^{31st Annual Congress on Vaccines, Clinical Trials & B2B}

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11th International Conference on

Virology and Microbiology

July 27-28, 2018 | Vancouver, Canada

Merkel cell polyomavirus DNA sequences in the blood of healthy population of Pakistan

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Merkel cell polyomavirus (MCPyV) is a small oncovirus, associated with Merkel cell carcinoma, an aggressive skin cancer. Recently, a high percentage of MCPyV antibodies in the general population beaconed the ubiquitous nature of the virus. Likewise, MCPyV DNA sequences have been described in different anatomical sites of both healthy and diseased individuals, worldwide. However, data regarding the prevalence and genotype of MCPyV in Pakistani population is lacking. Therefore, the present study aimed at detecting and quantifying the viral loads of MCPyV in the peripheral blood of a randomly selected cohort of healthy Pakistani population. A total of 266 whole blood samples were examined. The subjects were divided into three age groups: ≤ 25 years (young), 26–50 years (middle) and ≥51 years (elder). QRT-PCR assay was designed to quantify the MCPyV viral copy numbers in the range of 106 to 10 copies/mL. Phylogenetic analyses were performed on the basis of partial sequences of the gene encoding large T antigen (LT). Overall, MCPy DNA has detected in 35.7 % (95/266) individuals. The MCPyV positivity rate significantly increased from 20% (17/85) in the young age group to 59% (57/96) elder age groups. The MCPyV median viral load was calculated as 3.38 log copies/mL of blood. Notably, no significant difference was observed in the viral load of MCPyV among different age groups. The partial sequences of LT gene (nt 1709-1846), obtained in this study, showed 100% homology with the MKL-1 prototype strain of MCPyV. Conclusively, this premier study on MCPyV in Pakistan provides an important baseline data on the prevalence, viral load, and genotype of circulating MCPyV in Pakistani population. Furthermore, our results demonstrated that blood cells of immune competent individuals can be a target site of latency for MCPyV and might act as vehicles for the spread of MCPyV.

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