***Post-mortem* detection of human rhinovirus and other respiratory viruses in human lymphoid tissues: a persisting virome?**

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ABSTRACT

Rhinovirus (RV) is the common cold etiological agent, the most frequent acute respiratory infection (ARI) in mankind. RV can be detected in tonsillar tissues and nasopharyngeal secretions from patients with chronic adenotonsillar disease, in the absence of ARI symptoms. As previously determined by our group, the main cell phenotypes infected by RV in tonsils were reticular epithelial cells, $CD4^+$T and $CD20^+$B lymphocytes. In the present study we investigated whether RV and other respiratory viruses infect other human lymphoid tissues, and the immunophenotypes of the infected lymphomononuclear cells. The tissues were palatine tonsils, cervical and mediastinal lymph nodes, spleen, Peyer's patches, and bone marrow obtained post mortem during 21 autopsies from adults (13 men) aged 40-84 years (median 63 years) who died of causes unrelated to ARI. We found that tissues from 62% were positive for at least one of the respiratory viruses tested by RT-PCR. The most frequent virus was RV (38%), followed by influenza A (25%), respiratory syncytial virus A (25%) and B (6.25%), enteroviruses (12.5%), and metapneumovirus (6.25%). Immunohistochemistry revealed positivity for RV capsid protein VP1 in the palatine tonsil, cervical and mediastinal lymph nodes, and spleen. Infectious RV was recovered from lymphoid tissues positive for RV by RT-PCR. The main infected cell phenotypes were T and B lymphocytes. Therefore, we studied the virus-cell interaction of T and B lymphocyte cell lines infected in vitro with RV. We confirmed the susceptibility of T and B lymphocyte cell lineages Jurkat and Jeko to RV-16. RV-16-infected B cells were positive for VP2 protein labeling, double-stranded RNA evidence of viral replication, increase in virus genomic RNA by qRT-PCR, and increased expression of IL-10 mRNA, without affecting the cell viability. In vitro infection of B lymphocytes by RV was productive and induced increased expression of the anti-inflammatory cytokine IL-10 at 48 hours post-infection. Different respiratory viruses may infect and probably persist in diverse human lympho-hematopoietic tissues, what may have unforeseen effects in the virus-host interaction especially regarding the immune system.