TORQUE TENO VIRUS INFECTION AMONG PSORIASIS PATIENTS ON BIOLOGIC THERAPY

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Torque teno virus (TTV) is a ubiquitous member of the healthy human virome with broad tissue tropism. TTV can induce chronic active infection without clinical manifestations. Although little is known about the life cycle of the virus, it is clear that infection and replication of the virus are controlled by the host immune system. The plasma viral load reflects the immune status, and the viral load is higher in patients with immune dysfunction compared to healthy individuals. For this reason, monitoring TTV viremia by qPCR is widely accepted as a marker of the immune function in infected subjects.

The aim of this study was to evaluate the effect of different biologic treatments with specific immune targets on TTV prevalence and load in blood and oral lavage in psoriasis patients.

Blood samples and oral lavages from 246 psoriasis patients aged 18-65 years were tested. Of these, 105 (42.7 %) were treated with topical therapy, 71 (28.9 %) with anti-TNF-α, 28 (11.4 %) with anti-IL-12/23, and 42 (17.1 %) with anti-IL-17 therapy for at least 6 months. TTV was detected and quantified by qPCR.

TTV in blood was present in 73.6% (181/246) of samples with a mean DNA load of 3.7 log copies/ml. The differences between groups of patients with different psoriasis treatments were detected; TTV infection was present in 74.3% of patients receiving topical therapy, 80.3% of patients on anti-TNF-α, 60.7% of patients on anti-IL-12/23, and 69.0% of patients on anti-IL-17 therapy. TTV load was significantly higher in patients receiving anti-TNF-α therapy compared to individuals with topical therapy ($p=0.023$). Compared to blood, in oral lavages, TTV was more prevalent in patients receiving topical therapy (80.0%), in patients on anti-TNF-α (93.0%), and on anti-IL-17 therapy (88.1%). While in patients on anti-IL-12/23 therapy, the prevalence in oral lavages was comparable in both types of samples. Viral load, as measured by viral copy number to the amount of DNA, was significantly higher in patients who received anti-TNF-α ($p=0.041$) and anti-IL-17 therapy ($p=0.031$).

The study demonstrated the differences between the prevalence and mean value of TTV DNA in blood and oral lavages. Increased TTV viremia and oral viral load were found in psoriasis patients treated with anti-TNF-α, providing a basis for prospective investigation of the potential value of TTV load as a pharmacodynamic biomarker.

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