Abstract:

Human polyomaviruses in psoriasis patients on biologic treatment

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Background: Biologic therapy poses a higher risk of viral infection for patients, however current knowledge of human polyomavirus infection in psoriasis patients is still

limited. In this study, we evaluate the prevalence of BK polyomavirus (BKPyV), JC polyomavirus (JCPyV) and Merkel cell polyomavirus (MCPyV) in the group of psoriasis patients treated with biologics or topical therapy.

Methods: A total of 267 patients were screened for the presence of polyomavirus DNA by qPCR and polyomavirus-specific antibodies by ELISAs. Of these, 110 (41.2%) were treated with topical therapy, 84 (31.5%) with anti-TNF- α therapy, 31 (11.6%) with anti-IL-12/23 therapy and 42 (15.7%) with anti-IL-17 therapy for at least 6 months.

Results: None of the sera tested were positive for BKPyV and JCPyV DNA and the presence and level of antibodies were comparable in all patients' groups. On the other hand, we found a statistically significantly higher prevalence of genital MCPyV infection in all groups of patients on biological therapy (46.4% for anti-TNF-α, 35.5% for anti-IL-12/23 and 42.9% for anti-IL-17) compared to patients on topical therapy (24.5%). The prevalence of oral MCPyV infection was slightly higher in the groups with topical and anti-TNF-α therapy (31.8% and 34.5%, respectively) compared to patients on anti-IL-12/23 and anti-IL-17 therapy (19.4% and 26.1%, respectively), but without statistical significance. The seroprevalence were almost identical in all tested groups.

Conclusions: Our results indicate that biologic therapy is not associated with BKPyV and JCPyV reactivation and risk of associated diseases. The MCPyV persistence and shedding in the genital location might be enhanced by decreasing of inflammatory cytokine levels and immune response by biological therapy.