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Abstract

Human papillomavirus infection and squamous cell carcinoma in organ transplant recipients

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Organ transplant recipients (OTR) have an increased risk of developing squamous cell carcinomas (SCC). SCC are usually associated with multiple warts and premalignant keratoses. This cohort study investigated the predictive effect of infection with beta papillomaviruses (betaPV) with the later development of cutaneous SCC.

In an earlier prospective and case-control study, eyebrow hairs and sera of 743 OTR transplanted before 2003 were collected. BetaPV DNA was determined in eyebrow hairs and betaPV antibodies in sera. The OTR were followed-up for a maximum of 12 years. Hazard ratio (HR) were calculated with Cox proportional hazard analysis.

The age and sex adjusted HR to develop SCC being betaPV-DNA positive for at least 5 betaPV types was 1.6 (95%CI 1.2 - 2.2) and for the presence of antibodies against betaPV 1.4 (95%CI 1.0 – 1.8). BetaPV serological responses can be against one or more betaPV types which are present (concordant response) or are not present (discordant response) in the eyebrow hairs. The HR to develop SCC having a concordant response was 1.5 (95%CI 1.1 – 2.1) and having a discordant response 1.0 (95%CI 0.67 – 1.5) compared to patients with a negative serological response.

The presence of betaPV DNA in eyebrow hairs and a concordant antibody response to these betaPV types are predictive for the later development of cutaneous SCC in OTR. This finding suggests that infection with betaPV plays a role in SCC carcinogenesis.