

TMJ Blogs

Does Herpes simplex virus (HSV) cause BCC?

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A staff member at the Tasman Medical Journal recounts having a solar-activated cold sore (presumed HSV infection) at the same site on the forehead over many years. One year the lesion returned in spring as usual but its evolution differed from previous years. The herpetic crusting resolved but a patch of erythema remained at the site. It was eventually biopsied and was shown to be a basal cell carcinoma which was resected. The solar keratosis has not returned since, over a period of about 30 years.

Viruses including HSV cause or are strongly associated with a variety of human cancers (see table):

| Viruses | Recognised tumour sites |
|---|---|
| HSV | Cervix, vulva |
| Human papilloma virus (HPV) | Skin (papilloma), cervix, penis, anus, vagina, vulva, mouth, throat |
| Epstein-Barr virus (EBV) | Nasopharynx, lymph, stomach |
| Hepatitis B and C | Liver |
| Human immunodeficiency virus (HIV) | Skin, GI tract (Kaposi sarcoma), cervix, anus, lung, liver |
| Herpes virus 8 (Kaposi sarcoma-associated herpes virus) | Skin, GI tract (Kaposi sarcoma) |
| Human T-lymphotropic virus-1 | Blood (T-cell leukemia) |
| Merkel cell polyomavirus (MCV) | Skin (Merkel cell carcinoma) |

Efforts have been made to detect viral DNA in non-melanotic skin cancers using polymerase chain reaction (PCR) methodology. Zaravinos and colleagues studied the presence of HPV, cytomegalovirus (CMV), HSV and EBV in 53 biopsy samples collected from immunocompetent patients. The incidence of each viral species was:

HPV: 8 of 26 (31%) in actinic keratosis (AK); CMV: 12 of 53 (23%); 6 of 15 (40%) in BCC specimens; 2 of 26 (8%) in AK and 4 of 12 (33%) in squamous cell carcinoma (SCC). No normal skin biopsy was found to be positive for CMV. All cutaneous samples were negative for HSV and EBV DNA, as assessed by our PCR-based assays. One AK (4%), one basal cell carcinoma (BCC) (6%) and one SCC (8%), were found to carry a G>T transversion at the second position of HRAS codon 12.

Thus the scientific evidence that HSV causes BCC is weak. Our staff member was obviously unlucky!

Reference

Zaravinos A, Kanellou P, Spandidos DA. Viral DNA detection and RAS mutations in actinic keratosis and nonmelanoma skin cancers. *Br J Dermatol* 2010; 162: 325-31. DOI: 10.1111/j.1365-2133.2009.09480.x

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