC cases and controls, enrolled in a previously conducted case-control study (2007-2008) at the University of South Florida and Moffitt Cancer Center, for whom data was available on telomere length and a) beta-HPV serology (135 cases and 201 controls), b) beta-HPV DNA in eyebrow hairs (EB) (130 SCC cases and 195 controls) and c) beta-HPV DNA in SCC tumors (117 cases), were included in the present analyses. Association between telomere length and SCC, stratified by HPV status, was examined using logistic regression and, odds ratios (ORs) and 95% confidence intervals (CIs) were estimated.

Results
Using short telomere length (T/S<=1.08) and HPV seronegativity as a reference, the association between long telomere and SCC was found to vary by HPV serostatus, with a stronger inverse association seen among subjects with seronegativity to multiple beta-1 HPV infections (OR $_{\text{long telomere and multiple beta-1 HPV seronegativity}}$ = 0.02, 95% CI=0.002- 0.17; OR=0.27 $_{\text{long telomere and multiple beta-1 HPV seropositivity}}$, 95% CI=0.14- 0.51).   Long telomere was inversely associated with SCC (OR=0.38, 95% CI=0.25-0.58) among subjects who were EB DNA positive for multiple beta-2 HPV types, with the association being stronger among those with EB DNA negativity for multiple beta-2 HPV infections (OR=0.03, 95% CI=0.01- 0.12).

Conclusion
Cutaneous HPV infection may modify the association between telomere length and SCC.