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LETTER

SARS-CoV-2 as possible inducer of viral reactivations

Dear Editor,

We read with real interest the article by Dursun et al describing a significant increase in Pityriasis rosea (PR) patients during Coronavirus Disease 2019 (COVID-19) pandemic.[1] We agree with the authors who stated that PR is associated with reactivation of human herpesvirus (HHV)-6 and HHV-7 and that one of the factors causing herpes virus reactivation could be the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)[1] the causative agent of COVID-19. We would like to make some observations suggesting an underlying pathogenetic mechanism.

Indeed, many studies established a causal role for systemic active HHV-6 and/or HHV-7 reactivation in the pathogenesis of PR, based on detection of their DNA in plasma of PR patients, expression of mRNA and specific viral antigens in PR lesions and detection by electron microscopy of HHV virions in various stages of morphogenesis in PR lesions and in supernatant of co-cultured peripheral blood mononuclear cells from PR patients, all markers of systemic active infection.[2-5] In addition, in PR there is also evidence that HHV-7 operates as a primer providing the reactivation of latent HHV-6; once reactivated, latent HHV-6 genomes may predominate, leading HHV-7 to disappear or preventing its detection by PCR or serology.[6] This is a clear example of how a viral infection may have a transactivating function allowing another (latent) virus to reactivate. Other examples of viruses interacting with other viruses in causing acute illnesses are available, namely HHV-6 with Epstein Barr virus (EBV), HHV-6 with Cytomegalovirus (CMV), HHV-6A with HHV-6B, HHV-1 or HHV-6 with human immunodeficiency virus (HIV)-1, HHV-6 with human papillomavirus (HPV) and so on.[7]

Likewise, to explain the increased number of patients with PR observed by Dursun et al during COVID-19 pandemic,[1] we can speculate that SARS-CoV-2 acts as a transactivator agent triggering HHV-6/7 reactivation and causing, thereby indirectly, PR clinical manifestation.

Through the same pathogenetic mechanism, SARS-CoV-2 could have induced EBV reactivation in a very recently described case of diffuse papulo-squamous eruption in a man with COVID-19 in whom a nasopharingeal swab for PCR confirmed the SARS-CoV-2 infection and PCR on blood revealed EBV active replication. Importantly, PCR for SARS-CoV-2 on a fresh skin biopsy specimen of the same patient proved negative.[8]

Likewise, SARS-CoV-2 infection may trigger the reactivation from latency of varicella-zoster virus, explaining the higher number of cases of herpes zoster observed in SARS-CoV-2 patients by Spanish dermatologists.[9]

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Giulia Ciccarese and Francesco Drago: Have made substantial contributions to conception and design, acquisition of data, analysis and interpretation of data; Giulia Ciccarese and Francesco Drago: Been involved in drafting the manuscript or revising it critically for important intellectual content; Giulia Ciccarese, Francesco Drago, and Aurora Parodi: Given final approval of the version to be published. Each author have participated sufficiently in the work to take public responsibility for appropriate portions of the content; Giulia Ciccarese, Francesco Drago, and Aurora Parodi: Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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